

REPORT 2005

INTERNATIONAL UNION OF THEORETICAL AND
APPLIED MECHANICS

REPORT 2005



Eindhoven University of Technology
THE NETHERLANDS

Edited by D.H. van Campen and W.P.J.M. van den Oever
Printed in The Netherlands by
Printing Office, Eindhoven University of Technology
ISBN-10: 90-386-2738-6
ISBN-13: 978-90-386-2738-0

Contents

Bureau: Officers and Members	1
Secretariat	1
Past Officers	1
Past Congress Presidents	2
Adhering Organizations	3
Affiliated Organizations	13
Members of the General Assembly	18
Observers to the General Assembly	21
Members of the Congress Committee	22
Members of the Symposia Panels	23
Members of the Working Parties	23
Donations in 2005	24
IUTAM Representation in ICSU and its Scientific Committees	24
Reports of IUTAM Symposia held in 2005	25
05-1 IUTAM Symposium on Multiscale Modelling of Damage and Fracture Processes in Composite Materials	25
05-2 IUTAM Symposium on Mechanical Behavior and Micro-mechanics of Nanostructured Materials	30
05-3 IUTAM Symposium on Impact Biomechanics - From Fundamental Insights to Applications	33
05-4 IUTAM Symposium on Vibration Control of Nonlinear Mechanisms and Structures	38
05-5 IUTAM Symposium on Topological Design Optimization of Structures, Machines and Materials - Status and Perspectives	42
Report of the IUTAM Summer School held in 2005	47
Report on the IUTAM - CISM Summer School on Dispersion of Particles in Turbulent Flows	47
Reports of the IUTAM Working Parties	49
WP-1 - Non-Newtonian Fluid Mechanics and Rheology	49
WP-2 - Dynamical Systems and Mechatronics	49
WP-3 - Mechanics of Materials	49
WP-4 - Materials Processing	49
WP-5 - Computational Fluid and Solid Mechanics	49
WP-6 - Biomechanics	51
WP-7 - Nano- and Micro-Scale Phenomena in Mechanics	52
WP-8 - Geophysical and Environmental Mechanics	58
WP-9 - Education in Mechanics and Capacity Building	59
2005 Treasurer's Report	61
Reports on Affiliated Organizations	67
AFMC (Asian Fluid Mechanics Committee)	67
CACOFD/LACCOTAM	67

CISM (International Centre for Mechanical Sciences).....	68
EUROMECH (European Mechanics Society).....	70
HYDROMAG (International Association for Hydromagnetic Phenomena and Applications).....	72
IABEM (International Association for Boundary Element Methods).....	73
IACM (International Association for Computational Mechanics).....	73
IAVSD (International Association for Vehicle Systems Dynamics).....	74
ICA (International Commission for Acoustics).....	75
ICF (International Congress on Fracture).....	76
ICHMT (International Centre for Heat and Mass Transfer).....	76
ICM (International Congress on the Mechanical Behaviour of Materials).....	77
ICR (International Committee on Rheology).....	78
ICTS (International Congresses on Thermal Stresses).....	78
IAV (International Institute of Acoustics and Vibration).....	79
ISIMM (International Society for the Interaction of Mechanics and Mathematics)....	81
ISSMO (Int. Society for Structural and Multidisciplinary Optimization).....	86
ICSU (International Council for Science).....	87
COSPAR (Committee on Space Research).....	90
SCOPE (Scientific Committee on Problems of the Environment).....	91
SCOR (Scientific Committee on Oceanic Research).....	91
Agreement by and between IUTAM and Springer Science and Business Media B.V.	92
Statutes.....	96
Statuts de l'Union Internationale de Mécanique Théorique et Appliquée.....	96
Règles de fonctionnement du Comité des Congrès de l'Union.....	100
Procédés pour l'élection du Bureau de l'IUTAM *****.....	101
Procédure pour l'élection de membres cooptés par l'Assemblée Générale*****	102
Statutes of the International Union of Theoretical and Applied Mechanics.....	103
Rules of procedure for the Congress Committee of IUTAM.....	107
Procedure for election of the Bureau of IUTAM*****.....	108
Procedure for electing Members-at-Large of the General Assembly*****.....	109
List of Publications.....	110
Proceedings of IUTAM Symposia.....	111
Proceedings of the International Congresses on Theoretical and Applied Mechanics (ICTAM).....	125
Publications on the history of IUTAM.....	128
List of Addresses.....	129

Bureau: Officers and Members

The following members of the Bureau of IUTAM have been elected for the period 1 November 2004 to 31 October 2008:

Officers

Professor L.B.Freund (USA)	President
Professor H.K. Moffatt (UK)	Vice-President
Professor J. Engelbrecht (Estonia)	Treasurer
Professor D.H. van Campen (Netherlands)	Secretary-General

Members

Professor T. Kambe (Japan)	(2004)
Professor A. Kluwick (Austria)	(2004)
Professor N. Olhoff (Denmark)	(2004)
Professor Z. Zheng (China)	(2004)

Secretariat

IUTAM-Secretariat, Department of Mechanical Engineering,
Eindhoven University of Technology, 5600 MB Eindhoven, The Netherlands
Telephone: +31 40 247 2710, Telefax: +31 40 243 7175
E-mail: sg@iutam.net
Internet: <http://www.iutam.net> or <http://www.iutam.org> or <http://www.iutam.info>

Past Officers

<i>Elected</i>	<i>President</i>	<i>Vice-President</i>	<i>Treasurer</i>	<i>Secretary</i>
1948	J. Péres (France)	R.V. Southwell (UK)	H.L. Dryden (USA)	J.M. Burgers (Netherlands)
1952	H.L. Dryden (USA)	J. Péres (France)	G. Temple (UK)	F.A. v. d. Dungen (Belgium)
1956	F.K.G. Odqvist (Sweden)	H.L. Dryden (USA)	G. Temple (UK)	M. Roy (France)
1960	G. Temple (UK)	F.K.G. Odqvist (Sweden)	W.T. Koiter (Netherlands)	M. Roy (France)
1964	M. Roy (France)	G. Temple (UK)	W.T. Koiter (Netherlands)	H. Görtler (Germany)
1968	W.T. Koiter (Netherlands)	M. Roy (France)	H. Görtler (Germany)	F.I. Niordson (Denmark)
1972	H. Görtler (Germany)	W.T. Koiter (Netherlands)	D.C. Drucker (USA)	F.I. Niordson (Denmark)

1976	F.I. Niordson (Denmark)	H. Görtler (Germany)	D.C. Drucker (USA)	J. Hult (Sweden)
1980	D.C. Drucker (USA)	F.I. Niordson (Denmark)	E. Becker (Germany)	J. Hult (Sweden)
1984	J. Lighthill (UK)	D.C. Drucker (USA)	L.v. Wijngaarden (Netherlands)	W. Schiehlen (Germany)
1988	P. Germain (France)	J. Lighthill (UK)	L.v. Wijngaarden (Netherlands)	W. Schiehlen (Germany)
1992	L.v. Wijngaarden (Netherlands)	P. Germain (France)	B.A. Boley (USA)	F. Ziegler (Austria)
1996	W. Schiehlen (Germany)	L.v. Wijngaarden (Netherlands)	L.B. Freund (USA)	M.A. Hayes (Ireland)
2000	H.K. Moffatt (UK)	W. Schiehlen (Germany)	L.B. Freund (USA)	D.H. van Campen (Netherlands)
2004	L.B. Freund (USA)	H.K. Moffatt (UK)	J. Engelbrecht (Estonia)	D.H. van Campen (Netherlands)

Past Congress Presidents

<i>Nr.</i>	<i>Year</i>	<i>Place</i>	<i>Congress-President</i>
1	1924	Delft, The Netherlands	C.B. Biezeno
2	1926	Zürich, Switzerland	E. Meissner
3	1930	Stockholm, Sweden	A.F. Enström
4	1934	Cambridge, UK	C.E. Inglis
5	1938	Cambridge, USA	K.T. Compton
6	1946	Paris, France	H. Villat
7	1948	London, UK	R.V. Southwell
8	1952	Istanbul, Turkey	K. Erim
9	1956	Brussels, Belgium	F.H. van den Dungen
10	1960	Stresa, Italy	G. Colonnetti
11	1964	Munich, Germany	H. Görtler
12	1968	Stanford, USA	N.J. Hoff
13	1972	Moscow, USSR	N.I. Muskhelishvili
14	1976	Delft, The Netherlands	W.T. Koiter
15	1980	Toronto, Canada	F.P.J. Rimrott
16	1984	Lyngby, Denmark	F. Niordson
17	1988	Grenoble, France	P. Germain and M. Piau
18	1992	Haifa, Israel	J. Singer
19	1996	Kyoto, Japan	T. Tatsumi
20	2000	Chicago, USA	H. Aref
21	2004	Warsaw, Poland	W. Gutkowski

Adhering Organizations

Argentina (1959)

Asociacion Argentina de Mecanica Computacional
Güemes 3450, 3000 Santa Fe
President/Chair: Dr. S. R. (Sergio) Idelsohn
Contact: Dr. S. R. (Sergio) Idelsohn
Representatives in IUTAM: Dr. S. R. (Sergio) Idelsohn

Australia (1964)

The Australian National Committee for Theoretical and Applied Mechanics of the
Australian Academy of Sciences
GPO Box 783, Canberra City, ACT 260
President/Chair: Prof. N. (Nhan) Phan-Thien
Contact: Prof. N. (Nhan) Phan-Thien
Representatives in IUTAM: Prof. N. (Nhan) Phan-Thien, Prof. R.I. (Roger) Tanner

Austria (1951)

Austrian National Committee for Theoretical and Applied Mechanics of the Austrian
Academy of Sciences
Dr.-Ignaz-Seipel-Platz 2, A-1010 Wien
President/Chair: Prof. H. (Hans) Troger
Contact: Prof. A. (Alfred) Kluwick
Representatives in IUTAM: Prof. A. (Alfred) Kluwick

Belgium (1949)

The National Committee for Theoretical and Applied Mechanics of the Royal Academies
for Science and Arts of Belgium
Hertogsstraat 1, B-1000 Brussels
Secretary: Prof. Roland Decuypere
President/Chair: Prof. P. (Philippe) Boulanger
Contact: Prof. R. (Roland) Keunings
Representatives in IUTAM: Prof. P. (Philippe) Boulanger, Prof. E. (Erik) Dick,
Prof. D.V.H. (Dirk) Vandepitte

Brazil (1982)

Associação Brasileira de Ciências Mecânicas
Avenida Rio Branco 124/18° andar, 20040-001 Rio de Janeiro
President/Chair: Prof. L. (Leonardo) Goldstein Junior
Contact: Prof. L. (Luiz) Bevilacqua
Representatives in IUTAM: Prof. L. (Luiz) Bevilacqua

Bulgaria (1969)

Bulgarian National Committee on Theoretical and Applied Mechanics of the Bulgarian Academy of Sciences

1, 15 novembre str., BG-1040 Sofia

President/Chair: Prof. A. (Anguel) Baltov

Secretary: Dr. E. (Evtim) Ttoshev

Contact: Prof. A. (Anguel) Baltov

Representatives in IUTAM: Prof. A. (Anguel) Baltov

Canada (1963)

The National Research Council of Canada,

Montreal Road, Ottawa, Canada K1A 0R6

National Committee for IUTAM

President/Chair: Prof. S.B. (Stuart) Savage

Contact: Prof. S.B. (Stuart) Savage

Representatives in IUTAM: Prof. J. (Jorn) Hansen, Prof. S.B. (Stuart) Savage,

Prof. D. (David) Weaver, Prof. J.W. (Jean) Zu

Chile (1996)

The Chile National Committee on Theoretical and Applied Mechanics Academia Chilena de Ciencias

Almirante Montt 454, Santiago, Chile

President/Chair: Dr. F. (Francisco) Rothhammer Engel

Secretary: Dr. T. (Tito) Ureta Aravena

Contact: Prof. F. (Fernando) Lund

Representatives in IUTAM: Prof. F. (Fernando) Lund

China (1980)

The Chinese Society of Theoretical and Applied Mechanics

15 Zhong Guan Cun Road, Beijing 100080

President/Chair: Prof. E. (Er-jie) Cui

Contact: Prof. W. (Wei) Yang

Representatives in IUTAM: Prof. Y. (Yi-long) Bai, Prof. E. (Er-jie) Cui,

Prof. W. (Wei) Yang, Prof. Z. (Zhemin) Zheng

China-Hong Kong (1996)

The Hong Kong Society of Theoretical and Applied Mechanics (HKSTAM)

Department of Mechanical Engineering, Hong Kong University of Science and

Technology Clear Water Bay, Kowloon, HK

President/Chair: Prof. Q.P. (Qing-Ping) Sun

Secretary: Dr. Y.-K. (Yi-Kuen) Lee

Contact: Dr. Y.-K. (Yi-Kuen) Lee

Representatives in IUTAM: Prof. T.X. (Tongxi) Yu

China-Taipei (1980)

The Society of Theoretical and Applied Mechanics

Institute of Applied Mechanics, National Taiwan University, Taipei, Taiwan 106

President/Chair: Prof. T.-T. (Tsong-Tsong) Wu

Secretary: Prof. W.-F. (Wen-Fang) Wu

Contact: Prof. W.-F. (Wen-Fang) Wu

Representatives in IUTAM: Prof. C.-C. (Chien-Ching) Ma, Prof. W.-C. (Wei-Chung) Wang

Croatia (1994)

Croatian Society of Mechanics

Ivana Lucica 5, HR-10000 Zagreb, Croatia.

President/Chair: Prof. F. (Franjo) Matejcek

Contact: Prof. I. (Ivo) Alfircic

Representatives in IUTAM: Prof. I. (Ivo) Alfircic

Czech Republic (1993/1949)

The National Committee of Theoretical and Applied Mechanics

Academy of Sciences of the Czech Republic, Institute of Thermomechanics,

Dolejškova 5, CZ-18200 Prague 8

President/Chair: Dr. R. (Rudolf) Dvorák

Secretary: Prof. M. (Miloslav) Okrouhlik

Contact: Dr. R. (Rudolf) Dvorák

Representatives in IUTAM: Dr. R. (Rudolf) Dvorák

Denmark (1949)

National Committee for Theoretical & Applied Mechanics,

The Royal Danish Academy of Sciences and Letters, H.C. Andersens Boulevard 35,
DK-1553 Copenhagen V.

President: Prof. B. Munk Olsen

Secretary: Prof. Ole Hansen

Contact: Prof. N. (Niels) Olhoff

Representatives in IUTAM: Prof. N. (Niels) Olhoff, Prof. J.N. (Jens Nørkær) Sørensen

Egypt (1976)

Academy of Scientific Research and Technology

Egyptian Committee of Theoretical and Applied Mechanics, 101 Kasr El Eini Street,
Cairo, Egypt.

Secretary General: Prof. Z.Z. Momeh

President/Chair: Prof. M.K. (Mohamed) Ismail

Contact: Prof. M.K. (Mohamed) Ismail

Representatives in IUTAM: Prof. M.K. (Mohamed) Ismail

Estonia (1992)

Estonian Committee for Mechanics,
Akadeemia tee 21, EE-12618 Tallinn
President/Chair: Prof. J. (Juri) Engelbrecht
Contact: Prof. J. (Juri) Engelbrecht
Representatives in IUTAM: Prof. J. (Juri) Engelbrecht

Finland (1952)

The Finnish National Committee on Mechanics
Helsinki University of Technology, Att. Prof. Mauri Määttänen, P.O.Box 4300,
FIN-02015 TKK, Finland
President/Chair: Prof. M. (Mauri) Määttänen
Secretary: Prof. J. (Juha) Paavola
Contact: Prof. M. (Mauri) Määttänen
Representatives in IUTAM: Prof. M. (Mauri) Määttänen, Prof. J. (Juha) Paavola

France (1949)

Comité National Français de Mécanique, Académie des Sciences
23, quai Conti, F-75006 Paris
President/Chair: Prof. S. (Sébastien) Candel
Secretary: Prof. L. (Frederic) Dias
Contact: Prof. S. (Sébastien) Candel
Representatives in IUTAM: Prof. A. (Ahmed) Benallal, Prof. L. (Frederic) Dias,
Prof. S. (Stéphane) Zaleski, Prof. A. (Andre) Zaoui

Georgia (2000)

National Committee of Theoretical and Applied Mechanics
I. Vekua Institute of Applied Mathematics of Tbilisi State University, 2 University Str.,
Tbilisi 0143
Co-Chairman: Prof. G. (George) Jaiani, Prof. D. (Demuri) Danelia
Secretary-General: Prof. G. (Gela) Kipiani
President/Chair: Prof. G. (George) Jaiani
Contact: Prof. G. (George) Jaiani
Representatives in IUTAM: Prof. G. (George) Jaiani

Germany (1950)

Deutsches Komitee für Mechanik (DEKOMECH)
Hamburg University of Technology, Institute of Modelling and Computation,
Denickestraße 17, D-21073 Hamburg
President/Chair: Prof. P. (Paul) Steinmann
Secretary: Prof. O. (Otto) von Estorff
Contact: Prof. O. (Otto) von Estorff
Representatives in IUTAM: Prof. P. (Peter) Eberhard, Prof. C. (Christian) Miehe,
Prof. W. (Wolfgang) Schröder, Prof. A. (André) Thess

Greece (1979)

Hellenic Society for Theoretical and Applied Mechanics
National Technical University of Athens, Laboratory of Steel Structures,
42 Patisision street, GR-10682 Athens
President/Chair: Prof. A.N. (Anthony) Kounadis
Secretary: Prof. I. (Ioannis) Vardoulakis
Contact: Prof. D.E. (Dimitri) Beskos
Representatives in IUTAM: Prof. A.N. (Anthony) Kounadis

Hungary (1948)

Hungarian National Committee for IUTAM
Department of Structural Mechanics, Budapest University of Technology and
Economics, Műegyetem rkp. 3, H-1521 Budapest
President/Chair: Prof. S. (Sandor) Kaliszky
Secretary: Prof. G. (Gábor) Stépán
Contact: Prof. S. (Sandor) Kaliszky
Representatives in IUTAM: Prof. S. (Sandor) Kaliszky

India (1950)

National Committee for Theoretical and Applied Mechanics of the Indian National
Science Academy
Bahadur Shah Zafar Marg, New Delhi - 110 002
President/Chair: Prof. N.K. (Narinder) Gupta
Contact: Prof. N.K. (Narinder) Gupta
Representatives in IUTAM: Prof. G. (Gautam) Biswas, Prof. S.M. (Suresh) Deshpande,
Prof. N.K. (Narinder) Gupta

Ireland (1984)

Irish National Committee for Theoretical and Applied Mechanics
Royal Irish Academy, 19 Dawson Street, Dublin 2
President/Chair: Prof. P.E. (Padraic) O'Donoghue
Secretary: Dr. J.J. (James) Grannell
Contact: Prof. P.E. (Padraic) O'Donoghue
Representatives in IUTAM: Prof. P.E. (Padraic) O'Donoghue

Israel (1950)

The Israel Society of Theoretical and Applied Mechanics
Faculty of Mechanical Engineering, Technion-Israel Institute of Technology,
Haifa 32000
President/Chair: Prof. M.B. (Miles) Rubin
Contact: Prof. M.B. (Miles) Rubin
Representatives in IUTAM: Prof. I. (Isaac) Goldhirsch, Prof. M.B. (Miles) Rubin

Italy (1949)

Associazione Italiana di Meccanica Teorica ed Applicata

Piazza Leonardo da Vinci 32, I-20133 Milano

President/Chair: Prof. A. (Angelo) Morro

Secretary: Prof. C. (Carlo) Cinquini

Contact: Prof. A. (Angelo) Morro

Representatives in IUTAM: Prof. C. (Carlo) Cercignani, Prof. G. (Giulio) Maier,

Prof. P. (Paolo) Podio-Guidugli, Prof. F. (Furio) Vatta

Japan (1951)

The National Committee for Theoretical and Applied Mechanics

Science Council of Japan, 7- 22-34 Roppongi, Minato-ku, Tokyo 106-8555

President/Chair: Prof. K. (Koji) Uetani

Contact: Prof. T. (Tsutomu) Kambe

Representatives in IUTAM: Prof. T. (Tsutomu) Kambe, Prof. T. (Toshio) Kobayashi,

Prof. K. (Koji) Uetani, Prof. E. (Eiichi) Watanabe

Korea, Republic of (1989)

Korean Society of Theoretical and Applied Mechanics

Department of Aerospace Engineering, Seoul National University, Seoul 151-742

President/Chair: Prof. J.Y. (Jung Yul) Yoo

Secretary: Prof. S.J. (Seung Jo) Kim

Contact: Prof. S.J. (Seung Jo) Kim

Representatives in IUTAM: Prof. J.Y. (Jung Yul) Yoo

Latvia (1992)

Latvian National Committee for Mechanics

Latvian Academy of Sciences, Akademijas laukums 1, Riga LV-1524

President/Chair: Prof. V. (Vitauts) Tamuzs

Contact: Prof. V. (Vitauts) Tamuzs

Representatives in IUTAM: Prof. V. (Vitauts) Tamuzs

Netherlands (1952)

Netherlands Mechanics Committee

c/o Eindhoven University of Technology, Department of Mechanical Engineering,

P.O. Box 513. NL 5600 MB Eindhoven.

President/Chair: Prof. D.H. (Dick) van Campen

Contact: Prof. D.H. (Dick) van Campen

Representatives in IUTAM: Prof. R (René) de Borst, Prof. D.H. (Dick) van Campen,

Prof. A.A. (Anton) van Steenhoven

New Zealand (1979)

The Royal Society of New Zealand, Committee on Mathematical & Information Sciences

P.O. Box 598, Wellington

President: Dr. Jim Watson

Chief Executive Officer: Dr. S.C. Thompson

Contact: Dr. G. (Graham) Weir

Representatives in IUTAM: Dr. G. (Graham) Weir

Norway (1949)

National Committee on Theoretical and Applied Mechanics

Norwegian Acad. Sciences and Letters, Dept. of Maths, University of Oslo,

P.O.Box 1053, Blindern, N-0316 Oslo 3

President/Chair: Prof. B.N. (Bjorn) Gjevik

Contact: Prof. B.N. (Bjorn) Gjevik

Representatives in IUTAM: Prof. B.N. (Bjorn) Gjevik

Poland (1952)

Committee for Mechanics of the Polish Academy of Sciences

ul. Swietokrzyska 21, PL-00 049 Warszawa

President/Chair: Prof. A. (Andrzej) Styczek

Contact: Prof. W. (Witold) Gutkowski

Representatives in IUTAM: Prof. W. (Witold) Gutkowski, Prof. G. (Gwidon) Szefer

Portugal (1968)

Portuguese Society of Theoretical, Applied and Computational Mechanics

Laboratorio Nacional de Engenharia Civil, Avenida do Brasil 101, 1700-066 Lisboa

President/Chair: Prof. C.A. (Carlos) Mota Soares

Contact: Prof. J. A. C. (João) Martins

Representatives in IUTAM: Prof. J. A. C. (João) Martins

Romania (1956)

Romanian Academy, Department of Mathematics, Romanian National Committee of Theoretical and Applied Mechanics

Calea Victoriei 125, 71102 Bucharest, Romania

President/Chair: Prof. N.D. (Nicolai) Cristescu

Secretary: Dr. G. (Gabriela) Marinoschi

Contact: Prof. N.D. (Nicolai) Cristescu

Representatives in IUTAM: Prof. N.D. (Nicolai) Cristescu

Russia (1992/1956)

Russian National Committee on Theoretical and Applied Mechanics

Prospekt Vernadskogo 101 : 1, Moscow 119526

President/Chair: Prof. G.G. (Gorimir) Chernyi

Secretary: Prof. G.K. (Gleb) Mikhailov

Contact: Prof. G.K. (Gleb) Mikhailov

Representatives in IUTAM: Prof. G.G. (Gorimir) Chernyi, Prof. D.M. (Dmitry) Klimov,

Prof. G.K. (Gleb) Mikhailov, Prof. N.F. (Nikita) Morozov

Saudi Arabia (1988)

King Abdullaziz City for Science and Technology

Directorate of Technology and International Cooperation, P.O. Box 6086, Riyadh 11442

President/Chair: Dr. S.A. (Saleh) Al-Athel

Vice-President for Scientific Research: Dr. Abdullah A. Al-Rasheed

Vice-President for Research Institutes: Dr. Turki S.M. Al-Saud

Contact: Mr. F.S. (Fahad) Huraib

Representatives in IUTAM: Dr. S.A. (Saleh) Al-Athel

Serbia and Montenegro (2002/1952)

Yugoslav Society of Mechanics

Kneza Milosa 9/1, 11000 Belgrade

President/Chair: Prof. L.J. (Livija) Cveticanin

Secretary: Dr. D.M. (Dubravka) Mijuca

Contact: Prof. L.J. (Livija) Cveticanin

Representatives in IUTAM: Prof. L.J. (Livija) Cveticanin

Slovakia (1993)

The Slovak Society for Mechanics

Council of Scientific Societies, Stefánikova 49, SK-811 04 Bratislava

President/Chair: Prof. J. (Jozef) Brilla

Contact: Prof. J. (Jozef) Brilla

Representatives in IUTAM: Prof. J. (Jozef) Brilla

Slovenia (1994)

Slovene Mechanics Society, Faculty of Mechanical Engineering

University of Maribor, Smetanova 17, 2000 Maribor

President/Chair: Prof. L. (Leopold) Skerget

Secretary: Prof. J. (Jure) Marn

Contact: Prof. J. (Jure) Marn

Representatives in IUTAM: Prof. L. (Leopold) Skerget

South Africa (1994)

National Research Foundation (NRF), South African Association for Theoretical and Applied Mechanics (SAAM)

South African ICSU Secretariat, P.O. Box 2600, Pretoria 0001

President/Chair: Dr. I. (Igle) Gledhill

Contact: Prof. C.G. (Charl) du Toit

Representatives in IUTAM: Prof. C.G. (Charl) du Toit

Spain (1950)

Instituto Nacional de Tecnica Aeroespacial

Carretera de Ajalvir km. 4,00, Torrejón de Ardoz, 28850 Madrid

Contact: Mr. A. (Angel) Moratilla

Representatives in IUTAM: Mr. A. (Angel) Moratilla

Sweden (1950)

Swedish National Committee for Mechanics

Malmö University, SE-205 06 Malmö

President/Chair: Prof. P. (Per) Ståhle

Secretary: Prof. S. (Staffan) Lundström

Contact: Prof. S. (Staffan) Lundström

Representatives in IUTAM: Prof. A. (Anders) Boström, Prof. D. (Dan) Henningson, Prof. B. (Bengt) Lundberg

Switzerland (1950)

Board of the Federal Institutes of Technology (Rat der Eidgenössischen Technischen Hochschulen)

ETH-Zentrum, CH-8092 Zürich

President/Chair: Prof. A.J.B. (Alexander) Zehnder

Secretary: Dr. S. (Sebastian) Brändli

Contact: Prof. P.A. (Peter) Monkewitz

Representatives in IUTAM: Prof. J. (Jürg) Dual, Prof. P.A. (Peter) Monkewitz

Turkey (1977)

Turkish National Committee of Theoretical and Applied Mechanics

Istanbul Teknik Üniversitesi, Fen-Edebiyat Fakültesi, Maslak 80626 Istanbul

President/Chair: Prof. Y. (Yalcin) Aköz

Secretary: Prof. M.A. (Mehmet Ali) Tasdemir

Contact: Prof. M.A. (Mehmet Ali) Tasdemir

Representatives in IUTAM: Prof. E.S. (Erdogan) Suhubi

UK (1948)

The Royal Society, UK Panel for IUTAM

6 Carlton House Terrace, London SW1Y 5AG

President/Chair: Prof. B.L. (Bhushan) Karihaloo

Secretary: Prof. N. (Nigel) Peake

Contact: Prof. N. (Nigel) Peake

Representatives in IUTAM: Prof. P.W. (Peter) Carpenter,

Prof. B.L. (Bhushan) Karihaloo, Prof. N. (Nigel) Peake, Prof. T.J. (Timothy) Pedley

Ukraine (1995)

National Committee of Ukraine on Theoretical and Applied Mechanics

S.P.Timoshenko Institute of Mechanics, 3 Nesterov Str., Kyiv 03680

President/Chair: Prof. A.N. (Alexandr) Guz

Secretary: Prof. J.J. (Jeremiah) Rushchitsky

Contact: Prof. J.J. (Jeremiah) Rushchitsky

Representatives in IUTAM: Prof. A.N. (Alexandr) Guz

USA (1949)

The U.S. National Committee on Theoretical and Applied Mechanics

The National Academies, 500 Fifth Street NW, Washington, DC 20001

President/Chair: Prof. T. (Ted) Belytschko

Secretary: Prof. C.T. (Carl) Herakovich

Contact: Prof. C.T. (Carl) Herakovich

Representatives in IUTAM: Prof. H. (Hassan) Aref, Prof. T. (Ted) Belytschko,

Prof. C.T. (Carl) Herakovich, Prof. W.G. (Wolfgang) Knauss, Prof. L.G. (Gary) Leal

Viet Nam (1990)

Vietnamese Association of Mechanics (VAM)

Hoi Co Hoc Vietnam, 264 Doi Can, Hanoi

Secretary: Prof. Do Sanh

President/Chair: Prof. N. (Nguyen) Van Dao

Contact: Prof. N. (Nguyen) Van Dao

Representatives in IUTAM: Prof. N. (Nguyen) Van Dao

Affiliated Organizations

CISM (1970)

International Centre for Mechanical Sciences

Palazzo del Torso, Piazza Garibaldi, I-33100 Udine, Italy

Rectors of CISM: Prof. Giulio Maier (Resident Rector), Prof. Jean Salençon and Prof. Wilhelm Schneider

President/Chair: Prof. A.V. (Vinicio) Turello

Secretary: Prof. B.A. (Bernhard) Schrefler

Contact: Prof. B.A. (Bernhard) Schrefler

Representative of CISM in IUTAM: Prof. B.A. (Bernhard) Schrefler

Representative of IUTAM in CISM: Prof. L. (Leen) van Wijngaarden

Representative of CISM in IUTAM-CC: Prof. M.G. (Manuel) Velarde

ICHMT (1972)

International Centre for Heat and Mass Transfer

Mechanical Engineering Dept, Middle East Technical University, 06531 Ankara, Turkey

President/Chair: Prof. M. (Maurizio) Cumo

Secretary: Prof. F. (Faruk) Arinc

Contact: Prof. F. (Faruk) Arinc

Representative of ICHMT in IUTAM: Prof. F. (Faruk) Arinc

Representative of IUTAM in ICHMT: Dr. R. (Rudolf) Dvorák

ICR (1974)

International Committee on Rheology

President/Chair: Prof. J.C. (Jae Chun) Hyun

Secretary: Prof. M. (Manfred) Wagner

Contact: Prof. M. (Manfred) Wagner

Representative of ICR in IUTAM: Prof. L.G. (Gary) Leal

Representative of IUTAM in ICR: Prof. F. (Frithiof) Niordson

Representative of ICR in IUTAM-CC: Prof. L.G. (Gary) Leal

IAVSD (1977)

International Association for Vehicle System Dynamics

Prof. Michael Valásek, Department of Mechanics, Faculty of Mechanical Engineering,

Czech International University in Prague, Kalovo Nanesti 13, 121 35 Praha 2,

Czech Republic

President/Chair: Prof. H. (Hans) True

Secretary: Prof. M. (Michael) Valásek

Contact: Prof. M. (Michael) Valásek

Representative of IAVSD in IUTAM: Prof. P. (Peter) Lugner

Representative of IUTAM in IAVSD: Prof. W. (Werner) Schiehlen

EUROMECH (1978)

European Mechanics Society

University of Padova, Faculty of Engineering, Dipartimento di Costruzioni e Trasporti,
35131 Padova, Italy

President/Chair: Prof. P. (Patrick) Huerre

Secretary: Prof. B.A. (Bernhard) Schrefler

Contact: Prof. B.A. (Bernhard) Schrefler

Representative of EUROMECH in IUTAM: Prof. P. (Patrick) Huerre

Representative of IUTAM in EUROMECH: Prof. T.J. (Timothy) Pedley

ISIMM (1978)

International Society for the Interaction of Mechanics and Mathematics

Prof. A. (Adriano) Montanaro, Università degli Studi di Padova, Via Belzoni 7 35131,
Padova, Italy

President/Chair: Prof. M. (Mario) Pitteri

Secretary: Prof. A. (Adriano) Montanaro

Contact: Prof. A. (Adriano) Montanaro

Representative of ISIMM in IUTAM: Prof. M.A. (Michael) Hayes

Representative of IUTAM in ISIMM: Prof. G. (Gérard) Iosco

Representative of ISIMM in IUTAM-CC: Prof. M.A. (Michael) Hayes

ICF (1978)

International Congress on Fracture

Prof. T. Yokobori, School of Science and Engineering, Teikyo University,
Toyosatodai 1-1, Utsunomiya, 320, Japan

President/Chair: Prof. K. (Krishnaswamy) Ravi-Chandar

Secretary: Prof. A.T. (A.T.) Yokobori Jr.

Contact: Prof. R.M. (Robert) McMeeking

Representative of ICF in IUTAM: Prof. R.M. (Robert) McMeeking

Representative of IUTAM in ICF: Prof. J.B. (Jean-Baptiste) Leblond

Representative of ICF in IUTAM-CC: Prof. B.L. (Bhushan) Karihaloo

ICM (1982)

International Congress on Mechanical Behaviour of Materials,

Prof. F. Ellyin, Dept. of Mechanical Engineering, University of Alberta, Edmonton,
Canada T6G 2G8

President/Chair: Prof. F. (Fernand) Ellyin

Secretary: Prof. T. (Toshihiko) Hoshide

Contact: Prof. F. (Fernand) Ellyin

Representative of ICM in IUTAM: Prof. F. (Fernand) Ellyin

Representative of IUTAM in ICM: Prof. S.R. (Sol) Bodner

Representative of ICM in IUTAM-CC: Prof. F. (Fernand) Ellyin

AFMC (1982)

Asian Fluid Mechanics Committee

Kushiro National College of Technology, Kushiro 084-0916, Japan

President/Chair: Prof. M. (Masaru) Kiya

Contact: Prof. M. (Masaru) Kiya

Representative of AFMC in IUTAM: Prof. M. (Masaru) Kiya

Representative of IUTAM in AFMC: Prof. H. (Heng) Zhou

IACM (1984)

International Association for Computational Mechanics

Prof. E. Oñate, International Center for Numerical Methods in Engineering, Edificio C-1,

Gran Capitán s/n, E-08034 Barcelona, Spain

President/Chair: Prof. E. (Eugenio) Oñate

Secretary: Dr. S. R. (Sergio) Idelsohn

Contact: Dr. S. R. (Sergio) Idelsohn

Representative of IACM in IUTAM: Prof. J.T. (John Tinsley) Oden

Representative of IUTAM in IACM: Prof. E.R. (Eduardo) de Arantes e Oliveira

Representative of IACM in IUTAM-CC: Prof. T. (Ted) Belytschko

CACOFD (1992)

Caribbean Congress of Fluid Dynamics

c/o The Department of Math and Computer Science, The University of the West Indies,

St. Augustine, Trinidad, West Indies

President/Chair: Prof. F. (F.) Malpica

Secretary: Dr. D.M.G. (Donna) Comissiong

Contact: Prof. H. (Harold) Ramkissoon

Representative of CACOFD in IUTAM: Prof. H. (Harold) Ramkissoon

Representative of IUTAM in CACOFD: Prof. D.D. (Daniel) Joseph

IABEM (1994)

International Association for Boundary Element Methods

Prof. M. Bonnet, CNRS et Ecole Polytechnique, Laboratoire de Mecanique des Solides,

Ecole Polytechnique, 91128 Palaiseau cedex, France

Secretary: Prof. R. Callego

President/Chair: Prof. M. (Marc) Bonnet

Contact: Prof. M. (Marc) Bonnet

Representative of IABEM in IUTAM: Prof. M. (Marc) Bonnet

Representative of IUTAM in IABEM: Prof. G.R. (Günther) Kuhn

ISSMO (1996)

International Society for Structural and Multidisciplinary Optimization

Prof. G. Rozvany, Department of Structural Mechanics, Budapest University of Technology and Economics, Muegyetem rkp. 3, Kmf 35, H-1521 Budapest, Hungary

President/Chair: Prof. M.P (Martin) Bendsøe

Secretary: Prof. B.M. (Byung) Kwak

Contact: Prof. N. (Niels) Olhoff

Representative of ISSMO in IUTAM: Prof. G. (George) Rozvany

Representative of IUTAM in ISSMO: Prof. N. (Niels) Olhoff

Representative of ISSMO in IUTAM-CC: Prof. M.P (Martin) Bendsøe

HYDROMAG (1996)

International Association for Hydromagnetic Phenomena and Applications

Prof. S. Asai, Dept of Mat. Sciences, University of Nagoya, Furo-cho, Chikusa-ku, Nagoya 464-0, Japan

President/Chair: Prof. R. (René) Moreau

Secretary: Prof. A. (André) Thess

Contact: Prof. A. (André) Thess

Representative of HYDROMAG in IUTAM: Prof. R. (René) Moreau

Representative of IUTAM in HYDROMAG: Prof. H.K. (Keith) Moffatt

Representative of HYDROMAG in IUTAM-CC: Prof. R. (René) Moreau

IHAV (1997)

International Institute of Acoustics and Vibration

Prof M. J. Crocker. Dept. of Mechanical Engineering, 201 Ross Hall, Auburn University, Auburn, AL 36849 USA

President/Chair: Prof. J.W. (Jan) Verheij

Secretary: N.J. (Nicole) Kessissoglou

Contact: Prof. M.J. (Malcolm) Crocker

Representative of IHAV in IUTAM: Prof. M.J. (Malcolm) Crocker

Representative of IUTAM in IHAV: Prof. J.D. (Jan) Achenbach

ICA (1998)

International Commission for Acoustics

President/Chair: Prof. P.A. (Philip) Nelson

Secretary: Prof. S. (Sonoko) Kuwano

Contact: Prof. S. (Sonoko) Kuwano

Representative of ICA in IUTAM: Prof. S.H. (Stephen) Crandall

Representative of IUTAM in ICA: Prof. A. (Anders) Boström

ICTS (2002)

International Congresses on Thermal Stresses

Prof. Richard B. Hetnarski, St. Raphael, Apt. 1209, 7117 Pelican Bay Blvd., Naples,
Fl 34108, USA

President/Chair: Prof. R.B. (Richard) Hetnarski

Secretary: Prof. T.R. (Theodore) Tauchert

Contact: Prof. R.B. (Richard) Hetnarski

Representative of ICTS in IUTAM: Prof. R.B. (Richard) Hetnarski

Representative of IUTAM in ICTS: Prof. M. (Masato) Abe

Members of the General Assembly

<i>Member</i>	<i>Representative of</i>	<i>Remarks</i>
Prof. A. (Andreas) Acrivos		Member-at-Large
Dr. S.A. (Saleh) Al-Athel	Saudi Arabia	
Prof. I. (Ivo) Alfirevic	Croatia	
Prof. H. (Hassan) Aref	USA	Also acting Chair WP-9
Prof. Y. (Yi-long) Bai	China	
Prof. A. (Anguel) Baltov	Bulgaria	
Prof. T. (Ted) Belytschko	USA	
Prof. A. (Ahmed) Benallal	France	
Prof. L. (Luiz) Bevilacqua	Brazil	
Prof. G. (Gautam) Biswas	India	
Prof. S.R. (Sol) Bodner		Member-at-Large Representative in ICM Also Chair WP-3
Prof. B. (Bruno) Boley		Member-at-Large
Prof. R. (René) de Borst	Netherlands	
Prof. A. (Anders) Boström	Sweden	Representative in ICA
Prof. P. (Philippe) Boulanger	Belgium	
Prof. J. (Jozef) Brilla	Slovakia	
Prof. D.H. (Dick) van Campen	Netherlands	Bureau member
Prof. P.W. (Peter) Carpenter	UK	
Prof. C. (Carlo) Cercignani	Italy	Bureau member
Prof. G.G. (Gorimir) Chernyi	Russia	
Prof. N.D. (Nicolaie) Cristescu	Romania	
Prof. E. (Er-jie) Cui	China	
Prof. L.J. (Livija) Cveticanin	Serbia and Montenegro	
Prof. S.M. (Suresh) Deshpande	India	
Prof. L. (Frederic) Dias	France	
Prof. E. (Erik) Dick	Belgium	
Prof. J. (Jürg) Dual	Switzerland	
Dr. R. (Rudolf) Dvorák	Czech Republic	Representative in ICHMT
Prof. P. (Peter) Eberhard	Germany	
Prof. J. (Juri) Engelbrecht	Estonia	Bureau member
Prof. L.B. (Ben) Freund		Bureau member
Prof. P. (Paul) Germain		Member-at-Large
Prof. B.N. (Bjorn) Gjevik	Norway	
Prof. I. (Isaac) Goldhirsch	Israel	
Prof. N.K. (Narinder) Gupta	India	
Prof. W. (Witold) Gutkowski	Poland	
Prof. A.N. (Alexandr) Guz	Ukraine	

Member	Representative of	Remarks
Prof. J. (Jorn) Hansen	Canada	
Prof. M.A. (Michael) Hayes		Member-at-Large Representative of ISIMM
Prof. D. (Dan) Henningson	Sweden	
Prof. C.T. (Carl) Herakovich	USA	
Prof. P.G. (Philip) Hodge		Member-at-Large
Prof. J. (Jan) Hult		Member-at-Large
Dr. S.R. (Sergio) Idelsohn	Argentina	
Prof. M.K. (Mohamed) Ismail	Egypt	
Prof. G. (George) Jaiani	Georgia	
Prof. S. (Sandor) Kaliszky	Hungary	
Prof. T. (Tutomu) Kambe	Japan	
Prof. B.L. (Bhushan) Karihaloo	UK	
Prof. D.M. (Dmitry) Klimov	Russia	
Prof. A. (Alfred) Kluwick	Austria	
Prof. W.G. (Wolfgang) Knauss	USA	
Prof. T. (Toshio) Kobayashi	Japan	
Prof. A.N. (Anthony) Kounadis	Greece	
Prof. L.G. (Gary) Leal	USA	Representative of ICR
Prof. F. (Fernando) Lund	Chile	
Prof. B. (Bengt) Lundberg	Sweden	
Prof. C.-C. Ma	China-Taipei	
Prof. G. (Giulio) Maier	Italy	
Prof. J.A.C. (João) Martins	Portugal	
Prof. C. (Christian) Miehe	Germany	
Prof. G.K. (Gleb) Mikhailov	Russia	
Prof. H.K. (Keith) Moffatt		Bureau member Representative in HYDROMAG
Prof. P.A. (Peter) Monkewitz	Switzerland	
Mr. A. (Angel) Moratilla	Spain	
Prof. N.F. (Nikita) Morozov	Russia	
Prof. M. (Mauri) Määttänen	Finland	
Prof. F. (Frithiof) Niordson		Member-at-Large Representative in ICR
Prof. P.E. (Padraic) O'Donoghue	Ireland	
Prof. N. (Niels) Olhoff	Denmark	Representative in ISSMO
Prof. J. (Juha) Paavola	Finland	
Prof. N. (Nigel) Peake	UK	
Prof. T.J. (Timothy) Pedley	UK	
Prof. N. (Nhan) Phan-Thien	Australia	
Prof. P. (Paolo) Podio-Guidugli	Italy	

<i>Member</i>	<i>Representative of</i>	<i>Remarks</i>
Prof. M.B. (Miles) Rubin	Israel	
Prof. S.B. (Stuart) Savage	Canada	
Prof. W. (Werner) Schiehlen		Representative in IAVSD Member-at-Large
Prof. W. (Wolfgang) Schröder	Germany	
Prof. L. (Leopold) Skerget	Slovenia	
Prof. A.A.(Anton) v. Steenhoven	Netherlands	
Prof. E.S. (Erdogan) Suhubi	Turkey	
Prof. G. (Gwidon) Szefer	Poland	
Prof. J.N. (Jens Nørkær) Sørensen	Denmark	
Prof. V. (Vitauts) Tamuzs	Latvia	
Prof. R.I. (Roger) Tanner	Australia	
Prof. T. (Tomomasa) Tatsumi		Member-at-Large
Prof. A. (André) Thess	Germany	
Prof. C.G. (Charl) du Toit	South Africa	
Prof. K. (Koji) Uetani	Japan	
Prof. N. (Nguyen) Van Dao	Viet Nam	
Prof. D.V.H. (Dirk) Vandepitte	Belgium	
Prof. F. (Furio) Vatta	Italy	
Prof. W.-C. Wang	China-Taipei	
Prof. E. (Eiichi) Watanabe	Japan	
Prof. D. (David) Weaver	Canada	
Prof. G. (Graham) Weir	New Zealand	
Prof. L. (Leen) van Wijngaarden		Member-at-Large Representative in CISM Also Chair WP-7
Prof. W. (Wei) Yang	China	
Prof. J.Y. (Jung Yul) Yoo	Republic of Korea	
Prof. T.X. (Tongxi) Yu	China-Hong Kong	
Prof. S. (Stéphane) Zaleski	France	
Prof. A. (Andre) Zaoui	France	
Prof. Z. (Zhemín) Zheng	China	
Prof. F. (Franz) Ziegler		Member-at-Large
Prof. J.W. (Jean) Zu	Canada	

Observers to the General Assembly

<i>Name</i>	<i>Country</i>	<i>Representative of</i>
Prof. J.D. (Jan) Achenbach	USA	Chair Solids Symp. Panel
Prof. E.R. (Eduardo) Arentes e Oliveira	Portugal	Chair WP-5
Prof. F. (Faruk) Arinc	Turkey	ICHMT
Prof. D. (Dominique) Barthès-Biesel	France	Chair WP-6
Prof. M. (Marc) Bonnet	France	IABEM
Prof. S.H. (Stephen) Crandall	USA	ICA
Prof. M.J. (Malcolm) Crocker	USA	IIAV
Prof. F. (Fernand) Ellyin	Canada	ICM
Prof. R.B. (Richard) Hetnarski	USA	ICTS
Prof. P. (Patrick) Huerre	France	EUROMECH Chair Fluids Symp. Panel
Prof. M. (Masaru) Kiyama	Japan	AFMC
Prof. P.F. (Paul) Linden	USA	Chair WP-8
Prof. P. (Peter) Lugner	Austria	IAVSD
Prof. R.M. (Robert) McMeeking	USA	ICF Chair WP-4
Prof. R. (René) Moreau	France	HYDROMAG
Prof. J.T. (John Tinsley) Oden	USA	IACM
Prof. J.R.A. (Anthony) Pearson	UK	Chair WP-1
Prof. F. (Friedrich) Pfeiffer	Germany	Chair WP-2
Prof. H. (Harold) Ramkissoon	West Indies	CACOFD
Prof. G. (George) Rozvany	Hungary	ISSMO
Prof. B.A. (Bernhard) Schrefler	Italy	CISM

Members of the Congress Committee

*Year indicates end of term (applies to members elected after 1972)

<i>Member</i>	<i>Country</i>	<i>Year*</i>	<i>Remarks</i>
Prof. H. (Hassan) Aref	USA	2008	Member of XCCC
Prof. N. (Nadine) Aubry	USA	2008	
Prof. D.(Dominique) Barthès-Biesel	France	2008	
Prof. T. (Ted) Belytschko	USA	2006	Representative of IACM
Prof. M.P. (Martin) Bendsøe	Denmark	2008	Representative of ISSMO
Prof. D.E. Beskos	Greece	2006	
Prof. D.H. (Dick) van Campen	Netherlands	2008	
Prof. A. (Alberto) Carpinteri	Italy	2008	
Prof. G.-D. (Gengdong) Cheng	China	2008	
Prof. D. (David) Durban	Israel	2008	
Prof. F. (Fernand) Ellyin	Canada	2006	Representative of ICM
Prof. N.A. (Norman) Fleck	UK	2006	
Prof. L.B. (Ben) Freund	USA	2008	President Member of XCCC
Prof. I.G. (Irina) Goryacheva	Russia	2008	
Prof. P. (Peter) Gudmundson	Sweden	2008	
Prof. M.A. (Michael) Hayes	Ireland	2006	Representative of ISIMM
Prof. T. (Tutomu) Kambe	Japan	2008	
Prof. B.L. (Bhushan) Karihaloo	UK	2008	Representative of ICF
Prof. A. (Alfred) Kluwick	Austria	2006	
Prof. T.A. (Tomasz) Kowalewski	Poland	2008	Member of XCCC
Prof. V.V. (Valery) Kozlov	Russia	2006	
Prof. E.J. (Edwin) Kreuzer	Germany	2006	
Prof. S. (Stelios) Kyriakides	USA	2008	
Prof. P. (Pierre) Ladevèze	France	2008	
Prof. L.G. (Gary) Leal	USA	2008	Representative of ICR
Prof. F. (Fernando) Lund	Chile	2008	
Prof. P.A. (Peter) Monkewitz	Switzerland	2008	
Prof. T.J. (Timothy) Pedley	UK	2008	Secretary Member of XCCC
Prof. B.A. (Bernhard) Schrefler	Italy	2006	Member of XCCC
Prof. K. (Kazimierz) Sobczyk	Poland	2006	
Prof. A. (André) Thess	Germany	2008	
Prof. E.O. (Ernie) Tuck	Australia	2006	
Prof. V. (Viggo) Tvergaard	Denmark	2008	
Prof. M.G. (Manuel) Velarde	Spain	2006	Representative of CISM
Prof. E. (Eiichi) Watanabe	Japan	2006	

Members of the Symposia Panels

In 1977 the Bureau of IUTAM set up two panels charged with the duty of scanning proposals made for IUTAM Symposia in the fields of fluid and solid mechanics. In 1992 that duty was extended to include scanning of proposals for IUTAM Summer Schools. The following members have been elected in 2004 for the period up to and including the 2008 meeting of the General Assembly

Fluid Mechanics

Prof. D. (Dan) Henningson
Prof. P. (Patrick) Huerre (chairman)
Prof. T. (Tsutomu) Kambe
Prof. L.G. (Gary) Leal
Prof. D.H. (Howell) Peregrine

Solid Mechanics

Prof. J.D. (Jan) Achenbach (chairman)
Prof. F.L. (Felix) Chernousko
Prof. W. (Wolfgang) Ehlers
Prof. V. (Viggo) Tvergaard
Prof. J. (John) Willis

Members of the Working Parties

Based on the assessment of IUTAM, the General Assembly agreed in Cambridge, UK (August 2002) to establish nine Working Parties.

A Working Party in a certain subfield of the mechanics is meant to structure the overlapping activities between IUTAM on the one hand and the relevant Affiliated Organizations and sister International Unions on the other. Also, Working Parties should identify important growth areas of the field.

More detailed background information on Working Parties, including their Terms of Reference, is given in the IUTAM Report on Working Parties. A pdf file of the latest version of this report can be downloaded from the IUTAM website (<http://www.iutam.net/iutam/Organization/index.php/12>).

A listing of the Working Parties and their current membership is given below.

WP-1: Non-Newtonian Fluid Mechanics and Rheology

Members: Prof. J. R. A. (Anthony) Pearson, UK (chair); Prof. D.V. (David) Boger, Australia; Prof. R. (Roland) Keunings, Belgium; Prof. L.G. (Gary) Leal, USA

WP-2: Dynamical Systems and Mechatronics

Members: Prof. F. (Friedrich) Pfeiffer, Germany (chair); Prof. F.L. (Felix) Chernousko, Russia; Prof. R.S. (Robin) Sharp, UK; Prof. M. (Masayoshi) Tomizuka, USA; Prof. H.Y. (Hiroshi) Yabuno (Japan)

WP-3: Mechanics of Materials

Members: Prof. S. R. (Sol) Bodner, Israel (chair); Prof. C.T. (Carl) Herakovich, USA; Prof. T. (Tatsuo) Inoue, Japan; Prof. J.B. (Jean Baptiste) Leblond, France

WP-4: Materials Processing

Members: Prof. R.M. (Robert) McMeeking, USA (chair); Prof. S. (Shigeo) Asai, Japan; Prof. C.W. (Christopher) Macosko, USA; Prof. R. (René) Moreau, France

**WP-5: Computational Fluid and Solid Mechanics
(this WP acts as link between IUTAM and IACM)**

Members: Prof. E. R. (Eduardo) de Arantes e Oliveira, Portugal (chair); Prof. Y.K. Cheung, China-Hong Kong; Prof. J. (Jacob) Fish, USA; Dr. S. R. (Sergio) Idelsohn, Argentina; Prof. P. (Pierre) Ladevèze, France; Prof. J. T. (Tinsley) Oden, USA

WP-6: Biomechanics

Members: Prof. D. (Dominique) Barthès-Biesel, France (chair); Prof. J.E. (Joan) Bechtold, USA; Dr. G.A. (Gerhard) Holzapfel, Austria; Prof. K. (Kazuo) Tanishita, Japan

WP-7: Nano- and Micro-Scale Phenomena in Mechanics

Members: Prof. W. (Wei) Yang, China (chair); Prof. F. (Fernand) Ellyin, Canada; Prof. Y. (Yonggang) Huang, USA; Prof. M.G. (Grae) Worster, UK

WP-8: Geophysical and Environmental Mechanics

Members: Prof. P.F. (Paul) Linden, USA; Prof. H. (Hervé) Le Treut, France; Prof. J.W. (John) Rudnicki, USA; Prof. J. Srinivasan, India; Dr. P. (Luis) Thomas, Argentina

WP-9: Education in Mechanics and Capacity Building

Members: Prof. H. (Hassan) Aref, USA (acting chair); Prof. Y. (Yi-long) Bai, China; Prof. M.H.A. (Mohammed) Hassan, Sudan; Prof. K.R. (Katepalli) Sreenivasan, Italy

Donations in 2005

Donations given to IUTAM Symposia are recorded under the heading “Financial Support” of the Reports of Symposia and Summer Schools held in 2005.

IUTAM Representation in ICSU and its Scientific Committees

<i>Acronym</i>	<i>Organization/Scientific Committee</i>	<i>Representative of IUTAM</i>
ICSU	International Council for Science	Prof. L.B. Freund
COSPAR	Committee on Space Research	Prof. G. G. Chernyi
SCOPE	Scientific Committee on Problems of the Environment	Prof. J.C.R. Hunt
SCOR	Scientific Committee on Oceanic Research	Prof. W. Fennel

Reports of IUTAM Symposia held in 2005

05-1 IUTAM Symposium on Multiscale Modelling of Damage and Fracture Processes in Composite Materials Kazimierz Dolny, Poland, May 23 - May 27, 2005

a) Scientific Committee

R. de Borst (The Netherlands), B. Karihaloo (UK), P. Ladeveze (France), G. Maier (Italy), Z. Mróz (Poland), R. Pyrz (Denmark), T. Sadowski (Poland, Chair), J. Salençon (France, IUTAM representative), G. Voyiadjis (USA).

b) Short summary of scientific progress achieved

This IUTAM symposium focused upon bringing together scientists and industry staff who deal with the modelling of damage and fracture processes in composite materials i.e. specialists in mechanics, material science and related field. The problems of modelling of the degradation processes in composite materials were discussed from atomistic scale approach through: nano- micro- meso- and macro scales. The range of composite materials was covered by very wide range materials such as: brittle, polymer and metal matrix composites, including nano-structured composites, bituminous composites, laminates and wood. The analytical, computational and experimental verification aspects of the damage and fracture processes were discussed.

The Scientific Program included five working days, with of 4 Key Lectures, 39 Lectures, organized in twelve sessions.

Scientific progress was achieved within the following main topics addresses in the Symposium:

- Atomic model for nanocomposites
- Nanostructured composites
- Interfacial effects and debonding in composite materials
- Multiscale models for cement, bituminous composites and wood
- Microcracking in ceramic and metal matrix composites
- Damage micromodel for laminate composite
- Damage processes in viscoplastic composites
- Strength and failure criteria for composites
- Cracks propagation in composite materials

c) Countries represented and number of participants

48 registered participants from the engineering, physics and applied mathematics communities attended regularly the Technical Sessions of the Symposium, coming from 15 different countries, according to the following geographical distribution: Austria (2),

Belgium (2), Czech Republic (2), Denmark (2), France (10), Germany (4), Greece (1), Italy (1), Poland (16), the Netherlands (2), UK (3), Ukraine (1), USA (2). A number of Polish Ph. D. students from Technical University of Lublin also attended some scientific sessions.

d) Publication of Proceedings of the Symposium

The proceedings comprising reviewed Symposium papers will be published by Kluwer Academic Publishers by mid - 2006 (Editor: T. Sadowski)

e) Financial supports

Some funds were made available by:

- International Union of Theoretical and Applied Mechanics
- Lublin University of Technology
- Precious Metals Mint
- International Scientific Network for Advanced Materials and Structures
- PZL Świdnik S.A. Polish Aviation Works
- MTS Systems GmbH Polish Representative ELHYS Ltd
- Kluwer Academic Publishers

f) Scientific program

Monday 23

Keynote Lecture 1

P. Ladevèze, G. Lubineau, D. Violeau, D. Marsal - *A computational damage micromodel for laminate composites.*

Session I

S. Schmauder - *Materials modeling from atomistics macro behaviour.*

A. Dragon, C. Nadot-Martin, A. Fanget - *Multiscale modelling for damaged viscoelastic particulate composites.*

Session II

R. Talreja - *A synergistic multiscale modelling approach in damage mechanics of composite materials.*

G.Z. Voyiadjis, R.K. Abu Al-Rub - *A nonlocal plasticity and damage model for size effect in metal matrix composites.*

E. Sideridis, G.A. Papadopoulos, V.N. Kytopoulos, T. Sadowski - *The elastic modulus and the thermal expansion coefficient of particulate composites using a dodecahedral multivariant model.*

Session III

A. Hachemi, D. Weichert - *A shakedown approach to the problem of damage of fibre-reinforced composites.*

H. Zhao, I. Elnasri - *Perforation of sandwich panels with cellular solid core under impact loading.*

A. Johnson, N. Pentcôte - *Influence of delamination on the prediction of impact damage in composites.*

Session IV

V. Tvergaard - *Debonding or breakage of short fibres in a metal matrix composite.*

S. Lenci - *A microscale model of elastic and damage longitudinal shear behaviour of highly concentrated long fiber composites.*

E. Oleszkiewicz, T. Łodygowski - *Analysis of metal matrix composites damage under transverse loading.*

D. Marsal, P. Ladevèze, G. Lubineau - *On the out-of-plane interactions between ply damage and interface damage in laminates.*

Tuesday 24**Keynote Lecture 2**

P. Chojnacki, M. Greguła, M. Pańko, K. Siedlecki - *Designing, testing and manufacturing of composite aviation products at "PZL-Świdnik" S.A.*

Session V

G. Socha - *Advances and trends in composite material testing.*

S. Elsoufiev - *Rheology and fracture of composite materials.*

H. Altenbach - *Strength criteria for composites - current state and future trends.*

Session VI

D. Leguillon, O. Cherti Tazi, E. Martin - *Prediction of crack deflection and kinking in ceramic laminates.*

T. Kubiak - *Dynamic buckling of thin-walled composite plater.*

M. Jaroniek - *Numerical and experimental models of the fracture in the multi-layered composites.*

Session VII

F. Collombet, M. Mulle, Y-H. Grunevald - *Multiscale method for optimal design of composite structures incorporating sensors.*

B.A. Schrefler, M. Lefik, D.P. Boso - *Numerical multiscale modelling of elasto-plastic behaviour of superconducting strand.*

K. Hofstetter, Ch. Hellmich, H.A. Mang - *Mechanical properties of wood investigated by means of continuum micromechanics.*

Session VIII

E.M. Craciun - *Antiplane crack in a pre-stressed fiber reinforce elastic material.*

J. Füssl, R. Lackner, J. Eberhardsteiner - *Multiscale model for upscaling of strength properties of bituminous composites.*

F. Laurin, N. Carrere, J.F Maire, D. Perreux - *Characterization and practical application of a multiscale failure criterion for composite structures.*

Wednesday 25

Session IX AMAS

M. Białas, Z. Mróz - *Crack and delamination patterns in thin layers under monotonic and cyclic temperature loading.*

G. Mieczkowski, K.L. Molski - *Stress field singularities for reinforcing fibre with single lateral crack.*

E. Postek, T. Sadowski, S. Hardy - *Mechanical Response of a Two-phase Composite*

Thursday 26

Keynote Lecture 3

R. de Borst - *Numerical methods for debonding in composite materials: A comparison of approaches.*

Session X

S.R. Hallett, W.G. Jiang, M.R. Wisnom - *Modelling of delamination damage in scaled quasi-isotropic specimens.*

L. Van Parys, D. Lamblin, G. Guerlement, T. Descamps - *Damage in patrimonial masonry structures: the case of the O-L cathedral in Tournai (Belgium).*

S. Datoussaïd, D. Lamblin, G. Guerlement, W. Kakol - *Macroscopic strength of perforated steel plates at maximum elastic and limit state.*

Session XI

J. Wang, B.L. Karihaloo - *Importance of surface/interface effect to properties of materials at nano-scale.*

J.G.M. van Mier and P. Trtik - *Multi-scale testing for simple micromechanical models of concrete.*

L. Berka - *On a deformation of polycrystalline structures.*

C. Huchette, D. Leveque, N. Carrere - *A multiscale damage model for composite laminate based on numerical and experimental complementary tests.*

J. Podgórski, J. Jonak - *Influence of strength heterogeneity factor on crack shape in laminar rock-like materials.*

Friday 27

Keynote Lecture 4

R. Pyrz - *Atomic-continuum transition at interfaces of silicon and carbon nanocomposite materials.*

Session XII AMAS

K. Konopka - *Crack propagation in composites with ceramic matrix.*

S. Samborski, T. Sadowski - *Experimental investigations and modelling of porous ceramics.*

J. Kuczmaszewski, M. Włodarczyk - *Numerical analysis stress distributions in adhesive joints.*

Report composed by Tomasz Sadowski

**05-2 IUTAM Symposium on Mechanical Behavior and Micro-mechanics
of Nanostructured Materials
Beijing, China, June 27 - June 30, 2005**

a) Scientific Committee

Y.L. Bai (Chairman, China), H.J. Gao (Germany), H.M. Jensen (Denmark), S. Suresh (USA), R.Z. Valiev (Russia), Z.L. Wang (USA), Q.S. Zheng (China), L.B. Freund (IUTAM Representative)

b) Short summary of scientific progress achieved

The following subjects have been discussed deeply on the IUTAM symposium:

- (1) Mechanical behaviors of nanocrystal materials;
- (2) Super-strength and super-ductility of nano-thin films and nano-multilayer films;
- (3) Mechanical behaviors of carbon nano-tube, nano-belt, nano-wire, nano-stick, etc.;
- (4) Experimental techniques and measurements and inverse problems on the nanostructured materials;
- (5) Nanomechanics of biomaterials;
- (6) Using of nanostructured materials for MEMS and microdevices;
- (7) Micro-mechanics models and simulations for the nanostructured materials;
- (8) Mechanical behaviors of other nano-materials.

33 participants (invited speakers) attended with different research backgrounds including mechanics, materials science and physics, etc. The presentations are relate to the above mentioned subjects closely and display a wide research direction and progressive front in solid mechanics, materials science, microscopic physics, biomechanics etc. After presentations, two-hour round table discussions on several related hot subjects, probable future developments, interdisciplinary researches and young people education program, etc. were carried out. Participants had passionate discussions and suggestions for future researches. They agree that the nanostructured materials, as the symposium topics, are with nice geometrical patterns and splendid behaviors, so the symposium is very good and successful. The related researches of the mechanical behaviour are with huge challenge for mechanical people both theoretically and experimentally, and with perspectives for new ideas and suggestions to the entire mechanics community. The symposium covers diversity of topics and methodologies, such as, molecular dynamics for mechanics, which will be very helpful in many areas including biology. Through attending and presenting, some highly concerned questions and suggestions for the near future are presented: How to promote interdisciplinary research and education? How to develop innovative education program for training young people? How to define the field to guide its evolution/revolution? Etc. Generally, the goal of the symposium has been achieved.

c) Countries represented and number of participants

A total of 33 participants, representing the following countries and regions: Australia (3), Austria (1), China (10), France (1), Germany (1), Hong Kong, China (3), Japan (1), Singapore (1), UK (1), USA (11).

d) Publication of Proceedings of the Symposium

Due to the manuscript submission delay, we are now considering to sign a publishing contract with Springer. Proceeding books will be sent immediately after publication.

e) Financial supports

The IUTAM symposium obtained supports from

- The International Union of Theoretical and Applied Mechanics
- The National Natural Science Foundation of China
- Institute of Mechanics, Chinese Academy of Sciences
- Department of Engineering Mechanics, Tsinghua University

f) Scientific program**June 27**

Crystal-plasticity and grain-boundary slip and separation: application to the deformation and fracture response of nanocrystalline metals - L. Anand
Mechanical properties of copper with nano-scale twins - **L. Lu**, K. Lu
Nanoscale deformation process in individual nano-grains of nanocrystalline materials - Xingyuan(Scott) Mao

Atomistic Study of Microstructural Evolution in Crystalline Metal Induced by Severe Plastic Deformation - Akihiro Nakatani

Grain Refinement of Copper due to High Pressure Torsion and Related Strain Rate Sensitivity Response - **Y.S. Hong**, F.S. Shangguan and Z.L. Xie

Surface Morphology Evolution in Thin Films via Surface and Volume Diffusion - **K.J. Hsia**, R. Panat

The Origin of Superhardness in Nanocomposite Coatings: Analysis of Nanoindentation and Scratch Tests - Chunsheng Lu, **Yiu-Wing Mai**, and Yao-Gen Shen

Surface Free Energy and Its Effect on the Elastic Behavior of Nano-size Particles, Wires and Films - R. Dingreville, **Jianmin Qu** and Mohammed Cherkaoui
Nanoindentation on Polymeric Bulk and Thin Film Materials - **Yong-Wei Zhang**, Chunyu Zhang and Kaiyang Zeng

Micromechanics of nanocomposites with interface effect - **Z.P. Huang**, J. Wang

Modeling and Measurement of Interface Behavior in Metal Thin Film Peeling along Ceramic Substrate - **Y.G. Wei**, H.F. Zhao and S.Q. Shu

June 28

Mechanics of biological nanostructured materials - Huajian Gao

Elastic theory of single dna/rna molecules - Fei Liu and **Zhong-can Ou-Yang**

BioMEMS and Nanoparticles for Cancer Detection and Treatment - Wolé Soboyejo

Reversible energy exchanges in carbon nanotube oscillators that run thermodynamically in reverse - G.H. Chen

Pseudoelasticity and Novel Shape Memory Effect in Single Crystalline Cu Nanowires through Reversible Lattice Reorientations - Wuwei Liang and **Min Zhou**

Nanobridge testing of single nanotubes and nanowires - Tong-Yi Zhang

Instabilities of Carbon Nanotubes Studied Using A Hybrid Atom/Continuum Approach - Q.S. Zheng

Selection of MEMS Actuators and Sensors - **T.J. Lu**, D.J. Bell, N.A. Fleck, S.M. Spearing

Nanostructured Metals: Opportunities for New Mechanical Properties and Deformation Mechanisms - E. Ma

Dislocation Nucleation at Surface Nanostructures - Guanshui Xu

Modelling the thermal conductivity of nanofluids - James M Hill

Structural Phase Transitions of Nanomaterials under High Pressures - **Wanlin Guo**, Bin Zhang, Yufeng Guo, Chunzhang Zhu

June 29

Modeling relative and absolute size effects in crystal plasticity - Samuel Forest

Cluster Statistical Thermodynamics - a Novel Method to Calculate Solid Deformation at Finite Temperature - Ming Hu, **Haiying Wang**, Mengfen Xia, Fujiu Ke and Yilong Bai

Nanomechanics: A continuum theory based on the interatomic potential - Y. Huang

Multiresolution Analysis of Materials Systems - Wing Kam Liu

Multiscale Simulation for High Energy Cluster Impacts - **W. Yang**, Z. Guo and X. Li

Dynamics of self-organized epitaxial island formation under controlled annealing - Y. Ni, **A.K. Soh** and L.H. He

Microscopic shape memory and superelastic effects and their novel tribological applications - **Yang-Tse Cheng**, Wangyang Ni, David S. Grummon

Influence of Indenter Tip Radius on Micro-Indentation Hardness - Caijun Tao, **Tzuchiang Wang**, Shaohua Chen

One-dimensional Semiconducting and Piezoelectric Nanostructures- Synthesis, growth mechanisms and properties - Zhong Lin (ZL) Wang

Martensitic Transformation in Nano Grains -Experiments and Modelling - **F.D. Fischer**, T. Antretter, T. Waitz, N.K. Simha

Report composed by Yueguang Wei

**05-3 IUTAM Symposium on Impact Biomechanics - From Fundamental Insights to Applications
Dublin, Ireland, July 11 - July 15, 2005**

a) Scientific Committee

F. Bandak (USA), M. Cameron (Australia), D. Van Campen (The Netherlands, IUTAM Representative), J. Crandall (USA), M. Gilchrist (Ireland, Chairman), P. Lövsund (Sweden), G. Nurick (South Africa), K. Ono (Japan), R. Willinger (France)

b) Short summary of scientific progress achieved

The symposium spanned fundamental issues as well as application areas in impact biomechanics and has helped to define future research challenges for researchers in this subject. This is a multidisciplinary and rapidly expanding area of research which involves the disparate areas of engineering, medicine, materials science, applied mathematics, physics and chemistry. Current scientific problems in the area of impact biomechanics which were addressed during the course of the Symposium include issues pertaining to constitutive materials, including those related to soft and hard biological tissue and novel energy absorption materials, as well as experimental, theoretical and mathematical modelling approaches that may be used to enhance our understanding of the impact response of biological systems. The symposium paid particular attention on how the various limbs, organs and tissues of the human body would respond to moderate or severe impact forces or to blast loads, and how appropriately designed injury protection systems could reduce injury severity and the number of fatalities. One key reason for the success of this interdisciplinary symposium was the emphasis which was placed on promoting interaction between delegates and speakers from the spheres of mechanical engineering and clinical medicine. Topics that were of specific interest include:

- Transportation safety
- Accident investigation
- Musculoskeletal and organ injuries
- Head trauma
- Injury assessment and prevention
- Injury criteria
- Occupational and sports impact injuries
- Constitutive laws for human tissue
- Computational methods for simulation
- Computational human body models
- Energy absorption materials and components

c) Countries represented and number of participants

The meeting attracted 94 participants from 19 different countries:

Australia (2), Austria (1), Belgium (4), Canada (5), China (1), Czech Republic (3), France (5), Germany (3), Ireland (27), Italy (1), Netherlands (4), Poland (1), Portugal (1), Singapore (2), South Africa (4), Spain (1), Sweden (3), UK (15), USA (11).

d) Publication of Proceedings of the Symposium

Springer published the proceedings as part of their Solid Mechanics and Its Applications (SMIA) series of monographs. Copies of these were distributed to all delegates at the symposium. Following selection of abstracts, all full-length papers were peer-reviewed by at least two members of the Scientific Committee (primarily) or by other participants of the symposium. This helped to ensure that the standard of the proceedings was comparable to that of refereed journals in the field and that there was uniformity of style in the published proceedings.

e) Financial supports

We acknowledge with gratitude the generous support of our sponsors:

- International Union of Theoretical and Applied Mechanics, IUTAM
- International Association for Computational Mechanics, IACM
- Royal Irish Academy, RIA
- Science Foundation Ireland (including prize for Most Promising Young Researcher Under 30)
- University College Dublin
- National Standards Authority of Ireland
- Institution of Mechanical Engineers
- Springer (formerly Kluwer Academic Publishers)
- Enterprise Ireland
- The Turf Club

Support from IUTAM was used to provide partial financial assistance for the travel, registration and accommodation expenses of a number of junior and international participants as detailed in Appendix.

f) Scientific program

July 11

The contribution of accident investigation research to biomechanics - M. Mackay

(Keynote Lecture)

Modelling the effects of blast on the human thorax using high strain rate viscoelastic properties of human tissue - E. E. Ward, M. Kleinberger, A. M. Lennon & J. C. Roberts

Preliminary analysis of blunt ballistic impacts to the abdomen - C. Bir & J. Eck

Development of an assessment methodology for lower leg injuries from anti-vehicular blast landmines - J. Manseau & M. Keown

Occupant lower leg injury assessment in landmine detonations under a vehicle - M.J. van der Horst, C. K. Simms, R. van Maasdam & P. J. C. Leerdam
The simulated response of cortical and cancellous bone to various rates of loading - S. A. Oerder & G. N. Nurick

Multibody dynamics approaches for biomechanical modelling in human impact applications - J. Ambrósio (**Keynote Lecture**)

Reconstructing real life accidents towards establishing criteria for traumatic head impact injuries - M. C. Doorly, J. P. Phillips & M. D. Gilchrist

Combined multi-body dynamic and FE models of human head and neck - V. Esat, D. W. van Lopik & M. Acar

Three year old child neck finite element model - R. Dupuis, F. Meyer & R. Willinger
Response analysis of lumbar vertebra model under axial impact loading - J. Fang, J. Cao, J. Zhang, Q. G. Rong & D. G. Zaou

July 12

Head impact biomechanics in sport: Implications to head and neck injury tolerances - D. C. Viano (**Keynote Lecture**)

Biofidelity of dummy and FEM necks in the frequency domain - N. Bourdet, R. Fischer, F. Meyer & R. Willinger

Accidents of motorcyclists against roadside infrastructure - F. J. López-Valdés, D. Garcia, D. Pedrero & J. L. Moreno

Quasi-analytic acceleration injury risk functions: Application to car occupant risk in frontal collisions - D. Wood, C. Simms, C. Glynn, A. Kullgren & A. Ydenius

Modelling of frontal collisions from onboard recorder and full width barrier data - C. Simms, D. Wood, C. Glynn, A. Kullgren & A. Ydenius

Influence of helmet inertial properties influence on neck injury risk during ejection - S. Laporte, E. Chavary, W. Skalli & A. Guillaume

Biomechanical aspects of blunt and penetrating head injuries - N. Yoganandan (**Keynote Lecture**)

Biomechanics of frontal skull fracture - H. Delye, P. Verschueren, B. Depreitere, C. Van Lierde, I. Verpoest, D. Berckmans, J. Vander Sloten, G. Van der Perre & J. Goffin

Numerical modelling of the human head under impact: New injury mechanisms and tolerance limits - D. Baumgartner & R. Willinger

Mechanisms and tolerance curves of traumatic diffuse axonal injury (DAI) - E. Schuller & I. Niemeier

Sensory disorders of the auditory and vestibular systems following blunt head trauma - A. Ernst

Biomechanical, radiographic and osteologic observations of lower cervical spine injuries - L. Kazarian & R. Shively

July 13

Computational human body models - J. Wismans, (**Keynote Lecture**)

Clinical and biomechanical research for bicycle helmet optimization - C. Van Lierde, B. Depreitere, P. Verschueren, H. Delye, D. Berckmans, I. Verpoest, J. Goffin, J. Vander Sloten & G. Van der Perre

Application of finite element analysis to helmet design - T. Smith, J. Lenkeit & J. Boughton

Finite element modelling for the prediction of blast trauma - A. Greer, D. Cronin, C. Salisbury & K. Williams

Evaluation of human head injury in tracked vehicle subjected to mine blast - F. Wang, H. P. Lee, C. Lu & Q. H. Cheng

July 14

Cellular basis for the nonlinear constitutive property of brain tissue - D. F. Meaney
(**Keynote Lecture**)

Cerebral bridging vein rupture in humans: An experimental evaluation - B. Depreitere, C. Van Lierde, P. Verschueren, H. Delye, D. Berckmans, I. Verpoest, J. Vander Sloten, G. Van der Perre & J. Goffin

Three dimensional passive properties of muscle tissue in compression - M. Van Loocke, C. Simms & G. Lyons

Excitatory and inhibitory amino acid neurotransmitter release in a microdialysis model of traumatic brain injury - A. Smyth, M. D. Gilchrist & W. T. O'Connor

Lack of consistency in threat to life from single injury Abbreviated Injury Scale (AIS) 4 codes in different body areas - M. Woodford, O. Bouamra, A. Wrotchford, D. W. Yates & F. E. Lecky

The initial assessment and management of blunt trauma - A. Gleeson

Bioengineering and orthopaedic surgery in practice: Review of the applicability of biomechanical principles to the outcomes in trauma and orthopaedic surgery - P. Murray

The impact biomechanics of spinal column injuries - M. J. Shelly & A. R. Poynton

Brain oedema and intracranial pressure - J. Goffin

Traumatic brain injury: Pathological mechanisms and surgical treatment - J. P. Phillips

A national review of surgically treated blunt traumatic thoracic aortic transactions - P. A. Naughton, L. Nölke, C. Shaw, D. G. Healy, A. O'Donnell & A. E. Wood

Victims of penetrating and incised wounds: A review of 200 cases - M. T. Cassidy & M. Curtis

July 15

Impact injury in sport - A. S. McIntosh (**Keynote Lecture**)

Reconstruction of head injury cases arising from falls using the UCD brain trauma model - M. C. Doorly, T. J. Horgan & M. D. Gilchrist

Numerical human model to predict side impact thoracic trauma - P. A. Forbes, D. S. Cronin, Y. C. Deng & M. Boismenu

Numerical simulation of shoulder response to a lateral impact with the HUMOS model - S. Duprey, K. Bruyere & J. - P. Verriest

Finite element model of human skull used for head injury criteria assessment - O. Jiroušek, J. Jíra, J. Jírová & M. Míčka

A computational study of the optic nerve evulsion - S. Cirovic, R. M. Bhola, D. R. Hose, I. C. Howard, P. W. Lawford & M. A. Parsons

An anisotropic viscous hyperelastic constitutive model of the posterior cruciate ligament suitable for high loading rate situations: Theoretical framework and material identification - G. Limbert & J. Middleton

Report composed by Michael Gilchrist

**05-4 IUTAM Symposium on Vibration Control of Nonlinear Mechanisms and Structures
Munich, Germany, July 18 - July 22, 2005**

a) Scientific Committee

H. Ulbrich (Chair, Germany), S.K. Agrawal (USA), S.R. Bishop (UK), F.L. Chernousko (Russia), M.H. Horie (Japan), A.H. Nayfeh (USA), G. Stephan (Hungary), W. Schiehlen (Germany, IUTAM Representative)

b) Short summary of scientific progress achieved

During the last decades the growth of micro-electronics has reduced the cost of computing power to a level acceptable to industry and has made possible sophisticated control strategies suitable for many applications. Vibration control is applied to all kinds of engineering systems to obtain desired dynamic behavior, improved accuracy and increased reliability during operation. In this context one can think of applications related to control of structures vibration isolation, control of vehicle dynamics, noise control, control of machines and mechanisms and control of fluid-structure-interaction. One could continue with this list for a long time.

Research in the field of vibration control is extremely comprehensive. Problems that are typical for vibration control of nonlinear mechanisms and structures arise in fields of modeling the systems in such a way that the model is suitable for control design, to choose appropriate actuator and sensor locations and to select the actuators and sensors itself only to name a few.

The Symposium focused on all areas of vibration control of nonlinear mechanisms and structures and brought together a diverse community of researches working on different aspects of this interdisciplinary field of mechatronic. The research area continues to engage a large, wide-ranging and active band of scientists and engineers was evident in the attendance of experts. The Symposium covered a suitable combination of established and new work, with theory, simulation and experiments dealing with all the different aspects in this exciting and challenging field of research.

The Scientific Program comprised four days with the presentation of three key lectures to give an overview about the different fields to be covered by the Symposium followed by 31 papers, organized into nine sessions.

The meeting was fascinating, interdisciplinary and stimulating. Ideas were put forward in all the above topics. The meeting served as a forum to evaluate the limits of performance that can be achieved by controlling the dynamics of mechanical systems, and it should point out the gaps in present research and give links for areas of future research. This Symposium on the topics mentioned above was attended by leading experts in the area of Vibration Control and was judged by delegates to have succeeded in attracting

stimulating presentations on the current research in these research fields, encouraging lively and informative discussion, and give links for areas of future research.

e) Countries represented and number of participants

The meeting attracted 68 participants from 14 countries (Austria, Bulgaria, Finland, Germany, Hungary, Japan, Poland, Russia, Sweden, Switzerland, Taiwan, The Netherlands, UK, USA).

d) Publication of Proceedings of the Symposium

The proceedings of the Symposium will be published by Springer Science and Business Media (former Kluwer Academic Publisher) in October 2005. Editors are H. Ulbrich and W. Günthner.

e) Financial supports

The Symposium was sponsored by:

- Deutsche Forschungsgemeinschaft (German Research Foundation)
- International Union of Theoretical and Applied Mechanics (IUTAM)
- BMW Research Group
- Bayerisches Staatsministerium für Wissenschaft und Kunst (Bavarian Ministry of Science and Arts)
- Springer, formerly Kluwer Academic Publishers
- Technical University of Munich (TUM)

f) Scientific program

July 19

Stephen J. Elliott (**Keynote Lecture**) - *Active control of structural vibrations*

Session VC - Vibration control (Systems) I

Christoph Paulitsch, Paolo Gardonio, Stephen J. Elliott - *Internal velocity feedback for stabilization of inertial actuators for active vibration control*

Vladimir Babitsky, Vladimir Astashev - *Excitation and control of micro-vibro-impact mode for ultrasonic machining of intractable materials*

Karl Popp, Marcus Neubauer, Cord-Christian Neuber - *Control of stick-slip vibrations*

Session VC - Vibration Control (Systems) II

Andreas Kugi, Klaus Holzmann, Wolfgang Kemmetmuller - *Active and semi-active control of electro-rheological fluid devices*

Robert Skelton - Dynamics and control of tensegrity systems

Yohji Okada, Keisuke Ozawa - *Energy regenerative and active control of electro-dynamic vibration damper*

Kostadin Kostadinov, Roland Kasper, Muhammed Al-Wahab - *Control Approach for structured piezo actuated micro/nano manipulator*

Session VCS - Vibration Control of Structures

Horst Baier, Michael Müller, Christoph Zauner - *Structure-Control-Optics Interaction in high precision telescopes*

Kevin K.F. Wong - *Structural Control Energy Efficiency Based on Elastic Displacement*

Takeshi Mizuno, Masaya Takasaki, Masato Murashita - *Pneumatic Zero-compliance Mechanism Using Negative Stiffness*

Kazuto Seto, Masahiko Naruke, Taichi Watanabe, Hiroko Morino - *Active control for lightweight isolation systems*

July 20

Ali H. Nayfeh (**Keynote Lecture**), Ziyad N. Masoud, Nader A. Nayfeh, Eihab Abdel-Rahman - *Control of Ship-Mounted Cranes*

Session AMCC - Advanced Motion Control of Cranes

Andreas Bockstedte, Edwin Kreuzer - *Hoisting Manipulation by Modal Coupling Control for Underactuated Cranes*

Dieter Bestle - *Design of a laboratory crane for testing control approaches*

Wojciech Blajer, Krzysztof Kolodziejczyk - *Prediction of Control of Overhead Cranes Executing a Prescribed Load Trajectory*

Session - Control Mechanisms I

Werner Schiehlen, Nils Guse - *Powersaving control of mechanism*

Alexandra Ratering, Peter Eberhard - *A control concept for parallel kinematics*

M. Necip Sahinkaya, Yanzhi Li - *Motion planning and control of nonlinear mechanisms through inverse dynamics*

Session - Sensor and Observer Techniques

Francois Barrot, Jan Sandtner, Hannes Bleuler - *Acceleration sensor based on diamagnetic levitation*

Chia-Ou Chang, Chan-Shin Chou - *Vibration of resonant gyroscopes*

Dirk Söffker - *New results of the development and application of robust observers*

Session control of Mechanisms II

Gabor Stépán, Laszlo L. Kovacs, Jozsef Kövecses - *Bifurcations caused by sampling effects in robotic force control*

Mikio Horie, Thomas Thümmel, Chikara Ishikawa - *Motion control design of a molded pantograph mechanism with large-deflective hinges*

July 21

Kenzo Nonami (**Keynote Lecture**) - *Master-Slave Bilateral Control of Hydraulic Hand for Humanitarian Demining*

Session - Control of Multibody Systems

Felix L. Chernousko, Friedrich Pfeiffer, Nikolai A. Sobolev - *Experimental Study of Snake-like Locomotion of a Three-link Mechanism*

Petko Kiriazov - *Optimal robust controllers for multibody systems*

Session - Control and Dynamics of Robots

Hubert Gattringer, Hartmut Bremer - *A penalty shooting walking machine (dynamics and control)*

Toon Hardeman, Ronald Aarts, Ben Jonker - *Modeling and identification of robots with joint and drive flexibilities*

Michael Thümmel, Martin Otter, Johann Bals - *Vibration control of elastic joint robots by inverse dynamics models*

July 22**Session - Vibration Control (Applications) I**

Brad M. Beadle, Stefan Hurlebaus, Lothar Gaul, Uwe Stöbener - *Active Control strategies for vibration isolation*

L. Yuan, E. Keskinen, V.M. Järvenpää - *Stability analysis of roll grinding system with double time delay effects*

Session - Vibration Control (Applications) II

Kurt Schlacher, Gernot Grabmair, Johann Holl - *Application of vibration control in steel industries*

Peter Hagedorn, Daniel Hochlenert - *Different control strategies for the active suppression of brake squeal*

Report composed by Heinz Ulbrich

05-5 IUTAM Symposium on Topological Design Optimization of Structures, Machines and Materials - Status and Perspectives Rungstedgaard, Denmark, October 26 - October 29, 2005**a) Scientific Committee**

Gregoire Allaire (France), Martin P. Bendsøe (Denmark) (Chairman), Gengdong Cheng (China), Alejandro R. Diaz (USA), Noboru Kikuchi (USA), Yoon Young Kim (Korea), Kurt Maute (USA), Niels Olhoff (Denmark) (Co-Chairman) (IUTAM Representative), Ole Sigmund (Denmark) (Co-Chairman), Helder C. Rodrigues (Portugal).

b) Short summary of scientific progress achieved

It is now more than 15 years ago that the so-called homogenization method was proposed as a basis for computational means to optimize the topology and shape of continuum structures. From initially being capable mainly of treating minimum compliance design we now see the basic material distribution idea of the methodology applied to a wide range of structural and mechanical problems as well as to problems that couple structural response to other physical responses. Also, the method has provided insight for micro-mechanical studies, meaning that the method has given feedback to the area which provided impetus to the field of topological design optimization in its creation. Finally, topological design is now an integral part of most FEM software systems and it has become a standard industrial tool in some fields.

The IUTAM Symposium provided a forum for the exchange of ideas for future developments in the area of topological design optimization. This encompassed the application to fluid-solid interaction problems, acoustics problems, and to problems in biomechanics, as well as to other multiphysics problems. New basic modelling paradigms, covering new geometry modelling such as level-set methods and topological derivatives, as well as developments in computational approaches were also focus areas.

The meeting and the proceedings of the symposium have been dedicated to the memory of John E. Taylor (April 17, 1931 - October 24, 2005).

c) Countries represented and number of participants

72 registered participants (some of them PhD students) attended the technical session of the symposium. These came from 19 different countries: Austria (1), Belgium (1), Brasil (2), China (4), Czech Republic (1), Denmark (16), France (6), Germany (5), Hungary (1), India (2), Italy (1), Japan (3), Poland (1), Portugal (4), South Korea (4), Sweden (5), The Netherlands (3), UK (1), and USA (12).

d) Publication of Proceedings of the Symposium

Preliminary versions of all papers were circulated at the symposium and the scientific committee reviewed every manuscript in order to achieve a homogeneous and high academic standard. The final 10-page papers have been revised based on these written reports and these papers were all submitted by the beginning of December, 2005. The proceedings will be published in the Springer book series Solid Mechanics and Its Applications and will appear before the summer of 2006.

e) Financial supports

The symposium was sponsored by

- Villum Kann Rasmussen Foundation, Denmark
- Poul Due Jensen Foundation, Denmark
- Danish Center for Applied Mathematics and Mechanics - DCAMM
- Department of Mechanical Engineering, Aalborg University
- Department of Mathematics, Technical University of Denmark
- Department of Mechanical Engineering, Technical University of Denmark

f) Scientific program

October 26

Session 1.1

Structural optimization using topological and shape sensitivity via level set method -

Grégoire Allaire and François Jouve

Radial Basis Functions and Level Set Methods for Topology Optimization - **Michael Yu**

Wang and Shengyin Wang

XFEM developments for shape and topology optimization - **Pierre Duysinx**, Laurent

Van Mieghroet, Jean-Michel Lejeune & Thibaut Jacobs

Topology optimization of vibrating bi-material plate structures with respect to sound radiation - **Niels Olhoff** and Jianbin Du

Session 1.2

Force fields within Michell-like cantilevers transmitting a point load to a straight support - Cezary Graczykowski, **Tomasz Lewinski**

Comparison of truss and continuum topology optimal designs - **Pauli Pedersen** and Niels L. Pedersen

Some basic issues of topology optimization - **G. Rozvany** and Osvaldo M. Querin

Session 1.3

On Discrete Material Optimization of Laminated Composite Shell Structures using Global and Local Criteria - **Jan Stegmann** and Erik Lund

Analysis and continuum topology optimization of periodic solids with linearized elastic buckling criterion - M.M. Neves

*Design of Cellular Structures for Optimum Efficiency of Heat Dissipation—A three Dimension formulation - **Wang Bo** and Cheng G.D*
*Topology Design of Periodic Bistable Structures - **Alejandro Diaz** and Jitendra Prasad*
Topology optimization for crystal fibers - Jesper Riishede and Kristian Hougaard.
*Optimal Design in Small Amplitude Homogenization - **G. Allaire**, S. Gutierrez*
*Eigenfrequency and Buckling Optimization of Laminated Hybrid Composite Shell Structures Using Discrete Material Optimization - **Erik Lund** and Jan Stegmann*
*Optimal topologies for micropolar solids - **Massimiliano Gei**, Marco Rovati, Daniele Veber*

Session 1.4

Cellular Automata Paradigm for Topology Optimisation - Mostafa M. Abdalla and Zafer Gürdal
Relaxations for Topology Optimization Problems with Local Stress Constraints – Roman Stainko
Global optimization of topology design problems - models, methods and applications - Mathias Stolpe

October 27

Session 2.1

Recent results on impedance imaging for inhomogeneities of small volume fraction - Yves Capdeboscq
*Phase Field Method in Optimal Design - **Blaise Bourdin**, Antonin Chambolle*
Level Set based Shape Optimization of Geometrically Nonlinear Structures - Seonho Cho

Session 2.2

*Industrial implementation and applications of topology optimization and future needs - **Claus B. W. Pedersen** and Peter Allinger*
Recent Developments in the Commercial Implementation of Topology Optimization - Uwe Schramm

Session 2.3

*Configuration Design of Rigid Link Mechanisms by an Optimization Method: A First Step - **Yoon Young Kim**, Gang Won Jang, Jung Hun Park, Jin Seup Hyun*
*The pressure load problem re-visited - **O. Sigmund** and P.M. Clausen*
Topology optimization of a structure in magnetic fields - Jeonghoon Yoo
Topology optimization of electro-mechanical microsystems for non-matching computational meshes - Michael Rauli

Session 2.3

*Structural Topology Optimization of Mechanical Resonators, Actuators and Sensors - **Shinji Nishiwaki**, Emilio C. N. Silva, Kazumi Matsui, Kenjiro Terada, Kazuhiro Izui, and Masataka Yoshimura*
Topology optimization of wave transducers - Martin Berggren and Eddie Wadbro

Optimal mode coupling in simple planar waveguides - David C. Dobson

Session 2.4

Topology Optimization by Penalty (TOP) Method - Tyler E. Bruns

Topological derivatives: Making holes - J. Norato, **R.B.Haber**, D. Tortorelli, M.P.Bendsøe

Topology Optimization with CAMD for Structures undergoing Finite Deformation - **Kazumi Matsui**, Kenjiro Terada and Shinji Nishiwaki

Spectral level set methodology in topology optimization - **Alexandra A. Gomes** and Afzal Suleman

Session 2.5

Topology optimization for acoustic-structure interaction problems - **Gil Ho Yoon**, Jakob Søndergaard Jensen, and Ole Sigmund

Topology optimization in fluids using FVM and FEM - Allan Gersborg-Hansen

Topology optimization for acoustic performance - Maria Bayard Dühning

Topology optimization for wave propagation problems - **Jakob Søndergaard Jensen** and Ole Sigmund

Topology Optimization of Piezoelectric Actuators Considering Geometric Nonlinearities - E. Cardoso and **Jun Fonseca**

October 28

Session 3.1

The worst-case multiple load problem revisited - **Michal Kocvara** and Michael Stingl

Simultaneous Optimization of Truss Topology and Geometry, Revisited – Wolfgang Achtziger

First and second order sensitivities with respect to binary variables in topology optimization - Krister Svanberg

Session 3.2

Bio-inspired Material Design and Optimization - **Xu Guo** and Huajian Gao

Protein Sequence Design on the Basis of Topology Optimization Techniques – G. K. Ananthasuresh

Session 3.3

Topological-Shape Sensitivity Method: Theory and Applications - **A.A. Novotny**, R.A. Fejóo, E. Taroco, C. Padra

Topological derivatives in shape optimization of contact problems - **Jan Sokolowski**, Antoni Zochowski

Reliability-Based Topology Optimization (RBTO) - **Semyung Wang**, Heegon Moon, Chwail Kim and Jenam Kang

A Feature-based Structural Topology Optimization Method - **Gengdong Cheng**, Yulin Mei, and Xiaoming Wang

Session 3.4

Design of graded microstructure for point wise stress control - **Robert Lipton** and Michael Stuebner

Hierarchical Optimization of Material and Structure for Thermal Transient Problems - **J.M. Guedes**, E. Lubrano, H. C. Rodrigues and S. Turteltaub

Structural design of foam filled structures using gradient based optimization algorithms - **A. Lipka**, E. Ramm

October 29**Session 4.1**

The Darcy-Stokes topology optimization problem - Thomas Borrvall, **Anders Klarbring**, Niclas Wiker

Topology Optimization for Fluid-Structure Interaction Problem - **Kurt Maute**, G. Pingen, A. Evgrafov

New optimal structures and new bounds for multimaterial conducting composites - **Andrej Cherkaev** and Nathan Albin

Session 4.2

Multidisciplinary Topology Design and Partial Differential Games - A. Habbal

A zero memory Gauss-Newton method for imaging and topological optimization - Jerome Fehrenbach and **Mohamed Masmoudi**

Report composed by Martin P. Bendsøe

Report of the IUTAM Summer School held in 2005

Report on the IUTAM - CISM Summer School on Dispersion of Particles in Turbulent Flows

Udine, Italy, September 12-16, 2005

a) Organization

The IUTAM Summer School on "Dispersion of particles in turbulent flows" was held at the International Centre for Mechanical Sciences at Udine, Italy, from September 12 to 16, 2005.

b) Lecturers

The Summer School invited the following principal lecturers:

Prof. O. Simonin, Institut de Mecanique des Fluides, Toulouse, France.

Prof. M. Reeks, University of Newcastle, Newcastle, UK.

Prof. K. Squires, Arizona State University, Tempe, USA.

Prof. S. Elghobashi, University of California, Irvine, USA.

Prof. M. Sommerfeld, Martin-Luther-University Halle-Wittenberg, Halle, Germany.

Prof. C. Crowe, Washington State University, Pullman, USA.

Prof. S. Banerjee, University of California, Santa Barbara, USA.

Prof. F. Toschi, Istituto per le Applicazioni del Calcolo, CNR, Roma, Italia.

Prof. A. Soldati, Università di Udine, Udine, Italia.

Prof. L. Portela, Kramers Laboratorium, Delft University of Technology, Netherlands

Prof. A. Taniere, Università di Udine, Udine, Italia.

c) Summer School topics

The topics covered by the main lectures included:

- Statistical and continuum modelling of turbulent reactive particulate flow (O. Simonin)
- Derivation of the Eulerian two-fluid equations for dispersed particle flows (M. Reeks)
- Large Eddy Simulations: Particle Collision/Coalescence in the frame of Euler/Lagrange Modelling (K. Squires)
- Direct Simulation of Bubbly-Flows: Particle Trajectory and Two-Fluid Approaches (S. Elghobashi)
- Recent advances of modelling in the frame of the Euler/Lagrangian approach (M. Sommerfeld)
- Particle-fluid interaction (C. Crowe)
- Direct simulations of multiphase systems (S. Banerjee)
- Lagrangian statistics in fully developed turbulence (F. Toschi)
- Identification and Dynamics of Turbulence Structures and Particle Interactions with Turbulence Structures (A. Soldati)

- Possibilities and limitations of computer simulations of dispersed turbulent Multiphase flows (L. Portela)
- Dispersion predictions based on the fluid time scale seen by discrete particles using first and second-order stochastic processes (A. Taniere)

d) Participants

Participants to the course included an international group of more than 50 scientists, professionals and graduate students coming from Europe and abroad, from Universities and Technical Research Centers

e) Scientific output

The Summer School introduced the attendees to current trends and fields of interest in the field of turbulent multiphase flows with the object of covering the current methodologies for the prediction of turbulent dispersed flows. Specific attention has been devoted to the modelling aspects and to the physical phenomena involved. The course also helped to identify the research needs for the advancement of this fundamental discipline in fluid mechanics.

The course has been organized in the format of open lectures to allow time for questions, discussions and profitable interactions among all participants.

f) Publication of Proceedings of the Summer School

No formal proceedings were published, but the lecture notes of all the lecturers were distributed to the audience during the school.

g) Financial support

The Summer School was sponsored by IUTAM, Cism, Regione Friuli Venezia Giulia, Provincia di Udine, University of Udine and CRUP.

Report composed by Alfredo Soldati, Udine, Italy

Reports of the IUTAM Working Parties

WP-1 - Non-Newtonian Fluid Mechanics and Rheology

No report submitted by WP-1; change in chairmanship prepared.

WP-2 - Dynamical Systems and Mechatronics

Status Report WP-2 composed for IUTAM Report 2004 (pages 67-69).

WP-3 - Mechanics of Materials

All the members of WP3 attended ICTAM-04 in Warsaw. Following that Congress, some of the members participated in the International Congress on Fracture, ICF-11 in Turin, Italy, March 2005, which was well attended. Of coming interest is the next International Congress on the Mechanical Behavior of Materials, ICM-10, to be held in Busan, Korea, in May 2007.

It is noted there a surge of research activity on the mechanical behavior of materials on the nanoscale and also in relation to biological materials. There is therefore an overlapping of current interest with WP6 and WP7.

Report composed by Sol Bodner, Chair of WP-3

WP-4 - Materials Processing

No report submitted by WP-4.

WP-5 - Computational Fluid and Solid Mechanics

The 2005 meeting of the WP5 took place in Austin (Texas) on July 27th, 2005, during the US National Congress of Computational Mechanics. All the WP5 members were present except Prof. Y. K. Cheung. Prof. J. T. Oden provided a great help in organizing the meeting. The following agenda was proposed by the chairman and unanimously accepted:

- A- Activities in Asia and Australia
- B- Activities in South America
- C- Activities in Africa
- D- Activities in Europe and North America.

A- Activities in Asia and Australia

APCOM being the arm of the IACM for the Asia-Pacific Region, APCOM Conferences have been regularly promoted every three years. APCOM' 06 was namely successfully and held in September 2004, in Beijing, jointly with the IACM World Conference, presided by Prof. Ming Wu Yuan. APCOM' 07 was announced to take place in December 2007, in Kyoto.

Another series of conferences, the EPMESC Conferences, has been held in China since 1985. The series started in Macao, and the conferences have been held alternatively in Macao and in other Chinese cities. EPMESC'10 will take place in the Chinese Island of Hainan, in August 2006, presided by Prof. Ming Wu Yuan (who presided also the Beijing IACM World Conference in Beijing, last year). EPMESC'XI was already announced to take place in Kyoto, jointly with APCOM'07. In the future, EPMESC Conferences are expected to cover other countries of Asia, out of the Asia-Pacific Region, like India.

B- Activities in South America

Prof. Sergio Idelsohn, the Secretary General of IACM, was asked, in his quality of South American member of the WP5, to explain what is going on in South America.

There is no organization analogous to APCOM for South America. In countries like Brazil, Argentina and Chile, national conferences have been held in which a number of foreign scientists also participated. Last year, a joint Conference Brazil/USA was held, supported by the US National Foundation. Another one took place in Brazil together with Argentina. Brazil expects a IACM World Congress to take place in 2012, in Rio de Janeiro.

C- Activities in Africa

Although Africa, as a whole, is in a very low stage of scientific development, there are some parts of Africa, namely the Republic of South Africa, as well as some North African countries, like Morocco, Algeria, Tunisia, and Egypt, that could be helped to launch initiatives in the area. The WP5 delegated in its European members the responsibility of proposing a strategy.

The chairman proposed that the main effort in North African countries be placed on activities connected with Education, Practice and Promotion of Computational Methods in Engineering and Applied Science. This could be a way to start. May be, joint activities should be launched involving the Mediterranean countries as a whole. This could be advantageous as the Southern European countries would thus be invited to co-operate. May be CISM might play a role, promoting courses intended to foster this idea.

In what concerns the Republic of South Africa, Prof. Keith Moffat's advice would be received with great interest. National institutions, like the South-African CSIR and some regional universities could organize interesting meetings.

D- Activities in Europe and North America

The Organizing Committee of the next (2006) IACM World Congress, in Los Angeles, sent a circular letter as a call for proposals having in view the presentation of mini-symposia proposals. Although the dead line was May 15th, 2005. Prof. Wing Kam Liu,

the main organizer of the Congress, told the WP5 chairman that further proposals would still be welcome.

The WP5 decided to propose to IUTAM the sponsorship of a number of such mini-symposia. 14 mini-symposia were approved by IUTAM. The Organizing Committee of the IACM World Congress (WCCM-VII) promised to post the list on WCCM-VII website (technical programme), as well as in the session rosters outside meeting rooms, with the indication "sanctioned by IACM and IUTAM".

Report composed by Eduardo de Arantes e Oliveira, Chair of WP-5

WP-6 - Biomechanics

The conclusions and recommendations of the Working Party on Biomechanics presented in the 2004 report still stand and are summarized in the following.

1. IUTAM Symposium on Biomechanics

A IUTAM sponsored CISM course is offered in 2006 (September 11 – 15)

Biomechanical Modelling at the Molecular, Cellular and Tissue Levels

Coordinated by: A. Holzapfel (Royal Institute of Technology, KTH, Stockholm, Sweden) and R. Ogden (University of Glasgow, UK)

2. Recommendations to IUTAM Congress Committee regarding areas of work covered by WP6.

The large number of paper submissions to minisymposia and pre-nominated sessions indicates a strong interest for Biomechanics within IUTAM community and we should definitely continue having special sessions devoted to this area of mechanics at ICTAM.

ICTAM 2008: suggestion for a Mini Symposium on Biomechanics.

Multiscale modeling in Biomechanics

Relation between cell level organization and macroscopic organ properties.

Mechano-transduction, growth and disease.

Tissue engineering: from cell level to organ replacement.

Perfusion in natural or artificial three dimensional structures.

Microfluidics for biomechanics

...

3. Important growth areas of the field

Multiscale modeling – Different constitutive models involving different levels of detail are linked. For various application disciplines in the life sciences, a range of scales and a

large number of variables are normally needed since single-scale approaches often lead to inadequate results. Increased knowledge at the level of the cell and molecule leads to improved ability to reconstruct tissue and organ level function.

Cellular mechanics – Introducing the concept of mechanics to conventional biology and to cellular levels. For instance, the mechano-transduction process in the cell plays an important part of cellular function and we need more exact investigations for mechanical aspect for cellular function. Mechano-biology is a promising and important discipline.

Mecanotransduction – Mecanotransduction impacts many areas of basic and applied science, and is not restricted to one particular field (e.g. orthopaedics or cardiovascular, etc.). It can combine cellular mechanics and engineering methods of adaptation and remodeling to understand growth and maintenance of different tissues. Expansion of capabilities of computational methods helps to make possible the large scale computing needed for many of these approaches.

Application of cell based therapies – Practical application of the small (e.g. cellularly based) therapies into medical and health care requires devices or delivery methods. These devices or delivery methods then have to be evaluated (both pre-clinical and clinically). Although the novel and technologically challenging advance are going to be made in smaller and smaller (e.g. cellular) levels, eventually they have to be integrated into something or some method of delivering them or implanting them, etc... The macro-scale cannot be neglected when we focus on micro and nano. Likewise, the practicalities and limitations (regulatory and otherwise) associated with eventually implementing cell-based therapies will need to be addressed.

Bio fluid mechanics and therapies – Recent development of micro catheters has made possible the exploration of different physiological systems (cardiovascular, respiratory, ...), the introduction of repairing devices (e.g. stents, valves, ...) and the development of weakly invasive surgery. Biomechanical applications of microfluidics systems are quickly expanding.

Simultaneously, the analysis of flow in biological vessels profits from the progress of numerical modeling and availability of computer time. This is a fast expanding field where a lot of work has still to be done to master some of its complexity. In this area multiscale approaches are also essential to understand the coupling between complex applied mechanical stresses and cell biochemical and biological responses.

Report composed by Dominique Barthes-Biesel, Chair of WP-6

WP-7 - Nano- and Micro-Scale Phenomena in Mechanics

In the past a year and a half, the activities in the field of nano- and micro-scale mechanics grow explosively under high anticipation. This annual report of WP7 (Nano- and Micro-scale Phenomena in Mechanics) can only serve as a brief summary. We outline the extension of the field in the booming era of nano-science and nano-technology, and exemplify the pioneering researches that are focused on the state-of-the art developments in nano- and micro-scale mechanics.

1. New Directions in Nanoscience and Nanotechnology

With the coming of nano-revolution, the nano-inspired researches have been popular throughout the world. The nanoscience and nanotechnology have taken much of the attentions from thousands of scientists and engineers. These specialists are struggling to deal with the fantastic intellectual challenges in the new-born areas, such as nanophysics, nanochemistry, nanomechanics, nanomaterials, nanometrology, nanooptics, nanoelectronics, nanomedicine and bio-nanotechnology.

The report from the Royal Society of London entitled 'Nanoscience and Nanotechnology: Opportunities and Uncertainties'^[1] was published on 29 July 2004. This report highlighted the significance of the nanoscale, and addressed the uncertainties about the health and environmental effects of nano-particles. It also gave the consensual definitions of nanoscience and nanotechnology. Because these definitions are rather vague, many scientists immediately look forward to an exact and scientific definition of the term "nano".

A proud history of exploring nature is partly consisted of the activities for the manipulation of a molecule or a number of atoms via sufficiently precise micro-instruments. In present, many scientists are devoted to further knowing of the naturally occurring molecular assemblies that regulate and control biological systems. By using 'bottom-up' nano-fabrication techniques, engineers long for producing the bio-materials and devices including molecular biomimetics system, molecular motors, unimolecular robots and bio-chip. Since numerous new-types of nanomaterials are manufactured and investigated, their remarkable properties are being understood gradually. The nanomaterials may realize our dream of finding materials with characteristics, functions and applications at smaller and smaller scales. Combining nanomaterials and information-communication technologies, technologists are able to gain a series of progresses in information storage, sensor, computer and 'off-roadmap' technologies, and NBIC technology.

There are a great deal of issues which emerge with the development of nanoscience and nanotechnology. Some issues are directly related to nanomechanics, and result in the following research topics: (1) mechanical properties and behaviors of nanocomposite, nanowire and nanotube; (2) plastic deformation and fracture of nanocrystalline metals; (3) size effect, surface effect and quantum effect at the nanoscale; (4) multiscale simulations bridging spatial and temporal scales; (5) nanotechnologies involve with biology, such as molecular biomimetics, protein sidechain dynamics, bio-MEMS, bio-composite; (6) contact and adhesion mechanics at the nanoscale including nano-wear and nano-tribology.

2. Progresses for Mechanics Researches in Micro- and Nano-Scales

The following examples delineate recent research progresses for mechanics research in micro- and nano-scales.

(1) Mechanics of Nanocomposite

To enhance conductivity, strength and stiffness of polymers, bundles of carbon nanotubes act as fillers in the matrix. Nanotube-reinforced composites seem to be promising in many engineering and commercial applications. Recently, Suhr et al^[2] reported strong viscoelastic behavior by implementing direct shear testing of epoxy

thin films containing dense packing of multi-walled carbon nanotubes. It is soul-stirring that composites gain 1,400% increase in damping ratio of the matrix without sacrificing the mechanical strength and stiffness of the polymers.

(2) Mechanics of Nanocrystalline Metals

The investigations of nanocrystalline metals currently concentrate on discussions about plastic deformation and failure. Wang and Yang^[3] established constitutive modeling for nanocrystalline metals by taking into account cooperative grain boundary mechanisms. To study the transition of yield strength of nanocrystalline metals, Jiang and Weng^[4] proposed a generalized self-consistent polycrystal model. They found that the plastic deformation of polycrystal is governed by grain boundaries, when the Hall-Petch slope is negative. Hemker^[5] showed that an understanding of the deformation process of nanocrystalline metals could be inspired by probing dislocation activity via x-ray scattering. Latapie and Farkas^[6] observed a combination of intragranular and intergranular fracture in nanocrystalline α -Fe via molecular dynamics simulation.

The current comprehension of nanoscale plasticity mostly relies on atomistic simulations. It is widely believed that the onset of plasticity is associated with homogeneous dislocation nucleation. But a high-temperature nanoindentation experiment^[7] suggested an unexpected picture of initial plasticity that involves point defects. Furthermore, Shan et al.^[8] found that grain boundary-mediated plasticity becomes a prominent deformation mechanism when they observe nanocrystalline nickel films via in situ TEM. Gerberich and Mook^[9] emphasized that the studies of nanoscale plasticity immediately need quantitative experimental supports.

(3) Mechanics of Nanotubes and Nanowires

The current mechanical researches of nanotubes are mostly accomplished by extending continuum theories and implementing atomic-scale experiments. Based on Flugge's theory of composite cylindrical thin-walled lattice shells, Leung and Kuang^[10] investigated the infinitesimal buckling of multi-walled carbon nanotubes under combined loading of axial compression and external hydrostatic pressure. Hough et al.^[11] studied the viscoelastic properties of single-walled nanotube suspensions by developing a rheological model. In addition, Ashino et al.^[12] performed quantitative force measurements on a single-walled carbon nanotube via dynamic force microscopy. Dietzal et al.^[13] achieved an investigation of mechanical properties of carbon nanotubes fixed at a tip apex via atomic force microscope. Nanowires have attracted considerable interest due to their potential applications in high-density data storage and opto-electronic nanodevices. Based on nanowire bending under lateral load for an AFE tip, Wu et al.^[14] measured the full spectrum of mechanical properties which range from Young's modulus, yield strength, plastic deformation and failure. It is found that Young's modulus of Au nanowires is independent of diameter, and the smallest diameter wire has the largest yield strength that is up to 100 times that of bulk materials. In contrast to bulk nanocrystalline metals, plastic deformation in Au nanowires is characterized by

strain-hardening. Such results just demonstrate that dislocation mechanism (dislocation glide and pile-up) is still operative down to diameters of 40 nm.

(4) Mechanics of Thin Solid Films

The research scope has extended to investigations for nanomechanical, adhesion and nanotribological behaviors in the field of thin solid films. In the work of Charitidis and Logothetidis [15], hardness, elastic modulus and frictional coefficient of carbon based films were obtained from indentation and nanoscratch experiments. The hardness of a-C film was measured to be equal to ~ 25 GPa, which indicate that it can be used as protective coating material. By incorporating a discrete dislocation dynamics and atomistic studies of dislocation nucleation mechanisms, Hartmaier et al.^[16] investigated the time-dependent irreversible deformation of a thin metal film. The simulation results reveal films with different thickness exhibit different deformation mechanisms, and that agrees with experimental findings.

(5) Size Effect at the Nano- and Micro- Scale

The size effects related to changes in materials internal dimensions are widely known and exploited. Researches by Uchic et al.^[17] showed that dramatic size effects occurred at surprisingly large single crystal sample dimensions. It is concluded that sample spatial scales limits the length scales available for plasticity. Nicola et al.[18] introduced size effects in polycrystalline thin films via two-dimensional dislocation dynamics. Their results emphasize that strengthening of polycrystalline films depend on both film thickness and grain size.

(6) Multiscale Modeling and Simulation

The book entitled 'Multiscale Modeling and Simulation'[19] was published at the beginning of 2004. It reviews recent progress in multiscale modeling, with a view toward constructing systematic, reliable and controlled multiscale methodologies. The heterogeneous multiscale method[20] presents a unified framework for designing efficient multiscale methods that couple macro- and micro-scale computational models. Liu et al.[21] proposed an order-N atomic-scale finite element method (AFEM) which is as accurate as molecular dynamics. Because AFEM and FEM are in the same theoretical framework, their linkage can provide a seamless coverage of multiscale computation.

(7) Contact Mechanics at the Nanoscale

Contact mechanics plays an important role in the process of designing nanodevices and optimizing nanostructured materials. Luan and Robbins[22] used molecular simulations to test the limits of contact mechanics under ideal conditions. Their results indicate that the atomics-scale surface roughness which is caused by discrete distribution of atoms leads to dramatic deviations from continuum theory.

(8) Molecular and Nanoscale Biomechanics

The following thrusts are currently very active in the field of biomechanics in micro- and nano-scales: (1) nanomechanics at the interface of soft and hard matter; (2)

transporting DNA and polypeptides through carbon nanotubes; (3) folding DNA with the length of several centimeters to several nanometers; (4) mechanistic view of structure-properties relation and robustness in nanostructured biomaterials; and (5) surface effects[23].

More and more nano-scale problems in the biology, which are valuable in studies and technical applications, appeared and were researched in the past years[24].

Through the researches, new phenomena are observed and studied and new nano- or micro-structures are searched for imitating.

(a) *New phenomena in nano-biomechanics*

Adhesive contact of biological cells[25]. The adhesion in this case characterizes two significant differences when compared with adhesive contact between metals and between semiconductors: 1) that the modulus of cells material is less than the modulus of metals or semiconductors leads to the elastic energy variation during contact process less dominant for cell than for engineer materials; 2) the molecules band surface to surface are able to migrate within the cells wall. Through that research, new mechanism of adhesion is studied.

Package of DNA. Biologic molecules with a very long length (such as DNA) can package into a container whose length is much less than the molecules. In the viral life cycle, the DNA molecule would package into the bacteriophage which is nothing but a protein coat capsid[23]. The bacteriophage is a class of virus which infect bacteria. Researchers propose mechanic model of the packaging process to understand the force effect on DNA.

(b) *New structure in nano-biologic tissue:*

In the biologic materials, there are many nano-composite, bone, teeth and nacre which are composed of protein and mineral with superior strength[26]. The biologic material, such as protein, is very soft, while the mineral is very brittle. Their assembly, in the form of bones, teeth and the nacre, are both stiff and tough. The nature grants this superior property by selecting the optimal nano-structure of the protein and the mineral. Study in the structure can guide humanity to produce artificial materials.

References

1. Nanoscience, and Nanotechnology: Opportunities and Uncertainties. The Royal Society, London, 2004. <http://www.nanotec.org.uk/finalReport.htm>.
2. JW Suhr, N Koratkar, P Keblinski, P Ajayan. Viscoelasticity in carbon nanotube composites. *Nature Materials*, 4:134-137, 2005.
3. HT Wang, W Yang. Constitutive modeling for nanocrystalline metals based on cooperative grain boundary mechanisms. *Journal of the Mechanics and Physics of Solids*, 52:1151-1173, 2004.
4. B Jiang, GJ Weng. A generalized self-consistent polycrystal model for the yield strength of nanocrystalline materials. *Journal of the Mechanics and Physics of Solids*, 52:1125-1149, 2004.

5. KJ Hemker. Understanding how nanocrystalline metals deform. *Science*, 304: 221-223, 2004.
6. A Latapie, D Farkas. Molecular dynamics investigation of the fracture behavior of nanocrystalline α -Fe. *Physical Review B*, 69:134110-1-9, 2004.
7. CA Schuh, JK Mason, AC Lund. Quantitative insight into dislocation nucleation from high-temperature nanoindentation experiments. *Nature Materials*, 4:617-621, 2005.
8. ZW Shan, EA Stach, JM Wiezorek, JA Knapp, DM Follstaedt, SX Mao. Grain boundary-mediated plasticity in nanocrystalline nickel. *Science*, 305: 654-657, 2004.
9. W Gerberich, W Mook. A new picture of plasticity. *Nature Materials*, 4:577-578, 2005.
10. AYT Leung, JL Kuang. Nanomechanics of a multiwalled carbon nanotube via Flugge's theory of a composite cylindrical lattice shell. *Physical Review B*, 71: 165415-1-9, 2005.
11. LA Hough, MF Islam, PA Janmey, AG Yodh. Viscoelasticity of single wall carbon nanotube suspensions. *Physical Review Letters*, 93: 168102-1-4, 2004.
12. M Ashino, A Schwarz, T Behnke, R Wiesendanger. Atomic-resolution dynamics force microscopy and spectroscopy of a single-walled carbon nanotube: Characterization of Interatomic van der Waals Forces. *Physical Review Letters*, 93: 13610-1-4, 2004.
13. D Dietzel, S Marsaudon, JP Aime, CV nguyen, G Couturier. Mechanical properties of a carbon nanotubes fixed a tip apex: a frequency-modulated atomics force microscopy study. *Physical Review B*, 72: 035445-1-16, 2005.
14. B Wu, A Heidelberg, JJ Boland. Mechanical properties of ultrahigh-strength gold nanowires. *Nature Materials*, 4:525-529, 2005.
15. C Charitidis, S Logothetidis. Nanomechanical and naotribological properties of carbon based films. *Thin Solid Films*, 482:120-125, 2005.
16. A Hartmaier, MJ Buehler, HJ Gao. Multiscale modeling of deformation in polycrystalline thin metal films on substrates. *Advanced Engineering Materials*, 7:165-169, 2005.
17. MD Uchic, DM Dimiduk, JN Florado, WD Nix. Sample dimensions influence strength and crystal plasticity. *Science*, 305:986-989, 2004.
18. L Nicola, EV Giessen, A Needleman. Size effects in polycrystalline thin films analyzed by discrete dislocation plasticity. *Thin Solid Films*, 479:329-338, 2005.
19. S Attinger, P Koumoutsakos. *Multiscale Modeling and Simulation*. Springer-Verlag, 2004.
20. WEB Engquist. The heterogeneous multiscale methods. *Communications in Mathematical Science*, 1:87-132, 2003.
21. B Liu, Y Huang, H Jiang, S Qu, KC Hwang. The atomic-scale finite element method. *Computer Methods in Applied Mechanics and Engineering*, 193:1849- 1864, 2004.
22. BQ Luan, MO Robbins. The breakdown of continuum model for mechanical contacts. *Nature*, 435: 929-932, 2005.
23. PK Purohit, JE Kondev, R Phillips, Force steps during viral DNA packaging?, *Journal of the Mechanics and Physics of Solids*, 51 (2003) 2239 - 2257

24. ME Kassner, S Nemat-Nasser, Z Suo, G Bao, etc. New directions in mechanics, *Mechanics of Materials*, 37 (2005) 231-259
25. LB Freund, Y Lin, The role of binder mobility in spontaneous adhesive contact and implications for cell adhesion, *Journal of the Mechanics and Physics of Solids*, 52 (2004), 2455 - 2472
26. B Ji, H Gao, Mechanical properties of nanostructure of biological materials, *Journal of the Mechanics and Physics of Solids*, 52 (2004) 1963 – 1990

Report composed by Wei Yang, Chair of WP-7

WP-8 - Geophysical and Environmental Mechanics

The field of geophysical and environmental mechanics is large and the membership of the committee reflects broad interests of the solid and fluid earth from large to small scales. The subject also impacts on topical issues such as sustainability, since the fragility of the earth is a consequence of the inter-dependence of many mechanical processes that occur in the natural world.

There are many meetings that deal with specialized aspects of GEM, in the areas of fluid mechanics and solid mechanics. These are, of course, valuable and the list below provides some information on forthcoming meetings. However, especially with recent advances in computational science and global observation, there is a need for more interdisciplinary meetings. Possible topics that have been identified are

Air-sea interaction: discussion of aerosol production, the link with the Atmospheric Brown Haze and the monsoon; impact of atmospheric forcing on the ocean.

Groundwater: solid and fluid mechanics applied to transport and quality of groundwater; impact of urbanization; storage in underground reservoirs.

Environmental effects of coastal cities: effects on air pollution and on the coastal ocean; impact on biodiversity.

Forthcoming meetings

VIII Congreso Latinoamericano de Hidrología Subterránea (Latin-American Congress of Underground Hydrology), 25-29 September 2006, Asunción, Paraguay.

<http://www.alhsud2006.com.py/index.php>

XXII Latin American Congress on Hydraulics, this time joined with the International Symposium on Hydraulic Structures, 9 – 14 October 2006, Ciudad Guayana, Venezuela.

http://www.iahr-venezuela2006.org/ingles/index_ingles.html

Sixth International Symposium on Stratified Flows, University of Western Australia

Perth, WA, Australia, 11 – 14 December 2006.

<http://www.sese.uwa.edu.au/issf2006>

XXI Congreso Nacional de Agua (CONAGUA) – (Argentinean Congress on Water, previously joined with the III Symposium of Hydric Resources of Sud America), 15-19 May 2007, San Miguel de Tucuman, Argentina

Abstracts submission deadline: **4 August 2006.**

conagua2007@yahoo.com.ar

VIII Congreso Latinoamericano de Hidrológica Subterránea (Latin-American Congress of Underground Hydrology), 25-29 September 2006, Asunción, Paraguay.

<http://www.alhsud2006.com.py/index.php>

Report composed by Paul Linden, Chair of WP-8

WP-9 - Education in Mechanics and Capacity Building

Working Party #9 on Education in Mechanics and Capacity Building has had two major activities since the last report.

First, at ICTAM04 in Warsaw the first pre-nominated session on Education in Mechanics at an IUTAM international congress was conducted. The session met with considerable interest from the delegates. Indeed, for the first few presentations there was standing room only. There were two sessions, a lecture session chaired by Prof. B. L. Karihaloo (UK) with the following presentations:

FSM7L-10003

Toys and Games in Mechanics Education

Hassan Aref

FSM7L-10016

African Institute for Mathematical Sciences: a Capacity Building Initiative in Which IUTAM Has an Active Involvement

H. K. Moffatt

FSM7L-10226

On Mechanics/Engineering Science Education

Carl T. Herakovich

FSM7L-12467

Multiimedia Fluid Mechanics: a Flexible Educational Tool for Teaching and Learning Fluid Mechanics

G. M. Homsy

FSM7L-12642

Rigid Body Dynamics: Student Misconceptions and Their Diagnosis

D. L. Evans

FSM7L-12752

Web-Based Instructional Units for Teaching Mechanics

Kamal B. Rojiani

and a seminar presentation session chaired by Prof. R. S. Engel (USA) with the following presentations:

FSM7S-11724

Mechanics - a New Internet Tutor

Aleksandr Kositsyn

FSM7S-11765

Teaching Mechanics as an Engineering Science in China

Yilong Bai

FSM7S-11869

Education and Tutorial on Fluid Mechanics on the Basis of Computer Laboratory

Vasily P. Yaremchuk

FSM7S-12259

Education in Mechanics in Latvia Higher Schools

Vitauts Tamuzs

FSM7S-12488

Simulator, Nohguchi Bottle, of Soil Liquefaction for Education

Yasuaki Nohguchi

FSM7S-12603

Mechanics Education in Sweden

Anders Boström

Second, the Working Party provided comments and feedback on a proposal drafted by Prof. H. K. Moffatt and an ad hoc subcommittee consisting of Profs. Moffatt, Kambe and Aref, concerning the notion of associate membership in IUTAM for organizations representing mechanics in countries that are not currently adhering members. This proposal is now slated for discussion at the 2006 IUTAM General Assembly.

Prof. Karihaloo who had chaired the Working Party felt the need to relinquish this responsibility. The other members of the working party would like to thank Prof. Karihaloo for his leadership and his activities on behalf of Working Party #9 as its inaugural chair.

Report composed by Hassan Aref, Acting Chair of WP-9

2005 Treasurer's Report

	USD
Balance, 31 December 2004	408,665.66
Net revenues minus expenses for 2005	3,254.66
Balance, 31 December 2005	411,920.32
Statement of Cash Revenues Collected over Expenses Paid	
Revenues collected during 2005:	
Subscription dues	95,744.53
Interest income	5,319.05
Total	101,063.58
Expenses paid during 2005:	
Symposia	18,750.00
IUTAM Summer School	5,000.00
Travel, Bureau	20,811.00
Travel, Congress Committee Executive Committee	13,619.00
Contribution to ICSU	2,704.00
Administration & printing	19,878.76
Auditor's fee	3,124.34
Bank fees	471.82
Total	84,358.92
Revenues minus expenses for 2005	16,704.66
Gain (loss) from exchange of currency	13,450.00
Net revenues minus expenses for 2005	3,254.66

**Statement of IUTAM Bank Accounts
(1 January 2005 through 31 December 2005)**

Bank	Balance 31-Dec-04	Withdrawals 2005	Deposits 2005	Balance 31-Dec-05	Currency
-------------	------------------------------	-----------------------------	--------------------------	------------------------------	-----------------

Checking Accounts

Citizens Bank Providence 1009-367-2	42,837.30	-64,431.34	98,325.01	76,730.97	USD
---	-----------	------------	-----------	-----------	-----

Citizens Bank Providence 1597-967-1	127,961.21	0.00	2,244.35	130,205.56	USD
---	------------	------	----------	------------	-----

ABN-AMRO Bank Eindhoven 41.41.42.551	32,009.95	-20,000.00	21,258.00	33,267.95	USD
--	-----------	------------	-----------	-----------	-----

ABN-AMRO Bank Eindhoven 41.41.28.311	504.97	-15,863.50	15,923.05	564.52	EUR
--	--------	------------	-----------	--------	-----

Savings Accounts

Citizens Bank Providence	104,742.69	-23,754.04	1,519.13	82,507.78	USD
-----------------------------	------------	------------	----------	-----------	-----

ABN-AMRO Bank Eindhoven	74,016.42	0.00	1,245.91	75,262.33	EUR
----------------------------	-----------	------	----------	-----------	-----

IUTAM Bank Account Information**Treasurer:**

Professor J. Engelbrecht, Institute of Cybernetics at Tallinn University of Technology, Akadeemia 21, 12618 Tallinn, Estonia

Assistant Treasurers:

Professor D. H. van Campen, Faculty of Mechanical Engineering, Eindhoven University of Technology, Postbus 315, NL-5600 MB Eindhoven, The Netherlands
 Professor L. B. Freund, Division of Engineering, Brown University, Providence, RI 02912-9104, USA

Bank Accounts:

ABN-AMRO Bank, Postbus 515, 5600 AM Eindhoven, The Netherlands, Account 41.41.28.311 (EUR), 41.41.42.551 (USD)
 Citizens Bank, One Citizens Drive, Riverside, RI 02915-3000, Account 1009-367-2 (USD)

**Subscription Due Paid in Membership Units
 (1 January 2004 through 31 December 2004)**

Adhering Organization	2001	2002	2003	2004	2005
Argentina	1	--	--	--	--
Australia	3	3	3	3	3
Austria	1	1	1	1	1
Belgium	5	5	5	5	--
Brazil	1	1	1	1	1
Bulgaria	--	1	--	1	--
Canada	8	8	8	8	8
Chile*	1	1	1	--	--
China/Beijing**	8	8	8	8	--
China/ Hong Kong	1	1	1	1	1

Adhering Organization	2001	2002	2003	2004	2005
China/Taipei	3	3	3	3	--
Croatia	1	1	1	1	1
Czech Republic	1	1	1	1	1
Denmark	3	3	3	3	3
Egypt	1	1	1	--	--
Estonia	1	1	1	1	1
Finland	3	3	3	3	3
France	8	8	8	8	8
Georgia	--	--	--	--	--
Germany	8	8	8	8	8
Greece	1	1	1	1	--
Hungary	1	1	1	1	1
India	5	5	5	5	5
Ireland	1	1	1	1	1
Israel	3	3	3	3	3
Italy	8	8	8	8	8
Japan	8	8	8	8	8
Korea	1	1	1	--	--
Latvia	1	1	1	1	1
Netherlands	5	5	5	5	5

Adhering Organization	2001	2002	2003	2004	2005
New Zealand	1	1	1	1	1
Norway	1	--	--	1	1
Poland	3	3	3	3	3
Portugal	1	1	1	1	1
Romania	1	1	1	1	1
Russia	8	8	8	8	8
Saudi Arabia	1	1	1	1	1
Serbia and Montenegro	1	1	1	1	--
Slovakia	1	1	1	1	--
Slovenia	1	1	1	1	--
South Africa	1	1	1	1	1
Spain	1	1	1	1	--
Sweden	5	5	5	5	5
Switzerland	3	3	--	--	--
Turkey	1	1	1	1	1
Ukraine	1	1	1	1	--
United Kingdom	8	8	8	8	8
United States	12	12	12	12	12
Vietnam	1	1	1	1	1

Note: For any particular year, a dash (--) indicates that dues had not been paid as of 31 December 2005 and a blank space indicates no adhering organization.

Dues are expressed in membership units of 1, 3, 5, 8 or 12, corresponding to category of membership from I through V, respectively.

* Chile, unpaid 1997, 1998

** China/Beijing, paid for 2005 but not recorded in Bank Statement for 2005

Reports on Affiliated Organizations

AFMC (Asian Fluid Mechanics Committee)

The Tenth Asian Congress of Fluid Mechanics was held at Peradeniya, Sri Lanka during 17-21 May 2004. The Congress was well represented by fluid dynamicists from Asian countries as well as from countries elsewhere. Six Invited Plenary Lectures and twelve Special Lectures were delivered. A total of 133 contributed papers were presented by authors from Australia, Bangladesh, China, Estonia, India, Iran, Japan, Korea, Pakistan, Russia, Singapore, Sri Lanka, Sweden, Taiwan, Thailand, UK and USA. The total number of participants was 185.

It was decided that the Eleventh Asian Congress of Fluid Mechanics will be held in Kuala Lumpur, Malaysia in May 22-25, 2006. Professor Ow Chee Sheng (Faculty of Mechanical Engineering, Universiti Teknologi Mara) and Professor Tso Chih Ping (Faculty of Engineering & Technology, Multimedia University), the members of the Asian Fluid Mechanics Committee from Malaysia, will coordinate the Congress activities. More information is available at <http://11acfm.mmu.edu.my>

Report composed by Masaru Kiya

CACOFD/LACCOTAM

LACCOTAM – **The Latin American and Caribbean Congress of Theoretical and Applied Mechanics** is a newly formed international non-governmental non-profit scientific organization. On August 17th 2005, the Caribbean Congress of Fluid Dynamics (CACOFD) adopted Statutes and Procedures to effect its transformation into LACCOTAM – Latin American and Caribbean Congress of Theoretical and Applied Mechanics. The decision was taken at an official meeting of the CACOFD Executive Board held at the University of the West Indies. The new name reflects the resolution of the CACOFD Executive Board to expand the scope of the Congress to include all areas of Theoretical and Applied Mechanics, and to embrace the wider region of Latin America and the Caribbean.

Between August 2005 and January 2008, the existing Executive Council of CACOFD shall function as the Interim Executive Council of LACCOTAM, with Harold Ramkissoon (University of the West Indies, Trinidad & Tobago) as Honorary President, Freddy Malpica (Simon Bolivar University, Venezuela) as President, Baltasar Mena (National Autonomous University of Mexico) as Vice-President, Donna M. G. Comissiong (University of the West Indies, Trinidad & Tobago) as Secretary, Karim Rahaman (University of the West Indies, Trinidad & Tobago) as Treasurer, and Luis Rojas (Simon Bolivar University, Venezuela) as Public Relations Officer. Members of

the Executive Council under the new Statutes shall enter into office on 1 February 2008 following elections to be held in January 2008 during the first LACCOTAM conference in Margarita. Until such time, the Interim Executive Council of LACCOTAM will identify and co-opt prominent scientists from the wider region of Latin America and the Caribbean to serve on the Executive Board. On May 2nd 2006, Roberto André Kraenkel (Institute for Theoretical Physics, São Paulo State University, Brazil) was named the first co-opted Officer of the LACCOTAM Executive Board.

The objective of LACCOTAM is to engage in all activities intended to promote in the wider region of Latin America and the Caribbean the development of mechanics as a branch of science and engineering. All theoretical, analytical, computational and experimental methods applied to mechanics fall within the scope of interest. LACCOTAM will promote and organize tri-annual LACCOTAM conferences on Theoretical and Applied Mechanics. These meetings will serve as a forum to meet scientists in the region, and as a means of promoting inter-regional research initiatives.

In particular, the Congress will pursue this objective through:

- The organisation/support of Latin American meetings/workshops/conferences on subjects within the entire field of mechanics.
- The establishment of links between persons and organisations in the region (including industry) engaged in scientific work in mechanics and its application.
- The gathering and dissemination of information on all matters related to mechanics. This will be achieved by developing and maintaining a LACCOTAM web-page and a yearly (online) newsletter.
- Studying ways of promoting the development of standards for education in mechanics and in related sciences throughout Latin America and the Caribbean.

LACCOTAM welcomes to membership of all those who are interested in the study and application of mechanics. It will bestow honorary membership, prizes and awards to recognise scientists who have made exceptionally important and distinguished contributions in theoretical and applied mechanics in the region (Latin America and the Caribbean). Membership will provide an opportunity for professional enrichment and for encouraging young people in the region to embark on professional careers in mechanics. Members will also have the benefit of reduced registration fees for LACCOTAM conferences.

Report composed by Donna M.G. Comissiong

CISM (International Centre for Mechanical Sciences)

1. Courses and Seminars

The regular programme of courses and seminars, planned for the Centre for 2005 by the Scientific Council, took place in two Scientific Sessions, the Bianchi Session (June-July

2005) and the Drucker Session (September-October 2005). The topics, always at an advanced level, included different fields of mechanics and related sciences, both at a basic and applied level. Two courses and one school were sponsored by the EU, a school and workshop by UNESCO. One course was organized with IUTAM.

The Bianchi Session

- Mechanical Vibration: Where Do We Stand?
- Analysis and Control of Mixing with an Application to Micro and Macro Flow Processes
- Multiscale Modeling and Design of New Materials
- Multiscale Modelling of Plasticity and Fracture by means of Dislocation Mechanics
- Waves in Geophysics
- Atmospheric Convection: Research and Operational Forecasting Aspects
- Thin Films of Soft Matter
- Fluid Dynamics of Cavitation and Cavitating Turbopumps

The Drucker Session

- Boiling Heat Transfer and Boiling Equipment
- Mixed Finite Element Technologies
- Flow and Transport in Microchannels: Fundamental Theoretical Aspects, Experimental Methods, Application
- Dynamic Methods for Damage Detection in Structures

13th IUTAM International Summer School on Dispersion of Particles in Turbulent Flows

2. Other Events

Besides the above courses, the following other meetings were organized or hosted by CISM in 2005:

- CEPET 6th Workshop (Central European Programme. in Economic Theory) (June 2005)
- KMM - First Integration Summer School (September 2005)
- School and Workshop on New Perspectives in Thermodynamics Quantifying Non-Equilibrium Processes (October-November 2005)

3. Editorial Activities

The lectures of several courses held at CISM are published in book form and distributed by Springer Verlag Vienna-New York.

The following books were published in 2005:

E. Stein: "Adaptive Finite Elements in Linear and Nonlinear Solid and Structural Mechanics"

J. Rondal - D. Dubina: "Light Gauge Metal Structures - Recent Advances"

-
- Z. Mroz - G.E. Stavroulakis "Parameter Identification of Materials and Structures"
M. Pignataro - V. Gioncu: "Phenomenological and Mathematical Modelling of Structural Instabilities"
T. Sadowski: "Multiscale Modeling of Damage and Fracture Processes in Composite Materials"
M. Lines "Nonlinear Dynamical Systems in Economics"
V. Armenio - S. Sarkar: "Environmental Stratified Flows"
L. Dormieux - F.-J. Ulm: "Applied Micromechanics of Porous Materials"
C. Lai - K. Wilmanski: "Surface Waves in Geomechanics: Direct and Inverse Modelling for Soils and Rocks"
R. Grimshaw: "Nonlinear Waves in Fluids: Recent Advances and Modern Applications"
E. Kulianic: "Advanced Manufacturing Systems and Technology"

The international journal for rapid communication "Mechanics Research Communications" (bimonthly) created by CISM and Pergamon Press, Oxford-New York in 1973, published in 2005 its thirtysecond volume. It contains short communications on research related to a wide domain of both theoretical and applied mechanics.

4. Scholarships

A number of scholarships, including free lodging and board or exemption from registration fee, was offered during the courses to participants who were not supported by their home institutions, priority being given to young researchers coming from countries that contribute to CISM's operating resources.

Partial travel reimbursements as well as free board and lodging in Udine were granted to several participants from Mediterranean and European countries, thanks to UNESCO and EU contributions.

5. International Participation

In 2005, 94 lecturers from 20 countries delivered lectures in the Bianchi and Drucker Sessions. The courses were attended by 516 participants coming from 38 countries.

Report composed by Bernard Schrefler

EUROMECH (European Mechanics Society)

EUROMECH - European Mechanics Society is an international non-governmental non-profit scientific organization. The objective of the Society is to engage in all activities intended to promote in Europe the development of mechanics as a branch of science and engineering. The society is governed by the Council whose members are being elected according to rules set in Statutes.

EUROMECH meetings

The EUROMECH Council has overall responsibility for EUROMECH Colloquia and EUROMECH Conferences. EUROMECH Colloquia are informal meetings on specialized research topics. Participation is restricted to a small number of research workers actively engaged in the field of each Colloquium. The organization of each Colloquium, including the selection of participants for invitation, is entrusted to a Chairperson. Proceedings are not normally published. Those who are interested in taking part in a Colloquium should write to the appropriate Chairperson (Number, Title, Chairperson or Co-chairperson).

EUROMECH Conferences are broad in scientific scope. They comprise

- the EUROMECH Solid Mechanics Conference,
- the EUROMECH Fluid Mechanics Conference,
- the EUROMECH Turbulence Conference,
- the EUROMECH Nonlinear Dynamics Conference and
- the EUROMECH Mechanics of Materials Conference.

They are open to all those interested and are expected to have a number of participants between 150 and 600. The general purpose is to provide opportunities for scientists and engineers to meet and discuss current research. The responsibility for each series of Conferences is delegated to a Standing Conference Committee. The organizational work is carried out by Local Organizing Committees (LOC). Those who are interested in taking part in one of the Conference should write to the Chairman or Secretary of the appropriate LOC.

EUROMECH COLLOQUIA in 2005

- [460] Numerical Modelling of Concrete Cracking, 21-23 February, Innsbruck, Austria
- [463] Size-dependent Mechanics of Materials, 13-16 June, Groningen, The Netherlands
- [464b] Wind energy, 5-7 October 2005, Oldenburg, Germany
- [465] Hydrodynamics of Bubbly Flows, 6-8 June, Lorenz Center Leiden, The Netherlands
- [466] Computational and Experimental Mechanics of Advanced Materials, 20-22 July, Loughborough, U.K.
- [467] Turbulent Flow and Noise Generation, 18-20 July, CIRM, Luminy (Marseille), France
- [468] Multi-scale Modelling in the Mechanics of Solids, 29 June 2005-1 July, St. Petersburg, Russia
- [469] LES of Complex Flows, 6-8 October, Dresden, Germany
- [471] Turbulent Convection in Passenger Compartments, 13-14 October, Göttingen, Germany
- [472] Microfluidics and Transfer, 6-8 September, Grenoble, France
- [473] Fracture of Composite Materials, 27-29 October, Porto, Portugal
- [474] Material Instabilities in Coupled Problems, 30 August 2005 - 1 September, Troyes, France

EUROMECH CONFERENCES in 2005

[ENOC5] 5th EUROMECH Nonlinear Oscillations Conference, 7-12 August 2005, Eindhoven University of Technology, The Netherlands

[EMMC8] MECAMAT, 8th European Mechanics of Materials Conference, 13-15 September 2005, ENS Cachan, France

For more details see www.euomech.org

Report composed by Bernhard Schrefler

HYDROMAG (International Association for Hydromagnetic Phenomena and Applications)

HYDROMAG is an international association of scientists and engineers active in those fields of research which involve the flow of fluids in the presence of a magnetic field, namely magnetohydrodynamics (MHD), electromagnetic processing of materials (EPM) and dynamics of magnetic fluids (MF). HYDROMAG promotes growth and visibility of the field of hydromagnetics and stimulates exchanges between its members throughout the world via conferences, workshops, summer schools and publications. Detailed information on HYDROMAG can be accessed under

<http://wcms1.rz.tu-ilmenau.de/fakmb/hydromag.html>

This WWW-site contains information on membership, forthcoming conferences, the electronic HYDROMAG newsletter and a link to the German Ferrofluid Information Server, maintained by Prof. S. Odenbach (University of Dresden).

During the year 2005 several workshops and scientific meetings have been conducted involving the active participation of HYDROMAG and its members including PAMIR-conference in June in Riga Latvia, which was considered as a major highlight.

A group of European Scientists successfully established a network on MHD in frame of the COST-programme of the European Commission called "COST action P17 Electromagnetic Processing of Materials". The programme supports mutual visits of scientists. Detailed information can be obtained from

http://www.maschinenbau.tu-ilmenau.de/mb/wwwd/COST/COST_Page01.html

Report composed by André Thess

IABEM (International Association for Boundary Element Methods)

The IABEM 2004 symposium has been held on May 24-26, 2004, at the University of Minnesota, Minneapolis, USA. The main organizer was Prof. Steven L. Crouch. About 60 papers have been presented, with an attendance of about 80 participants.

A special issue of Computational Mechanics gathering 12 selected full-length contributions to IABEM 2004 has been published (vol. 37 no. 1, guest editors S.L. Crouch, M. Bonnet).

Moreover, the IABEM has initiated on this occasion the Frank Rizzo medal, which is going to be awarded at each meeting starting with the 2004 edition to one individual as recognition of outstanding research contributions over an entire career. The first recipient has been Prof. Frank Rizzo of Iowa State University, USA.

The next event is the IABEM 2006 meeting, to be held in Graz, Austria on July 10-12, 2006 and organized by Prof. Martin Schanz of Technical University of Graz (<http://www.iabem2006.tugraz.at/>). A special issue of Computational Mechanics is planned on this occasion.

Report composed by Marc Bonnet

IACM (International Association for Computational Mechanics)

The WCCM VI - 6th International Association for Computational Mechanics (IACM) World Congress took place in Beijing, China on September 5 - 10, 2004

Next IACM World Congresses

- WCCM VII - 7th International Association for Computational Mechanics (IACM) World Congress Century City, California, USA on July 16 - 22, 2006
- WCCM VIII - 8th. World Congress on Computational Mechanics in conjunction with the ECCOMAS Congress 2008 Lido Island, Venezia, Italy, June 30 - July 5, 2008

The following IACM supported events took place in 2005:

- COMPLAS VIII – 8th. International Conference on Computational Plasticity Barcelona, Spain on September, 5 -8, 2005.
- USNCCM VIII - 8th U.S. National Congress on Computational Mechanics Austin, Texas. 24-28 July, 2005.
- IASS IACM'05 – 5th. International Conference on Computation of Shell & Spatial Structures June 1-4, 2005, Salzburg, Austria.
- 13th. Conference on Finite Elements for Flow Problems Swansea, Wales, UK . April 4 - 6, 2005

Future IACM supported events:

- IABEM 2006 Conference - International Association for Boundary Element Methods Graz University of Technology, Austria. July 10 - 12, 2006
- VII World Congress on Computational Mechanics Century City, California, USA. 16-22 July, 2006
- COUPLED PROBLEMS 2007 – 2nd. International Conference for Coupled Problems in Science and Engineering Ibiza, Spain, May 21 – 23, 2007
- MARINE 2007 – 2nd. International Conference on Computational Methods in Marine Engineering Barcelona, Spain, 4 – 6 June, 2007
- COMPLAS 2007 - 9th. International Conference on Computational Plasticity Barcelona, Spain, 5 - 7 September, 2007
- MEMBRANES 2007 – 3rd. International Conference on Structural Textile Composites and Inflatable Structures Barcelona, Spain, 17 – 19 September 2007
- ADMOS III - International Conference on Adaptive Modeling and Simulation Chalmers University, Göteborg, Sweden. 26 - 28 September, 2007

For further details on the above events you can contact the IACM Secretariat, iacm@cimne.upc.edu. Further information on IACM activities can be found in the web page <http://www.iacm.info>

Report composed by Sergio Idelsohn**IAVSD (International Association for Vehicle Systems Dynamics)**

(<http://www.iavsd.org>)

The main event organized by IAVSD was the 19th International IAVSD Symposium that took place on August 29 – September 2, 2005 in Politecnico di Milano, Milan, Italy. There were 196 participants from 27 countries all over the world and there were presented 143 papers (5 invited as state-of-the-art, 92 orally and 46 as poster). The number of participants from industry and the number of submitted papers were increased compared with previous symposia and it was a great success of the IAVSD Symposium in Milan.

At the symposium the new Board of IAVSD for the years 2005 – 2011 has been elected. Then the Board has elected the new president, vice-presidents, secretary general and treasurer. The president of IAVSD remained Prof. Hans True from Technical University of Denmark, Denmark and the secretary general remained Prof. Michael Valasek from Czech Technical University in Prague, Czech Republic. The 1st vice-president became Prof. Masato Abe from Kanagawa Institute of Technology, Japan, the 2nd vice-president Dr. Robert Frohling from Spoornet Engineering Pta, South Africa and the treasurer Prof. Roger Goodall from Loughborough University, UK.

The IAVSD Board has decided that the next 20th International IAVSD Symposium will take place in University of California at Berkeley, USA on August 13 - 17, 2007. The next associated events of IAVSD will be ECCOMAS Conference on Computational Solid and Structural Mechanics, June 5-8, 2006, Lisbon, Portugal, the International

Conference on Advanced Vehicle Control AVEC'06 in August 20-24, 2006 in Taipei, Taiwan and the IAVSD Summerschool as CISM course n. 321 on "Dynamical Analysis of Vehicle Systems" in October 23-27, 2006 in Udine, Italy.

Report composed by Michael Valasek

ICA (International Commission for Acoustics)

(<http://www.icacommission.org>)

The International Commission for Acoustics (ICA) is a worldwide consortium of societies concerned with the field of acoustics. The ICA convenes the triennial International Congress on Acoustics in accordance with the Commission's guidelines. The ICA has also undertaken a number of initiatives to promote international development and collaboration in all fields of acoustics. The ICA currently has 45 Member Societies worldwide.

The ICA held its annual Board meeting in Rio de Janeiro, Brazil on 6 August 2005. At the board meeting Stephen Crandall and Anders Bostrom were approved as associate members of ICA for the year 2005 to 2008 representing IUTAM. Also the representatives of other related organizations such as I-INCE, EAA, IIAV and WESPAC were approved as associate members.

The ICA continues to promote its Conference Grant Program for small (< 100 attendance) specialty symposia on acoustics. Support is now provided for a number of symposia each year. Each symposium typically receives up to 1500 Euros. The following three symposia were approved for support in 2005 to provide travel assistance for international participation:

- (1) ISNA: 17th International Symposium on Nonlinear Acoustics, 18-22 July 2005 (Penn State, USA)
- (2) Speech analysis, synthesis and recognition – applications of phonetic research, 19-23 September 2005 (Krakow, Poland)
- (3) High Intensity Acoustic Waves in Modern Technological and Medical Applications, 14-15 November 2005 (Moscow, Russia)

This program is funded jointly between the ICA and the Committee for International Research and Education of the Acoustical Society of America.

The ICA continues to maintain an International Calendar of Meetings and Congresses on Acoustics through the ICA Information Services. The Calendar is published simultaneously on the ICA web site and in the Journal of the Acoustical Society of America.

Based on the decision made at the general assembly in Kyoto, ICA applied for membership of ICSU in March 2005 and was accepted as an associate member of ICSU.

The 19th Congress will be held on 2-7 September 2007 in Madrid, Spain and the 20th Congress in 2010 in Sydney, Australia.

Report composed by Philip A. Nelson and Sonoko Kuwano

ICF (International Congress on Fracture)

2005 was a very busy year for ICF. The highlight of the year was the quadrennial conference (ICF11) held in the famous Lingotto Convention Centre in Turin in March under the chairmanship of Professor Alberto Carpinteri. On all measures, ICF11 was an immense success with over 1100 participants. The programme consisted of Honour, Opening and 10 plenary lectures, and minisymposia and special sessions on 45 topics. The Honour lecture was presented by Professor B.B. Mandelbrot on “Fractal analysis and synthesis of fracture surface roughness and related forms of complexity and disorder” and the Opening lecture by Professor G.I. Barenblatt on “Scaling phenomena in fatigue and fracture”. Many plenary and keynote lectures were delivered by people who are active in IUTAM CC and GA. Further details on ICF11 can be found at www.icf11.com.

The ICF Council awarded 7 Honorary Fellowships to distinguished researchers and elected a new Executive. The new ICF President for 2005-2009 is Professor K. Ravi-Chandar (University of Texas, Austin) and the two vice-Presidents are also members of IUTAM CC (Professor A. Carpinteri and Professor B.L. Karihaloo). The new ICF representative in IUTAM is Professor R.M. McMeeking who is already active in IUTAM as Chair of WP4. The next quadrennial conference of ICF (ICF12) will be held in Ottawa, Canada in 2009. The new ICF Executive also decided to co-sponsor the 16th European Conference of Fracture (ECF16) to be held in Greece in July 2006.

Report composed by Bhushan Karihaloo in consultation with ICF President K. Ravi-Chandar

ICHMT (International Centre for Heat and Mass Transfer)

ICHMT organized an international symposium and sponsored three in 2005:

- “Heat and Mass Transfer in Spray Systems”, June 5-10, 2005, in Dedeman Hotel, Antalya, Turkey. The symposium was Chaired by Professor Norman Chigier, Carnegie Mellon University, in Pittsburgh, U.S.A.

- “Fourth Mediterranean Combustion Symposium”, (Sponsored) October 6-10, 2005, in Lisbon, Portugal. The symposium was Co-chaired by Dr. Federico Beretta, Istituto di Ricerche sulla Combustione Consiglio Nazionale delle Ricerche, Italy; Professor Nevin Selcuk, Middle East Technical University, Turkey; Prof. Mohy S. Mansour, The American University in Cairo, Egypt.
- “5th International Symposium on Multiphase Flow, Heat Mass Transfer and Energy Conversion, ISMF’05”, (Sponsored) July 3-6, 2005, China. The Symposium was chaired by Professor L.J. Guo
- “International Conference on Computational Heat and Mass Transfer, ICCHMT’05” (Sponsored), May 17-20, 2005, Paris-Cachan, France. The Symposium was Co-chaired by Professor R Bennacer University of Cergy-Pontoise, France, Professor S. Kakac (Honorary-Chair) University of Miami, USA, Professor A. A. Mohamad, Calgary University, Canada, Dr. J. Sicard, Ecole Normale Superieure, France
Details of these meetings including abstracts of all presentations can be found on the web page at <http://www.ichmt.org/abstracts/meetings.html>

The organization of several future meetings have continued. These are :

- “5th Symposium on Turbulence, Heat and Mass Transfer “, September 25-29, 2006, Hotel Dubrovnik, Dubrovnik, Croatia. Detailed information can be found on the symposium Web site: <http://www.ichmt.org/Thmt-06>
- “Heat and Mass Transfer in Biotechnology”, June 2007, Turkey.
- “Fifth International Symposium on Radiative Transfer”, 2007, Turkey.
- “The Use of Polygeneration for Sustainability”, (Sponsored), Spring 2006, Palermo, Italy
- “3rd BSME - ASME International Conference on Thermal Engineering”, 20-22 December 2006, Dhaka. Detailed information can be found on the symposium Web site: http://www.iutoic-dhaka.edu/bsme_asme_ict2006.
- “ASME/ATI Conference, Energy: production, distribution and conservation”, 14-16 May, 2006, Milan. Detailed information can be found on the symposium Web site: <http://www.asmeati2006.it/>

Report composed by Gulter Mut

ICM (International Congress on the Mechanical Behaviour of Materials)

No report has been submitted by ICM.

ICR (International Committee on Rheology)

There have been no activities of the ICR in 2005.

The next International Congress on Rheology will be in 2008, see
<http://www.rheology.org/ICR2008>

Report composed by Manfred Wagner

ICTS (International Congresses on Thermal Stresses)

The single most important event regarding ICTS in the year 2005 was the *Sixth International Congress on Thermal Stresses* that was held at the Vienna University of Technology, in Vienna, Austria, 26 - 29 May, 2005.

The Sixth International Congress on Thermal Stresses, TS 2005, was attended by the largest number of participants of all six Congresses held so far.

Number of participants: 229.

Number of represented countries: 30.

Most of the participants represented Japan, U.S.A., Russia, Ukraine, Poland, Italy, and Austria.

Organizers of the Sixth International Congress on Thermal Stresses:

General Chair: Franz Ziegler (Austria).

Co-Chairs: Richard B. Hetnarski (U.S.A.), and Naotake Noda (Japan).

Secretary: Christoph Adam (Austria).

International Organizing Committee:

Chairs: Liviu Librescu (U.S.A.), and Yoshinobu Tanigawa (Japan).

Members: J. Achenbach (U.S.A.), R. C. Batra (U.S.A.), B. Boley (U.S.A.), F. Erdogan (U.S.A.), L. Gaul (Germany), T. Hata (Japan), J. Ignaczak (Poland), D. A. Indeitsev (Russia), A. L. Kalamkarov (Canada), P. Marzocca (U.S.A.), Y. Nyashin (Russia), R. W. Ogden (U.K.), B. A. Schrefler (Italy), Y. N. Shevchenko (Ukraine), J. J. Skrzypek (Poland), N. Sumi (Japan), T. R. Tauchert (U.S.A.), V. Tvergaard (Denmark), A. Tylikowski (Poland), K. Watanabe (Japan), T. T. Wu (Taiwan).

National Organizing and Program Committees:

Chair of NOC: Rudolf Heuer (Austria); Chair of PC: Hans Irschik (Austria).

Members: H. Boehm, P. Borejko, J. Eberhardsteiner, F. D. Fischer, G. Hofstetter, W. Mack, M. Reiterer, P. Rosko.

The two-volume Proceedings of the Sixth International Congress on Thermal Stresses were published (802 pages total). The Editors: F. Ziegler, R. Heuer, and C. Adam. The Proceedings contain six-page abstracts of lectures by invited speakers, and four-page abstracts of lectures by regular attendees.

As a part of the Congress, a Memorial Session was held, dedicated to the memory of Ernst Melan and Heinz Parkus, late Professors of TU-Vienna and Fellows of the Austrian Academy of Sciences, and authors of early fundamental contributions to the field of Thermal Stresses and Thermoelasticity.

A special double issue of the Journal of Thermal Stresses, vol. 28, issue 6-7, 253 pages, was published; it contained full text of three Invited Lectures, and full text of four lectures presented at the Ernst Melan - Heinz Parkus Memorial Session.

The preparations for the Seventh International Congress on Thermal Stresses, TS 2007, are currently in full swing. The Congress is being organized and will be hosted by the National Taiwan University of Science and Technology jointly with National Taiwan University, and will be held in Taipei, Taiwan, June 4-7, 2007.

The Principal Organizers of the Seventh International Congress on Thermal Stresses:
General Chair: Ching-Kong Chao (Taiwan).

Co-Chairs: Richard B. Hetnarski (U.S.A.), and Naotake Noda (Japan).

Secretary: Chyi-Yeu Lin (Taiwan).

Chairs of the International Organizing Committee: Franz Ziegler (Austria) and Liviu Librescu (U.S.A.).

The web page of TS 2007: <http://www.ntust.edu.tw/~ts2007>

Report composed by Richard B. Hetnarski

IIAV (International Institute of Acoustics and Vibration)

The International Institute of Acoustics and Vibration (IIAV) celebrated the tenth year of its founding in 2005. IIAV at present has over 500 individual members in 55 countries. The ninth IIAV annual election was held in 2005 in which all members voted on candidates for five new directors. The elected directors replaced the directors whose four-year terms had expired. The five directors elected were: Hans Bodén, Sweden; Colin Hansen, Australia; Gopal Mathur, USA; Andy Moorhouse, UK; and Kunisato Seto, Japan. Professor Jan W. Verhiej of the Netherlands will complete his two year term as president of IIAV in July 2006 and Professor Franz Ziegler of Vienna, Austria will then take up the position as president for a further two-year term.

The Twelfth International Congress on Sound and Vibration (ICSV12) was held in Lisbon, Portugal July 11-14, 2005. ICSV12 was hosted by the International Institute of Acoustics and Vibration in cooperation with the Acoustical Societies of Portugal and Spain and the American Society of Mechanical Engineers. Over 1000 abstracts from authors from 55 countries were received for the Twelfth Congress. Altogether 800 delegates attended this, the Twelfth International Congress on Sound and Vibration (ICSV12).

Many of the ICSV12 sessions were organised by members of the ICSV12 scientific committee. The ICSV12 technical proceedings were available to delegates at the congress itself on CD-ROM. The ICSV12 CD includes all abstracts and the full texts of all 742 accepted papers. Just after the opening ceremony, Professor David Newland of Cambridge, United Kingdom was awarded the eighth honorary fellow membership of the IIAV. Professor Newland then gave a lecture on the formation and historical development of IIAV.

The seven ICSV12 keynote addresses covered very different aspects of acoustics and vibration and were presented by prominent researchers such as Earl H. Dowell, USA, on “Nonlinear dynamics of fluid-structure interaction,” Nuno Castelo-Branco, Portugal, on “The vibro-acoustics disease – a 25 year old saga,” Eugene Rivin, USA, on “Vibration isolation of precision objects using smart passive isolators,” R. Murray Schafer, Canada, on “I have never seen a sound,” Niels Olhoff, Denmark, on “Topology optimization of structures against vibration and noise,” L. M. B. C. Campos, Portugal, on “Aeroacoustics research on the reduction of the environmental impact of aircraft noise,” and Murray Hodgson, Canada, on “New methods for measuring and predicting the acoustical quality of classrooms.” The ICSV12 technical programme included lectures arranged in 12 parallel technical sessions over a period of three and a half days. Further details can be found on the ICSV12 website: www.icsv12.ist.utl.pt.

The ICSV12 banquet festivities continued in the traditional ICSV fashion with a musical program offered by the participants themselves. The delegations from Australia, Brazil, China, Egypt, Italy, Japan, Poland, Portugal, Russia, Korea, Sweden, and the United Kingdom sang traditional songs from their respective countries, a high point of the event. During ICSV12, three IIAV members were elevated to fellow grade at a ceremony. The accompanying persons programme included half day tours to the City of Lisbon, to Sintra and the Cascais coast line, and to Sesimbra and the Arrabida National Park. The participants and their accompanying persons were also offered additional tours to Fátima, to the medieval town of Óbidos, and to the historical city of Évora for the days immediately after the Congress.

The Thirteenth International Congress on Sound and Vibration (ICSV13) will be held in Vienna, Austria on July 2-6 2006. It is organised by the Institute for Mechanics of Materials and Structures of the Vienna University of Technology, the Austrian Academy of Sciences, Acoustics Research Institute and the Austrian Federal Ministry of Education, Science, and Culture. More than 1,000 abstracts from 56 different countries on all areas of sound and vibration have been submitted. A list of submitted abstracts can be found on the Congress website, icsv13.tuwien.ac.at. Forty special structured sessions have been organised by members of the ICSV13 scientific committee. Plans are also well underway for the fourteenth congress (ICSV14) to be held in Cairns, Australia in July 2007 and the fifteenth congress (ICSV15) to be held in Deajeon, Korea in July 2008.

Two more organisations became affiliated to IIAV in 2005: The Institution of Mechanical Engineers, and the Acoustical Society of Egypt. Currently 35 scientific societies or similar organisations are affiliated to IIAV as cooperating societies.

The International Journal of Acoustics and Vibration (IJAV), the refereed quarterly journal of IIAV, marked its tenth year of publication in 2005. IJAV continues to receive a steady flow of good papers and to be published on schedule. IJAV is sent to all IIAV members and to libraries all over the world.

Report composed by Malcolm J. Crocker (Executive Director IIAV)

ISIMM (International Society for the Interaction of Mechanics and Mathematics)

The following collateral activities have been sponsored by the society:

Granular Matter: Mathematical Modeling and Physical Instances, Faculty of Engineering and Department of Mechanics and Materials at the University of Reggio Calabria, Reggio Calabria, Italy, June 26-29, 2005.

The Symposium has been an occasion to enhance the scientific debate about the construction of mathematical models for the description of the physical behavior of granular matter. The attention has been mainly focused on the comparison between models suggested by physical instances and the needs of mathematics to get rigorous results. The program has been based around seven general lectures, given by:

Prof. Alexander Bobylev, Karlstadt Universitet, Svezia;

Prof. Irene Martinez Gamba, University of Texas, Austin, USA;

Prof. Joe Goddard, University of California, San Diego La Jolla, USA;

Prof. Hans Herrmann, University of Stuttgart, Germany;

Prof. Kumbakonam R. Rajagopal, Texas A&M University, USA;

Prof. Giuseppe Toscani, Università di Pavia;

Dr. Andrea Puglisi, Paris XI, France.

There have been five round-table discussions about mathematical models, physical behaviour and computational methods.

Continuous and Discrete Modelling in Mechanics, International Conference in Memory of the late Prof. Dr. Henryk Zorski, Warsaw, Poland, September 5-9, 2005.

The Conference has been attended by many prominent scientists from the following countries: France (1), Germany (3), Great Britain (3), Italy (5), Yugoslavia (1), Poland (40), USA (4). In 47 presentations of 30 minutes duration many subjects of mechanics were covered and most of them represented the fields of research in which Henryk Zorski was very active and contributed his own work. In particular, there were lectures on

- 1) foundations of continuum mechanics and thermodynamics,
- 2) nonlinear elasticity and elastic dielectrics,
- 3) modelling of functionally graded and laminated materials,
- 4) nonelastic continua,
- 5) transitions between quantum and classical models,
- 6) biomechanics and some medical applications,
- 7) modelling of peptides and DNA,
- 8) genetic networks,
- 9) defects of crystals
- 10) nonlinear and linear waves in continua,
- 11) porous and granular materials and mixture theories.

The ISIMM society was represented by its President, Prof. Dr. Mario Pitteri, Vice-president Prof. Dr. Ingo Müller, Secretary Prof. Dr. Adriano Montanaro and the former President Prof. Dr. Robin Knobs.

Some very close friends of Henryk Zorski who intended to participate in the meeting were, unfortunately, not able to come. One should mention, in particular, Prof. Dr. G. Barenblatt, Prof. Dr. R.J. Kosevich, Prof. Dr. Cz. Rymarz, Prof. Dr. A. J. M. Spencer, Prof. Dr. J. R. Willis, and Prof. Dr. R.S. Rivlin, who unfortunately passed away one month later.

The variety of research subjects and the lively atmosphere of the conference was not only a tribute to Prof. Dr. Henryk Zorski but also a sad proof that we will be missing a very prominent member of the Society. The organizers are intending to publish a special issue of "Archives of Mechanics" containing contributions to the conference.

Thermal Theories of Continua: Survey and Developments, Summerschool and International Conference, Messina, Italia, September 25-30, 2005.

Organizers: V. Ciancio, M. Francaviglia, L. Restuccia. Steering Committee: W. Muschik (Berlin), D. Bedeaux (Leiden), A. Bejan (USA), K.-H. Hoffmann (Chemnitz), D. Jou (Barcelona), G.A. Maugin (Paris), H.C. Öttinger (Zürich), T. Ruggeri (Bologna). Advisory Board: B. Andresen (København), A.N. Beris (USA), J. Casas-Vazquez (Barcelona), V. Ciancio (Messina), M. Francaviglia (Torino), E.P. Gyftopoulos (USA), S. Kjelstrup (Trondheim), G. Lebon (Liège), B. Maruszewski (Poznan), C. Papenfuss (Berlin), L. Restuccia (Messina), M. Rubi (Barcelona), P. Ván (Budapest), J. Verhás (Budapest), A. De Vos (Gent).

Broad-minded Modeling in Continuum Physics, A workshop in honor of Gianfranco Capriz on his 80th birthday", Roma, INdAM (Italian Institute for Higher Mathematics), October 3--7, 2005.

From the organizers:
AIM AND SCOPE

The basic premise of the workshop is our belief that - contrary to a widespread prejudice - continuum physics is neither a complete nor a mature scientific discipline. Quite the

contrary holds true. In fact, the available continuum treatment of several key physical issues is at best rudimentary: suffice it to mention surface physics and phase kinetics. Continuum modeling can be today as lively as ever, provided it is practiced with an open mind, eager to interact with scientists having a different background, and in close contact with relevant, ground-breaking new developments. The interplay with atomistic physics is vital, and it goes both ways: while finer theories provide coarser theories with sound constitutive information, coarser theories provide a well-structured target to finer ones, which helps in culling the effective behavior of interest out of the bewildering mass of unstructured information these provide.

Unfortunately, this attitude does not seem to prevail in today's continuum physics - nor in other quarters in science, as far as we can tell. Despite our limitations, we find it worthwhile to take action against narrow-mindedness, trying to summon a small group of scientists with diverse background and know-how, ranging from biophysics to materials science, computational physics, statistical mechanics, mathematical analysis and, needless to say, continuum mechanics. We find it all the more appropriate to do so to honor the life-long struggle of Gianfranco Capriz in this same direction.

INVITED SPEAKERS

Marino Arroyo (Laboratori de Càlcul Numèric, Departament de Matemàtica Aplicada III, Universitat Politècnica de Catalunya) "Continuum modelling of the mechanics of curved crystalline objects: applications to carbon nanotubes"

Renato Buzio (CNR-INFM, Dipartimento di Fisica, Università di Genova) "Advances in contact mechanics at the nano- and meso-scale"

Roberto Camassa (Department of Mathematics, University of North Carolina at Chapel Hill) "Spinning rods, microfluidics, and mucus propulsion by cilia in the lung"

Giovanni Ciccotti (Struttura della Materia, Dipartimento di Fisica, Università di Roma "La Sapienza") "Dynamical approach to nonequilibrium molecular dynamics"

Bernard D. Coleman (Center for Molecular Biophysics and Biophysical Chemistry, Rutgers University) "A recently developed theory of DNA elasticity that accounts for long range intramolecular electrical forces tells us that under physiological conditions such forces can have strikingly strange implications that should be accessible to experimental verification"

Luciano Colombo (Sardinian Laboratory for Computational Materials Science, Dipartimento di Fisica, Università di Cagliari) "Theory and atomistic simulation of fracture mechanics in complex materials"

Marco Degiovanni (Dipartimento di Matematica e Fisica, Università Cattolica) "An axiomatic approach to powers in continuum mechanics"

Antonio DeSimone (SISSA/ISAS - International School for Advanced Studies)

"Evolving microstructures"

Eliot Fried (Department of Mechanical and Aerospace Engineering, Washington University in St. Louis) "Configurational forces in sharp-interface theories for phase transformations in fluids"

Luigi Galgani (Dipartimento di Matematica, Università di Milano)
"The Fermi Pasta Ulam problem as a problem in physics: the metastability scenario and the specific heats"

Erik van der Giessen (Micromechanics of Materials Group, Department of Applied Physics, Rijks Universiteit Groningen) "Modeling the nonlinear behaviour of network-like biological tissues"

Jenny Harrison (Department of Mathematics, University of California - Berkeley)
"Infinitesimals, the hidden calculus"

James T. Jenkins (Department of Theoretical and Applied Mechanics, Cornell University) "Dense flows of granular materials down inclines"

Robin J. Knops (Department of Mathematics, Heriot-Watt University)
"On uniqueness in generalised nonlinear continua"

Fulvio Lazzeri (Dipartimento di Matematica, Università di Pisa)
"Remarks on the geometrical description of some physical systems"

Claude Le Bris (Équipe Simulation Moléculaire et Multi-Échelles, CERMICS, École Nationale des Ponts et Chaussées)
"Discrete to continuum limits for random microstructures"

John H. Maddocks (Laboratory for Computation & Visualization in Mathematics & Mechanics, École Polytechnique Fédérale de Lausanne)
"Multi-scale models of sequence-dependent mechanics of DNA oligomers"

George Mullenger (Civil Engineering Department, University of Canterbury)
"Decomposition of random motion"

Walter Noll (Department of Mathematical Sciences, Carnegie Mellon University)
"The theory of surface interactions, an update"

Errico Presutti (Dipartimento di Matematica, Università di Roma "Tor Vergata")
"Tunnelling in two dimensional models"

Mario Pulvirenti (Dipartimento di Matematica, Università di Roma "La Sapienza")
"A microscopic model of friction"

Miroslav Silhavy (Academy of Sciences of the Czech Republic & Università di Pisa)
"Liquefaction points and the effective liquid response in nonelliptic solids"

Epifanio Virga (Laboratory of Soft Matter Mathematical Modelling, Dipartimento di
Matematica, Università di Pavia) "Modelling defect dynamics"

ISIMM Executive Committee Member honored

Cornelius (Niall) O. Horgan, University of Virginia, has been awarded the 2005 A. C. Eringen medal by the Society of Engineering Science (SES). The prize is awarded by the SES in recognition of "sustained outstanding achievements in Engineering Science". The award certificate cites Horgan's "seminal contributions to applied mathematics and the theory of elasticity". The Eringen medal was first awarded in 1976 and previous recipients have been selected from a diverse international group of outstanding engineers and scientists including three Nobel laureates. The medal was presented to Professor Horgan at the joint SES/ASME/ASCE Meeting on Mechanics and Materials, Baton Rouge, LA, USA, June, 2005 on which occasion he presented the SES Annual Engineering Science Plenary Lecture entitled "Continuum mechanics based hyperelastic strain-stiffening constitutive models for rubber-like materials". This lecture described recent research of Professor Horgan and colleagues on the mathematical and continuum mechanical modeling of rubber-like and biological materials. This work has numerous applications in engineering ranging from rubber vibration isolators for structures to modeling of soft biological tissues.

The following new members have been installed in the Society:

Alain Goriely (Arizona)
Zoran Jelicic (Novi Sad)
Teodor Atanackovic (Novi Sad)
Michael D. Gilchrist (Univ. College Dublin)
Jeremiah G. Murphy (Dublin City Univ.)
Franco Cardin (University of Padova)

The following members have unfortunately passed away:

Professor J.J. Telega (Warsaw)
Professor B. Broberg (Univ. College Dublin)
Professor V.J. Mizel (Pittsburgh)
Professor R.S. Rivlin (Lehigh)

Due to the initiative of the ISIMM publication committee a series of books has come to fruition. The series is called "**Interaction of Mechanics and Mathematics Series**" (**IMM**) and is published by Springer Heidelberg. Professor Lev Truskinovsky is the editor of the series.

In 2005 the following books have been printed:

- I.Müller, W. Weiss: Entropy and Energy, 2005
- H.Struchtrup: Macroscopic Transport Equations for Rarefied Gas Flows, 2005

These and other current activities of the Society are reported in Newsletters which appear on the webpage of the Society <http://isimm.dmsa.unipd.it>

Report composed by A. Montanaro

ISSMO (Int. Society for Structural and Multidisciplinary Optimization)

ISSMO held its Sixth World Congress of Structural and Multidisciplinary Optimization on 30 May - 3 June 2005 in Rio de Janeiro, Brazil. The Congress was attended by 369 participants and 41 countries were represented. The proceedings of the Congress are published on CD-ROM (ISBN 85-285-0070-5). Two Executive Committee meetings and a General Assembly meeting were held in conjunction with the Congress. The next World Congress will be held in Seoul, Korea on 21-25 May 2007.

ISSMO co-sponsored different scientific meetings on optimization in 2005, including the IUTAM Symposium “Topological Design Optimization of Structures, Machines and Materials – Status and Perspectives” that was held in Denmark, 26-29 October 2005 and attended by 72 participants from 19 countries.

Please consult the website <http://www.issmo.org> for more details on ISSMO.

Report composed by Niels Olhoff

Reports on ICSU and its Scientific Committees

ICSU (International Council for Science)

Report to IUTAM on 28th General Assembly of ICSU, Suzhou, China, 18-21 October 2005.

1. Introduction

We were happy to represent IUTAM at the 28th General Assembly (GA) of ICSU (the International Council for Science) held in Suzhou, China, 18-21 October 2005, where 25 of the 27 International Scientific Unions and 63 of the 103 Nations adhering to ICSU were represented at a total gathering of about 250 delegates. The discussions, under the chairmanship of the President of ICSU, Jane Lubchenko (Oregon State University), were wide-ranging and incisive on many key issues. These GAs are held once every three years. The previous GA was held in 2002 in Rio de Janeiro. There, the Executive Board of ICSU was asked to prepare a strategic plan for ICSU for the period 2006-2011; an important part of the discussions in Suzhou centred on this strategic plan which is ambitious and which calls for the support and active participation of all members, both Scientific Union and National, in its implementation. We shall focus in the following on matters most relevant to IUTAM, and on ways in which we may wish to be involved over the next six years.

2. Mission statement of ICSU: Strengthening international SCIENCE for the benefit of SOCIETY

It may be helpful to be reminded first of the mission statement of ICSU, which reads as follows:

In order to strengthen international science for the benefit of society, ICSU mobilizes the knowledge and resources of the international science community to:

- Identify and address major issues of importance to science and society;
- Facilitate interaction amongst scientists across all disciplines and from all countries;
- Promote the participation of all scientists – regardless of race, citizenship, language, political stance, or gender – in the international scientific endeavour;
- Provide independent, authoritative advice, to stimulate constructive dialogue between the scientific community and governments, civil society, and the private sector.

The key words here are science and society. An important aim of the strategic plan is to generate greater comprehension of science by society, and greater recognition by politicians of the relevance and significance of scientific advances for the framing of new policies. Interactive collaboration with the social sciences is recognized to be of importance in achieving this aim.

3. Universality of Science and Capacity Building

One of the basic principles of ICSU is that of the “**Universality of Science**”, which seeks to ensure non-discrimination, and equity of opportunity to engage fully in the international scientific endeavour. The building of the capacity of countries, especially those in the developing world, to sustain a viable level of activity in science and technology relevant to local needs, is consequently one of the priority areas of ICSU, and figures prominently in its strategic plan. Following its review and closure of the Committee on Science and Technology in Developing Countries (COSTED) in 2002, ICSU resolved to set up four Regional Offices (ROs) for the developing world, representing (i) Africa, (ii) Latin America and the Caribbean, (iii) Asia and the Pacific region, and (iv) the Arab region (a somewhat unspecific designation nevertheless approved by UNESCO). The RO for Africa has been established in Pretoria, and was opened in September 2005, under the Directorship of Sospeter Muhongo. Subject to confirmation at government level, it is planned that ROs for (ii) and (iii) will soon be established in Rio de Janeiro and Kuala Lumpur respectively. A suitable location for the RO for the Arab region is still to be determined.

In view of these developments, it is fitting that IUTAM has established its Working Party WP9 on *Education in Mechanics and Capacity Building*. We should take advantage of the creation of the above ROs from the outset, and should consider how IUTAM can best liaise with these offices, perhaps through WP9. Our affiliated organisations CACOFD (possibly expanded to include Latin America, as now planned) and AFMC should be encouraged also to liaise with the ROs in regions (ii) and (iii) respectively.

As regards Africa, IUTAM is already involved in capacity building through our support of the African Institute for Mathematical Sciences (AIMS) in Cape Town. We were able to display at the GA a poster exhibiting the achievements of AIMS since its foundation in September 2003, and the use to which the ICSU grant of \$100k channelled through IUTAM in 2004 (and the additional \$20k donated by IUTAM) has been put. I believe that AIMS is now acknowledged within ICSU as a prototype of what can be achieved in capacity building on quite limited resources and within a short period of time; and IUTAM has gained both visibility and credit in the process!

At AIMS, emphasis is placed on the use of open-source software, in line with one of the stated goals of ICSU “to facilitate a coordinated global approach to scientific data and information that ensures equitable access to quality data and information for research, education and informed decision-making”.

4. Environment, Sustainable Development, and Renewable Energy

These related topics also figure prominently in ICSU’s strategic plan. Here again, it is fitting that IUTAM has established WP8 on *Geophysical and Environmental Mechanics*, which should be able to keep IUTAM informed and advise how we may best contribute

in this vitally important area. We should be further informed through our Representative on ICSU's Scientific Committee on Problems of the Environment (SCOPE).

Just as ICSU, together with the World Meteorological Organisation (WMO), sponsored the International Geophysical Year (IGY, 1957-1958), so it has now agreed to sponsor the **International Polar Year (IPY, 2007-2008)**. A Committee has been established jointly with WMO to plan and coordinate IPY activities. Unions are invited to participate in relevant areas within their scope. IUTAM has obvious interest in the mechanics of snow and ice, and in oceanographic and atmospheric fluid dynamics of Arctic and Antarctic regions, and it seems desirable therefore that we be represented in discussions leading up to IPY. An IUTAM Symposium in 2008 relevant to IPY (possibly joint with IUGG) should perhaps be encouraged!

The GA also agreed to establish an ad hoc Scoping Group to explore the development of a new international research programme on **Natural and Human-Induced Hazards** (e.g. earthquakes, tsunamis, hurricanes, landslides, pollution, drought). This will build on the work of the 1990s International Decade for Natural Disaster Reduction, on which the late Sir James Lighthill reported regularly to IUTAM. There is now, particularly in the light of recent tragic disasters, an increasing recognition that it is by no means sufficient to generate scientific understanding of environmental hazards: this understanding must be translated in such a way as to develop appropriate hazard-mitigation strategies and policies at both national and international level. ICSU is appropriately represented on the UN International Strategy on Disaster Reduction (ISDR), and it is in this forum that the voice of science can be most effectively heard.

As regards **Sustainable Development**, a stark warning was issued in a report *Living Beyond Our Means* from the Millennium Ecosystem Assessment initiated by the UN in 2001, namely that "human activity is putting such strain on the natural functions of Earth that the ability of the planet's ecosystems to sustain future generations can no longer be taken for granted". Climate change is perhaps the major issue here, but there are others: water withdrawal from rivers and lakes, conversion of land to cropland, destruction of mangrove swamps and coral reefs that have in the past protected shorelines from devastating floods, nutrient pollution (notably nitrogen and phosphorus), depletion of fish stocks, deforestation, and as a result of all of these, serious reduction of biological diversity. As pointed out in an interesting presentation by Brian Walker (CSIRO, Australia), the evolution of an ecosystem is typically governed by a dynamical system exhibiting "catastrophe thresholds" on different time-scales, and requires an understanding of the manner in which these thresholds may interact. This is an area in which there is an obvious opportunity for the application of mechanical and mathematical knowledge!

The provision of **Renewable Energy** remains a priority issue for ICSU, which agreed as part of its Strategic Plan to develop plans for an International Science Panel on this subject. Insofar as there is scarcely any aspect of research on renewable energy that does

not involve fluid and/or solid mechanics in one form or another, IUTAM should seek to be involved in this also.

5. ICSU Finances and the ICSU Grants Programme

Several factors have conspired to make serious financial difficulties for ICSU over the last three years: (i) the fall in the value of the dollar relative to the euro; (ii) the decision of UNESCO to terminate its support of the ICSU grants programme (it is expected that funds will be deflected instead to the new Regional Offices); the return of USA to membership of UNESCO, with the consequence that funds paid by the US State Department by way of compensation direct to ICSU will now be paid to UNESCO instead. For these reasons, the ICSU grants programme is in serious financial difficulties, and there will be no Call for Proposals this year for grants for 2007. A modest sum has however been budgeted for grants in 2008 and 2009, and the efficacy of the grants programme will be reviewed in 2007/8. Longer-term continuation will require funding from new sources, as yet undetermined. [In these circumstances, IUTAM must regard itself as fortunate to have secured a major grant in the 2004-round.]

We should in the meantime consider whether we should apply for a grant in the 2008 round. An application relevant to one of the areas highlighted by ICSU's strategic plan, and involving collaboration with one or more of our sister Unions, would have greatest chance of success; this will require discussion at the General Assembly in August 2006.

Report composed by Keith Moffatt and Yilong Bai

COSPAR (Committee on Space Research)

COSPAR, established by ICS almost half century ago, is an actively working interdisciplinary scientific organization concerned with the promotion and progress, on an international scale, of all kinds of scientific research of space, especially carried out with space vehicles.

The year 2005 has been marked by the adoption of a number of important reforms, among which was the creation of the COSPAR Scientific Advisory Committee (CSAC), the main task of which will be to review the state of space research in the world, to issue statements on policy positions and to define priority issues as a way of helping the scientific community and the space organizations linked to COSPAR.

Very important event in 2005 was the signature of a ten-year plan to build the Global Earth Observation System of Systems (GEOSS). COSPAR intends to analyse what added value it might bring to this extremely important international programme as well as to others in various fields related to space research.

In 2005 COSPAR sponsored and co-sponsored a number of meetings. Among them:

- COSPAR Colloquium on Spectra and Timing of Compact X-ray Binaries/17-21 January, Mumbai, India;
- 15th IAA/COSPAR Humans in Space Colloquium, 23-27 May, Graz, Austria;
- Oceans Remote Sensing, a Tool for Ocean Science and Operational Oceanography, 19-30 September, Rabat, Morocco.

Important COSPAR activity during year 2005 was devoted to its forthcoming 36th Scientific Assembly, which will be held in Beijing, China 16-23 July 2006.

In 2005 COSPAR continued its publication activity. Four issues of COSPAR Information Bulletin have been published, including the news from the space community, space mission news, the COSPAR meetings reports, the list of satellites and space probes launched etc. The new issues of COSPAR Journal Advances in Space Research appeared: Vol. 35, No 6-11.

Report composed by G.G. Chernyi

SCOPE (Scientific Committee on Problems of the Environment)

No report has been submitted by SCOPE.

SCOR (Scientific Committee on Oceanic Research)

No report has been submitted by SCOR.

Agreement by and between IUTAM and Springer Science and Business Media B.V.

hereinafter referred to as "the Publisher"

WHEREAS IUTAM and the Publisher agree that Springer Science and Business Media is the official designated publisher of the proceedings of IUTAM Symposia (hereinafter referred to as "Symposia". The organizer or organizers of an IUTAM Symposium, being the chairmen of the Scientific Committee of the Symposium, are hereinafter referred to as the "Organizers");

WHEREAS IUTAM and the Publisher agree that each IUTAM proceedings volume published by the Publisher (hereinafter referred to as "Volume"), providing it is appropriate vis-a-vis subject matter, will be published in the "Solid Mechanics and Its Applications" book series, or the "Fluid Mechanics and Its Applications" book series (hereinafter referred to as the "Series");

WHEREBY, in consideration of the mutual covenants and obligations herein contained, the parties hereto have agreed and do agree as follows:

1. Publication

1. Springer Science and Business Media shall be the official publisher of the proceedings of all IUTAM Symposia. Each proceedings accepted for publication shall appear as a Volume in the Series. In those cases where it is not appropriate, the Volume will be published out-of-series in the same style and format. Each Volume will appear in a hard bound version.
2. IUTAM will inform the Organizers of IUTAM Symposia of the possibility of publishing a proceedings with the Publisher, and encourage them to contact the Publisher. Further contact between the Organizers and the Publisher will be bilateral. In addition, IUTAM will notify the Publisher sufficiently ahead of time which Symposia are to be organized and shall give the Publisher the names and addresses of the Organizers.
3. The Organizers of each individual Symposium, in accordance with the IUTAM Scientific Committee, will remain free to propose to publish the proceedings in a suitable journal. In such case, the Organizers and the Publisher shall first jointly make an effort to investigate the availability of a suitable journal of published by Springer Science and Business Media.
4. If the Organizers decide to publish a proceedings with the Publisher, as recommended by IUTAM, a separate contract will be concluded between the Organizers and the Publisher in which all details regarding publication will be settled. The terms and conditions relating to the publication of a given Volume will be a matter of negotiation between the Organizers and the Publisher, where the basic conditions are based on this present Agreement.
5. The Organizers act as the Editors of the Volume.

6. Typescripts for Volumes in the Series shall yield maximally about 450 printed pages. Exemption from this restriction can be agreed on by the Organizers and the Publisher. Further, the typescripts will not contain colour pictures or colour photographs, unless the Organizers and the Publisher agree otherwise.
7. The papers submitted for publication will be preferably in LaTeX format using the Springer style file. The style file will be made available by the Publisher, and the Publisher will assist in any questions regarding its use. The papers will be submitted in camera-ready, laser printed, form (with the original figures pasted in the typescript) according to the guidelines given by the Publisher.
8. The proceedings of IUTAM Symposia will be published as Volumes in the Series, having a uniform design and recognisable cover design, including the IUTAM logo (see article 1.2). Proceedings that will be or have been published with other publishers do not form part of the Series.
9. Both the Publisher and the Organizers will do their very best in bringing the Volume out no later than one year after the Symposium has taken place. This requires that the Volume Editors who are responsible of assembling the final typescript should deliver it on time, in consultation with the Publisher.
10. IUTAM grants the Publisher the non-exclusive rights of the use of the IUTAM logo.
11. IUTAM grants the Publisher the use of the brand name "IUTAM Symposium on". This brand name is solely reserved for proceedings Volumes based on the Symposia which have been decided upon by the IUTAM General Assembly and entrusted to the Scientific Committee of the Symposium.
12. The brand name "IUTAM Symposium on" will be an integral part of the title page and the front and back cover of each Volume, and will feature in relevant promotional material.
13. The right to publish the IUTAM Symposium proceedings is not transferable by Springer Science and Business Media to any other publisher.
14. The Volumes will be published entirely for the account and risk of the Publisher, who shall be the proprietor of the goodwill and copyrights to each individual Volume.
15. In consideration of the Publisher's obligations hereinafter mentioned, IUTAM grants to the Publisher all of its rights, title, and interest in and to the publication rights to the Volumes in any language throughout the world, including but not limited to the following: the exclusive right to print, publish and sell the Volumes in whole or in part, in book form and in any other form including, without limitation, mechanical, electronic and visual reproduction, electronic storage and retrieval systems, and all other forms of electronic publication not known or hereinafter invented. The Publisher also shall have the the exclusive authorization to license the right to translate, print, publish, or sell any no-English language edition of the Volumes, all during the unrestricted period of copyright.
16. IUTAM hereby agrees that the Publisher shall be the copyright holder of each Volume in the Series, and the Publisher shall be responsible for affixing the proper notice of copyright in each copy of each Volume.
17. The publisher agrees to publish an e-book of each IUTAM Proceedings Hardbound Edition.

2. Responsibilities

1. The Organizers, will in their role as Editors of the Volume be responsible for ensuring that each Volume satisfies the standards of high scientific quality. This requires that a reviewing procedure should be carried out of each submission to the Volume. This reviewing procedure will in general be performed by the Scientific Committee of each Symposium.
2. The Publisher will provide either directly, or through the Volume Editors, guidelines and instructions to contributing authors so as to ensure that each contribution appearing in the Volume is prepared to a consistent style and format. The Editors of each Volume shall endeavour that the typescripts are prepared in accordance with the Publisher's instructions.
3. All decisions regarding publication, promotion, prices and the sale of Volumes in the Series shall be made by the Publisher. However, at the Publisher's request, IUTAM or the Volume Editors will advise the Publisher on matters pertaining to promotion and advertisement. IUTAM will allow the Publisher the right to use its name in connection with such advertising and promotion of the Series and Volumes in the Series.
4. The Publisher will be responsible for ensuring that the Volumes are produced to a high quality in a consistent style and format.
5. IUTAM and Volume Editors warrant to ensure to the best of their ability that no material in the Series contains anything that is obscene, objectionable, indecent, or of libellous or scandalous character.

3. Payments/Complimentary Copies

1. Royalties shall not be paid to the Organizers.
2. In lieu of royalties, the Organizers will get a minimum of 2 copies of each Volume free of charge.
3. The Publisher will provide the IUTAM Bureau with 9 free copies of each Volume.
4. Participants to the Symposium will be given the opportunity to order the Volume at a special prepublication price. The special Volume price will be included in the Symposium registration fee, so that each registered Participant will automatically receive a copy of the Volume upon publication. The special price includes tax (if applicable) and postage. The special price will depend on the number of participants and the size of the Volume and will be subject to negotiation between the Publisher and the Organizers of the Symposium concerned.
5. The agreed pre-publication prices for 2005-2008 shall be as set forth in the addendum to this contract.
6. It will be the sole responsibility of the Organizers of a given Symposium to forward the appropriate, one-time payment to the Publisher. The Organizers will also supply the Publisher with adhesive labels with the names and addresses of the relevant participants.

4. Special Conditions

1. Should Springer Science and Business Media decide to send a representative to a given Symposium, the Organizers will agree to provide display space free of charge for the display of relevant publications and, possibly, the dissemination of relevant promotion material to participants in the conference portfolios.
2. Springer Science and Business Media will provide the Organizers with a subsidy of 850 Euro towards the costs of organizing the Symposium. This subsidy will be paid upon receipt of the contracts signed by the Organizers.

5. Termination

The Agreement between IUTAM and Springer Science and Business Media will remain in force for an initial period of 4 (four) years, starting January 1, 2005. The Agreement will be renewed for additional periods of 3 (three) years subject to confirmation of extension by both parties 12 months before the end of the initial 4-year period or subsequent 3-year periods. Either party may terminate the Agreement with or without cause upon 12 months written notice to the other.

6. Arbitration

All disputes that may arise in connection with this present agreement or the breach thereof shall be settled exclusively by arbitration, to be held in The Netherlands in accordance with Dutch law, and shall be conducted under the Rules of the 'Nederlands Arbitrage Instituut' (Netherlands Institute of Arbitration).

Statutes

Statuts de l'Union Internationale de Mécanique Théorique et Appliquée

- I «L'Union Internationale de Mécanique Théorique et Appliquée» ci-après dénommée «l'Union» est une organisation scientifique à la fois internationale et non-gouvernementale.
- II* Les principaux objectifs de l'Union sont
- a) de constituer un lien entre les personnes et les organisations engagées dans le travail scientifique dans toutes les branches de la mécanique théorique et appliquée, par des recherches analytiques, numériques et expérimentales;
 - b) d'organiser les congrès internationaux de mécanique théorique et appliquée par l'intermédiaire de son Comité permanent des Congrès (cf. Art. XII ci-après), et d'organiser d'autres réunions internationales sur des sujets relevant de la mécanique théorique et appliquée;
 - c) de s'engager en d'autres activités visant à promouvoir le développement de la mécanique, aussi bien théorique qu'appliquée, en tant que branche de la science.
- *) Article II adopté par l'Assemblée Générale de l'Union, le 18 août 2004 à Varsovie, Pologne
- III L'autorité suprême de l'Union est son Assemblée Générale.

Cette Assemblée détient le pouvoir de décider sur toute question affectant l'Union, notamment sur toute modification de ses Statuts. Sur des questions spécifiées, elle peut déléguer tout ou partie de ses pouvoirs à un ou à des organismes appropriés.

La composition de l'Assemblée Générale est régie par l'article VI ci-après. Les réunions de l'Assemblée Générale doivent se tenir aux dates fixées par le Bureau de l'Union (cf. Art. XI ci-après) ou sur la demande de 10 Membres au moins de cette Assemblée.

- IV Dans toutes ses décisions, l'Assemblée Générale doit être guidée par la tradition de libre coopération scientifique internationale développée par les Congrès Internationaux de Mécanique Théorique et Appliquée. En poursuivant ses objectifs, l'Union respectera le principe général de non-discrimination et reconnaîtra le droit pour tout scientifique, partout dans le monde, d'adhérer ou de s'associer à une activité scientifique internationale sans rencontrer d'opposition pour motif de race,

de religion, de philosophie politique, d'origine ethnique, de citoyenneté, de langage ou de sexe.

V Dans les votes de l'Assemblée Générale, chaque membre ne dispose que d'une voix. Pour une modification des Statuts, la majorité requise est de deux tiers des votes exprimés.

Pour toute autre décision la majorité simple des votes exprimés est requise. Tout membre se trouvant dans l'impossibilité d'être présent à une réunion peut désigner, à l'avance et par lettre adressée au Secrétaire Général, un autre membre qu'il charge de voter en son nom.

Dans l'intervalle entre réunions de l'Assemblée Générale, un vote peut être émis par correspondance sur proposition formulée par le Bureau (cf. Art. XI ci-après). En pareil cas, le résultat du vote n'est valablement obtenu que si le nombre des participants effectifs n'est pas inférieur aux deux tiers du nombre total des membres de l'Assemblée Générale.

VI** L'Assemblée Générale se compose des membres suivants avec droit de vote:

- a) des représentants des «organisations adhérentes» (cf. art. VIII);
- b) des membres du Bureau (cf. art. XI);
- c) des membres cooptés par l'Assemblée Générale de l'Union;

La durée de mandat d'un membre coopté est précisée, lors de son élection, par l'Assemblée Générale. La durée de mandat des membres du Bureau coïncide avec celle de leur appartenance au Bureau.

Les catégories suivantes d'observateurs sont invitées à participer, sans droit de vote, à l'Assemblée Générale de l'Union:

- i) des représentants des «organisations affiliées» (cf. art. X);
- ii) le Secrétaire du Comité de Congrès (cf. art. XII);
- iii) les présidents des «Symposia Panels»;
- iv) les présidents des «Working Parties»;
- v) des représentants des pays candidats à l'adhésion;
- vi) s'il y a lieu, et sur décision de l'Assemblée Générale, des représentants de comités ou groupes de scientifiques.

***) Article VI adopté par l'Assemblée Générale de l'Union, le 18 août 2004 à Varsovie, Pologne

VII L'Assemblée Générale doit veiller à une représentation adéquate de tout groupe de scientifiques poursuivant des recherches en mécanique théorique ou appliquée et non représenté par une organisation adhérente.

VIII Les organisations de scientifiques en mécanique théorique ou appliquée (ou les unions de telles organisations) qui représentent effectivement une activité scientifique indépendante dans un pays ou dans un territoire bien défini peuvent être admises dans l'Union par l'Assemblée Générale comme «organisations adhérentes» pourvu que leur dénomination exclue tout malentendu quant à la qualification du pays ou du territoire en cause.

En principe, une seule organisation pourra être admise pour chaque pays ou chaque territoire.

IX Chaque «organisation adhérente» dispose d'un certain nombre de représentants dans l'Assemblée Générale et doit acquitter une cotisation annuelle à l'Union (cf. Art. XIV ci-après).

X Des organisations internationales dont les domaines principaux d'activité sont en étroite relation avec ceux de l'Union peuvent être admises par l'Assemblée Générale en qualité «d'organisations affiliées» à l'Union.

Chaque organisation affiliée a la faculté de désigner un observateur qui est invité à participer, sans droit de vote, à l'Assemblée Générale de l'Union. Le Bureau de l'Union (Article XI) a réciproquement la faculté de désigner un observateur, sans droit de vote, à l'organe ayant une responsabilité équivalente dans l'organisation affiliée.

L'organisation affiliée et l'Union sont tenues de s'informer mutuellement de toutes leurs activités importantes et des mesures affectant leur fonctionnement.

En préparant les rencontres scientifiques internationales qu'elles organisent, l'Union et chaque organisation affiliée sont tenues de prendre soigneusement en considération toutes les décisions déjà prises par l'Union et les organisations affiliées de manière à assurer la bonne coordination de toutes ces activités scientifiques.

Les organisations affiliées n'ont à payer aucune cotisation annuelle à l'Union.

XI*** Pour exécuter les décisions de l'Assemblée Générale et pour assurer entre ses sessions le travail de l'Union, l'Assemblée Générale élit les membres d'un Bureau pour une durée de quatre ans au plus. Le Bureau est composé d'un Comité Directeur (un Président, le précédent Président qui remplit la fonction de Vice-Président, un Secrétaire Général et un Trésorier) et de quatre autres personnes qui ont été membres de l'Assemblée Générale à un moment de la période précédant de quatre ans le moment de l'élection du Bureau.

Les membres, qui ne sont pas au Comité Directeur, ne peuvent recevoir plus de deux mandats consécutifs. Les membres du Bureau nouvellement élus entrent en fonction au premier novembre qui suit l'Assemblée Générale qui a procédé à leur élection.

Le Bureau doit se réunir au moins une fois par an. Tout membre du Bureau empêché de prendre part à une réunion de celui-ci peut désigner, par lettre adressée au Secrétaire Général, un autre membre de l'Assemblée Générale pour le remplacer.

C'est au Secrétaire Général que doivent être adressées toutes les questions concernant le fonctionnement de l'Union y compris ses relations avec les organisations adhérentes, affiliées ou autres.

Le domicile légal de l'Union se situe au domicile du Secrétaire Général.

Le Bureau a le droit de désigner un trésorier-assistant en tout pays où l'Union est titulaire d'un compte bancaire. Les trésoriers-assistants doivent être choisis parmi les membres de l'Assemblée Générale, mais non nécessairement parmi les membres du Bureau.

Le Bureau doit établir un budget prévisionnel pour l'année à venir, administrer les finances de l'Union et soumettre, chaque année, à l'Assemblée Générale un rapport financier.

Le Vice-Président doit normalement remplir les fonctions du Président pendant toute période où celui-ci se trouve empêché de les exercer.

Entre les réunions de l'Assemblée Générale, il incombe au Bureau de désigner un remplaçant temporaire pour remplir les fonctions du Vice-Président, du Secrétaire Général ou du Trésorier si cela s'avère nécessaire.

***) Article XI adoptés par l'Assemblée Générale de l'Union, le 2 Septembre 1990 à Vienne, Autriche

XII L'Assemblée Générale désigne un Comité permanent des Congrès chargé d'organiser à intervalles réguliers les Congrès Internationaux de Mécanique Théorique et Appliquée (ICTAM).

- a) Le Président de l'Union préside aussi ce Comité des Congrès.
- b) Les Membres de ce Comité sont nommés par l'Assemblée Générale; ce sont des scientifiques actifs en mécanique théorique ou appliquée, n'appartenant pas nécessairement à l'Assemblée Générale.
- c) Le Comité des Congrès nomme un Secrétaire, sans précision de durée.
- d) Les règles de fonctionnement du Comité des Congrès sont soumises à l'approbation de l'Assemblée Générale.

XIII Les ressources financières de l'Union sont constituées par:

- a) les cotisations annuelles des «organisations adhérentes»;
- b) les dons et subventions que l'Union peut recevoir.

L'Union doit tenir une liste de ses bienfaiteurs où doivent être mentionnés pour chaque année les noms des personnes ou institutions qui ont accordé à l'Union des dons, des legs ou des subventions.

XIV Le nombre des représentants d'une «organisation adhérente» et le montant de la cotisation annuelle qu'elle doit acquitter sont défini dans le tableau suivant, par la catégorie à laquelle elle désire appartenir, et avec l'accord de l'Assemblée Générale.

Catégorie représentants	Nombre de de la cotisation annuelle	Nombre d'unités
I	1	1
II	2	3
III	3	5
IV	4	8
V	5	12

Le montant de l'unité de cotisation annuelle est fixé par l'Assemblée Générale, au moins une année précédente celle à laquelle cette cotisation devient exigible.

XV**** Toute proposition de modification des Statuts, présentée ou par le Bureau ou par le Secrétaire Général, et ayant reçu l'appui d'au moins dix membres de l'Assemblée Générale ayant le droit de vote, devra être envoyée aux membres de l'Assemblée Générale avec l'ordre du jour de la réunion de l'Assemblée Générale. Le débat sur de telles propositions devra s'effectuer au cours de la première session et le vote au cours de la seconde (Article V).

****) Article XV adopté par l'Assemblée Générale de l'Union, le 28 Août 1994 à Amsterdam, les Pays-Bas

Règles de fonctionnement du Comité des Congrès de l'Union

1. Le Comité des Congrès se réunit au moins une fois lors de chaque Congrès.
2. Le Comité des Congrès doit nommer un Comité Exécutif chargé de prendre en son nom toutes les décisions nécessaires pendant la période qui s'écoule entre deux réunions successives, et de lui en faire rapport à sa prochaine réunion. Le Comité Exécutif comprend le président, le secrétaire du Comité des Congrès, et un ou plusieurs membres désignés par le comité des Congrès.
3. L'organisation effective d'un Congrès est confiée à un Comité local d'Organisation, élu par le pays ou l'organisation qui invite, et ce Comité est également responsable de la publication des Comptes rendus du Congrès. Le Comité d'Organisation fera son

rapport au Comité des Congrès soit au cours du Congrès qu'il organise, soit avant, s'il le juge préférable.

4. Le Comité d'Organisation devra obtenir l'approbation du Comité des Congrès (normalement par l'intermédiaire du Comité Exécutif) pour toutes les questions relevant de la politique générale du Comité des Congrès, en particulier pour celles qui concernent:
 - 4.1. le but du Congrès;
 - 4.2. la sélection des communications pour le Congrès;
 - 4.3. le choix des conférences générales pour le Congrès;
 - 4.4. la désignation des présidents de sessions du Congrès;
 - 4.5. les principes généraux régissant les arrangements financiers du Congrès.
5. Le Comité d'Organisation percevra, de tous les membres du Congrès, une contribution (dont le montant sera proposé par le Comité du Congrès et approuvé par le Bureau) afin de couvrir les dépenses administratives du Comité du Congrès. Ces contributions seront reversées à l'IUTAM immédiatement après le Congrès.

Procédés pour l'élection du Bureau de l'IUTAM *****

1. Lors de l'Assemblée Générale (AG) précédant celle au cours de laquelle le nouveau Bureau doit être élu, un Comité Electoral (CE) doit être élu comprenant le Président de IUTAM (qui assure la présidence de ce Comité) et deux à quatre membres de l'AG, non-membres du Bureau en exercice.
2. A la suite de cette élection, le CE invite les membres avec droit de vote et observateurs de l'AG, spécifiés dans l'Article VI des Statuts sous les rubriques a), b), c), i) et ii), à faire connaître à son Président, dans des délais fixés, leurs suggestions de candidatures pour le Bureau, c'est-à-dire pour les charges de Président (P) de Secrétaire Général (S), de Trésorier (T) et pour quatre autres postes. Toutes ces suggestions doivent être traitées confidentiellement par le CE.
3. Prenant en compte toutes les suggestions reçues, le CE doit soumettre au Secrétaire Général les noms proposés comme candidats au Bureau: un seul nom pour les charges P,S,T et un ou plusieurs noms pour chacun des quatre autres postes (W,X,Y,Z). Le CE doit s'assurer que tous les candidats ainsi proposés sont prêts à accepter leur élection. Toutes ces propositions sont portées par le Secrétaire Général à la connaissance des membres de l'AG avant la première session de l'AG au cours de laquelle le nouveau Bureau doit être élu.

4. Lors de cette première session d'autres propositions de candidatures peuvent être proposées pour chacun des postes P, S, T, W, X, Y, Z. Aucun candidat ne peut être proposé pour plus d'un seul poste.
5. Avant la seconde session de l'AG au cours de laquelle le nouveau Bureau doit être élu, chaque proposition envisagée au point 4 ci dessus pour pouvoir être acceptée doit recevoir l'appui d'au moins dix membres de l'AG ayant le droit de vote au moyen d'une déclaration écrite et signée et faire l'objet d'un engagement écrit de la personne proposée indiquant qu'elle est prête à accepter son élection. Toute proposition ne remplissant pas ces conditions sera retirée.
6. Pour chacun des postes P, S, T, W, X, Y, S, l'AG est appelé à désigner le titulaire par un vote mettant en compétition les candidats restants. S'il y a plusieurs candidats pour un poste, le vote doit avoir lieu au scrutin secret.

*****) Procédure adoptée par l'Assemblée Générale de l'Union, le 18 Août 2004 à Varsovie, Pologne

Procédure pour l'élection de membres cooptés par l'Assemblée Générale*****

1. La procédure s'applique à l'élection et à la réélection des membres cooptés par l'Assemblée Générale mentionnés à l'article VI c) des Statuts.
2. Les propositions émanant des membres de l'Assemblée Générale ayant le droit de vote en vue de l'élection des membres cooptés, doivent parvenir au Bureau au moins trois mois avant l'Assemblée Générale au cours de laquelle ces propositions sont prises par elle en considération, en règle générale celle qui se tient pendant le Congrès International de Mécanique Théorique et Appliquée. Toutes ces propositions doivent être traitées confidentiellement par le Bureau.
3. Après avoir pris en compte toutes les propositions ainsi reçues le Bureau présente à l'Assemblée Générale une liste de celles qui sont jugées pouvoir recevoir de la part de l'Assemblée Générale un soutien raisonnable, pourvu cependant que le nombre total des membres cooptés n'excède pas 1/8 environ du nombre total des membres ayant le droit de vote. La liste de ces propositions est communiquée à tous les membres de l'Assemblée Générale pendant la première session de la réunion de l'Assemblée au cours de laquelle doit avoir lieu le vote.
4. Une liste de propositions différente de celle présentée par le Bureau n'est recevable que si elle a recueilli le soutien d'au moins dix membres de l'Assemblée Générale avant la seconde session.
5. L'Assemblée Générale vote sur les listes de candidats qui font l'objet des paragraphes 3 et 4.

*****)Procédure adoptée par l'Assemblée Générale de l'Union, le 26 Août 1992 à Haïfa, Israël

Statutes of the International Union of Theoretical and Applied Mechanics

I "The International Union of Theoretical and Applied Mechanics" hereinafter called "the Union" is an international non-governmental scientific organization.

II* The principal objectives of the Union are

- a) to form a link between persons and organizations engaged in scientific work in all branches of theoretical and applied mechanics and related sciences, including analytical, computational and experimental investigations;
 - b) to organize international congresses of theoretical and applied mechanics through a standing Congress Committee (Article XII), and to organize other international meetings for subjects falling within the field of theoretical and applied mechanics;
 - d) to engage in other activities meant to promote development of mechanics, both theoretical and applied, as a branch of science.
- *) Article II adopted by the General Assembly on August 18, 2004, in Warsaw, Poland

III The highest authority of the Union is its General Assembly.

The General Assembly has the power to decide all questions affecting the Union, including alterations of the Statutes. On specified questions it may delegate its power to appropriate bodies.

The composition of the General Assembly is regulated in Article VI.

Meeting of the General Assembly will take place at times decided by the Bureau (Article XI) or on the request of at least 10 members of the General Assembly.

IV In all its decisions the General Assembly shall be guided by the tradition of free international scientific cooperation, developed in the International Congresses for Theoretical and Applied Mechanics.

In pursuing its objectives the Union shall observe the basic policy of non-discrimination and affirm the rights of scientists throughout the world to adhere to or to associate with international scientific activity without regard to race, religion, political philosophy, ethnic origin, citizenship, language or sex.

- V In voting every member of the General Assembly shall dispose of one vote. For an alteration of the Statutes the majority required is 2/3 of the votes brought forward. For all other decisions a simple majority of the votes brought forward is required.

Any member who is unable to attend a meeting may by a letter to the Secretary General constitute another member of the General Assembly as proxy.

Between meetings of the General Assembly voting may be carried out by correspondence upon proposals made by the Bureau (Article XI); in this case decisions will be valid only provided the number of persons taking part in the vote is not less than 2/3 of the total membership of the General Assembly.

- VI** The General Assembly is composed of the following voting members:

- a) representatives of the adhering organizations (Article VIII);
- b) members of the Bureau (Article XI);
- c) members-at-large;

The term of a member-at-large shall be determined by the General Assembly at the time of the election. The term of members of the Bureau shall coincide with their term of service on the Bureau.

The following categories of observers are invited to take part in the General Assembly without voting rights:

- i) representatives of affiliated organizations (Article X);
- ii) Secretary of the Congress Committee (Article XII);
- iii) chairmen of the Symposia Panels;
- iv) chairmen of the Working Parties;
- v) representatives of countries applying for membership;
- vi) representatives of committees and groups of scientists, if so decided by the General Assembly.

** Article VI adopted by the General Assembly on August 18, 2004, in Warsaw, Poland

- VII The General Assembly shall provide for an adequate representation of any group of scientists carrying out research in theoretical or applied mechanics and not represented by an adhering organization.

- VIII Organizations of scientists in theoretical or applied mechanics (or unions of such organizations) which effectively represent independent scientific activity in a country or in a definite territory can be admitted by the General Assembly as adhering organizations of the Union provided they can be listed under a name that will avoid any misunderstanding about the country or territory represented.

In general only one organization from each country or territory will be admitted.

- IX Each adhering organization shall have representatives in the General Assembly of the Union, and pay an annual subscription to the Union in accordance with Article XIV.
- X International organizations mainly occupied in fields closely related to that of the Union can be admitted by the General Assembly as affiliated organizations of the Union.

Each affiliated organization has the right to appoint an observer, who is invited to take part in the General Assembly without voting rights. The Bureau of the Union (Article X) has the reciprocal right to appoint a nonvoting observer to the corresponding council or other executive body of the affiliated organization.

The affiliated organization and the Union are mutually obliged to keep each other informed about all important activities of and organizational measures taken.

In organizing international scientific meetings the Union and each of the affiliated organizations are obliged to consider carefully all measures already taken by the Union and its affiliated organizations in order to coordinate such international scientific activities.

Affiliated organizations pay no annual dues to the Union.

- XI*** To execute the decisions of the General Assembly and to carry out work between meetings, the General Assembly elects members of a Bureau for a period of at most four years. The Bureau consists of the officers (President, the retiring President who serves as Vice-President, Secretary-General, and Treasurer) and four other persons who shall have been members of the General Assembly at some time within the four years preceding the time of election to the Bureau. The maximum continuous period of service as a member of the Bureau, other than an officer, is limited to eight years. Newly elected members of the Bureau enter into office on the date of November 1, following the General Assembly at which they were elected. The Bureau will meet at least every year. A member of the Bureau who is prevented from attending a meeting may by letter to the Secretary-General designate another member of the General Assembly as a replacement.

The Secretary-General will act as a permanent centre for all matters affecting the Union, including relations with adhering, affiliated and other organizations.

The legal domicile of the Union shall be the place where the Secretary-General lives.

The Bureau is authorized to appoint Assistant-Treasurers in those countries where the Union has a bank account.

The Assistant-Treasurers must be members of the General Assembly but need not to be members of the Bureau.

The Bureau shall draft a budget for each coming year, and shall administer the finances. The Bureau shall submit an annual financial report to the General Assembly.

The Vice-President shall normally fulfil the duties of the President should the President become unable to discharge them.

Between meetings of the General Assembly the Bureau shall decide who shall undertake the duties of the Vice President, Secretary-General, or Treasurer should a temporary replacement be necessary.

***) Article XI adopted by the General Assembly on September 2, 1990, in Vienna, (Austria)

XII The General Assembly establishes a standing Congress Committee that is responsible for the organization of International Congresses of Theoretical and Applied Mechanics at regular intervals.

- a) The President of the Union shall also serve as President of the Congress Committee.
- b) The members of the Congress Committee are appointed by the General Assembly as scientists active in theoretical or applied mechanics and need not be members of the General Assembly.
- c) The Congress Committee appoints a Secretary, without stated terms of office.
- d) The rules of procedure of the Congress Committee shall be approved by the General Assembly.

XIII The financial means of the Union are formed by:

- a) the annual subscriptions of the adhering organizations;
- b) gifts and grants.

The Union shall maintain a roll of benefactors on which shall be inscribed annually the names of those persons or institutions which have accorded gifts, legacies or other subventions to the Union.

XIV The number of representatives of an adhering organization and the amount of the annual subscription to be paid by that organization will be regulated according to

one of the following categories, as proposed by the adhering organization and after approval of the General Assembly of the Union:

Category	Number of Representatives	Units of annual subscription
I	1	1
II	2	3
III	3	5
IV	4	8
V	5	12

Changes in the amount of the unit annual subscription will be decided by the General Assembly not less than one year in advance.

XV**** Any proposal for alteration of the Statutes either prepared by the Bureau or supported by statements to the General-Secretary signed by at least ten voting members of the General Assembly with voting rights, shall be sent to members of the General Assembly with the Agenda for a meeting of the General Assembly. Such proposals shall be discussed during the first session of that meeting and voted upon during the second session (Article V).

****) Article XV adopted by the General Assembly on August 28, 1994, in Amsterdam, The Netherlands

Rules of procedure for the Congress Committee of IUTAM

1. The Congress Committee meets at least once at every Congress.
2. The Congress Committee may appoint an Executive Committee to take all necessary actions on its behalf in the period between two successive Congresses, and to report to it at its next meeting. The Executive Committee will consist of the president, the secretary and one or more members appointed by the Congress Committee.
3. The actual organization of a Congress is delegated to a local Organizing Committee, elected by the host-country or host-organization, which is also responsible for publication of its Proceedings. The Organizing Committee will report to the Congress Committee either during or, if it sees fit, before the Congress which it organizes.
4. The Organizing Committee will obtain the approval of the Congress Committee (normally through the Executive Committee) with regard to all matters affecting the general policy of the Congress Committee, in particular with regard to:
 - 4.1. the scope of the Congress;

- 4.2. the screening of papers of the Congress;
 - 4.3. the selection of general lectures for the Congress;
 - 4.4. the appointment of chairmen of sessions of the Congress;
 - 4.5. the broad principles regarding financial arrangements for the Congress.
5. The Organizing Committee will levy a fee (the level to be recommended by the Congress Committee and approved by the Bureau) for administrative expenses of the Congress Committee, from all Congress members. This fee will be paid over to IUTAM after the Congress.

Procedure for election of the Bureau of IUTAM*****

1. At the General Assembly (GA) preceding the one at which the new Bureau is to be elected, an Electoral Committee (EC) shall be elected, consisting of the President of IUTAM (who shall act as Chairman of the EC) and two to four members of the GA who are not members of the current Bureau.
2. Following its election, the EC shall invite from those voting members and observers of the GA indicated under a), b), c), i) and ii) in Article VI of the Statutes, within a specified time limit, suggestions for candidates for the Bureau, viz. for the Offices of President (P), Secretary-General (S) and Treasurer (T), and for the four non-Officer positions. All suggestions shall be treated confidentially by the EC.
3. Taking account of all suggestions received, the EC shall submit to the Secretary-General nominations for candidates for election to the Bureau: one name for each of the Officer positions (P, S, T) and one or more names for each of the non-Officer positions (W, X, Y, Z). The EC will make sure that the candidates thus nominated are willing to accept an election. These nominations shall be conveyed by the Secretary-General to the GA in advance of the first session of the meeting of the GA at which the new Bureau is to be elected.
4. At this first session, additional candidates may be proposed by members of the GA for each and any of the positions P, S, T, W, X, Y, Z. No candidate may be proposed for more than one position.
5. Before the second session of the GA at which the new Bureau is to be elected, the proposals under clause 4 above shall be accepted if supported by statements to the Secretary-General each signed by at least ten (voting) members of the GA and by written confirmation that each nominee is willing to accept election; otherwise they shall be considered withdrawn.

6. The GA shall vote separately on the surviving nominations for each of the positions P, S, T, W, X, Y, Z. In any case in which there is more than one candidate for a position, the vote shall be by secret ballot.

*****) Procedure adopted by the General Assembly on August 18, 2004, in Warsaw, Poland

Procedure for electing Members-at-Large of the General Assembly*****

1. This procedure shall apply for the election and re-election of the Members-at-Large of the General Assembly provided for in Article VI(c) of the Statutes.
2. Proposals, by members of the General Assembly with voting rights, for Members-at-Large must be received by the Bureau at least three months before the meeting of the General Assembly at which proposals are to be considered, normally during the International Congresses of Theoretical and Applied Mechanics (ICTAM). All proposals will be treated confidentially by the Bureau.
3. Taking into account all material received, the Bureau will present to the General Assembly such proposals as it deems will have at least a reasonable support by the General Assembly, provided however that the total number of Members-at-Large is not to exceed approximately one eighth (1/8) of the total General Assembly membership with voting rights. Such proposals will be circulated to all members of the General Assembly during the first session of meeting of the Assembly at which the proposals are to be voted on.
4. Proposals not identical with those presented by the Bureau are considered to be withdrawn, unless they are sustained and supported by at least ten members of the General Assembly before its second session.
5. The General Assembly will vote on those candidates mentioned in the proposals of paragraphs 3 and 4.

*****) Procedure adopted by the General Assembly on August 26, 1992, in Haifa, Israel

List of Publications

Five categories of IUTAM publications can be distinguished:

a) Annual Reports

Since 1948, the Union has published a Report every year with detailed information on its activities. These Annual Reports are preserved at the IUTAM Archive at CISM, Udine, Italy.

The IUTAM Annual Reports over the last five years are available upon request from the IUTAM Secretariat and as pdf file on the IUTAM website
<http://www.iutam.net/iutam/Publications/>

b) Newsletters

At the meeting of the Bureau of IUTAM held in Warsaw in August 2001 it was agreed that the IUTAM Newsletter should be revived.

A primary purpose of the Newsletter, in conjunction with the IUTAM website, is to provide information concerning future activities of IUTAM, particularly its Symposia and Summer Schools, and concerning the International Congress of Theoretical and Applied Mechanics (ICTAM).

The Newsletter will also serve to keep members of IUTAM informed about any other current developments of concern to IUTAM.

The last IUTAM Newsletter is available from the IUTAM Secretariat. Pdf versions of IUTAM Newsletters are available from the IUTAM website
<http://www.iutam.net/iutam/Publications/index.php/6>.

c) Proceedings of IUTAM Symposia

These are only available by ordering directly from the publisher.

d) Proceedings of the International Congresses on Theoretical and Applied Mechanics (ICTAM)

These are only available by direct ordering from the publisher.

e) Publications on the history of IUTAM

Proceedings of IUTAM Symposia

The Proceedings of IUTAM Symposia published since 1995 are listed below.

The names of the editors and of the publisher are given in every case.

A complete listing of all published Proceedings can be found at the IUTAM website <http://www.iutam.net> or <http://www.iutam.org> or <http://www.iutam.info> .

1995

- 95-1 *IUTAM Symposium on Optimization of Mechanical Systems*
(Stuttgart, Germany, 26-31 March 1995).
The Proceedings of the Symposium, edited by D. Bestle and W. Schiehlen, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1996. ISBN 0-7923-3830-8.
- 95-2 *IUTAM Symposium on Asymptotic Methods for Turbulent Shear Flows at High Reynolds Numbers*
(Bochum, Germany, 28-30 June 1995).
The Proceedings of the Symposium, edited by K. Gersten, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1996. ISBN 0-7923-4138-4.
- 95-3 *IUTAM Symposium on Advances in Nonlinear Stochastic Mechanics*
(Trondheim, Norway, 3 - 7 July 1995).
The Proceedings of the Symposium, edited by A. Naess and S. Krenk, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1996. ISBN 0-7923-4193-7.
- 95-4 *IUTAM Symposium on Nonlinear Instability and Transition in Three-Dimensional Boundary Layers*
(Manchester, UK, 17-20 July 1995).
The Proceedings of the Symposium, edited by P.W. Duck and P. Hall, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1996. ISBN 0-7923-4079-5.
- 95-6 *IUTAM Symposium on Micromechanics of Plasticity and Damage of Multiphase Materials*
(Paris, France, 29 August-1 September 1995).
The Proceedings of the Symposium, edited by A.Pineau and A.Zaoui, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1996. ISBN 0-7923-41388-0.

- 95-7 *IUTAM Symposium on Nonlinear Analysis of Fracture*
(Cambridge, UK, 3-7 September 1995).
The Proceedings of the Symposium, edited by J. Willis, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1997. ISBN 0-7923-4378-6.
- 95-9 *IUTAM Symposium on Combustion in Supersonic Flows*
(Poitiers, France, 2-6 October 1995).
The Proceedings of the Symposium, edited by M. Champion and B. Deshaies, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1997. ISBN 0-7923-4313-1.
- 1996**
- 96-1 *IUTAM Symposium on Interaction between Dynamics and Control in Advanced Mechanical Systems*
(Eindhoven, The Netherlands, 21-26 April 1996).
The Proceedings of the Symposium, edited by D.H. van Campen have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1997. ISBN 0-7923-4429-4.
- 96-2 *IUTAM Symposium on Innovative Computational Methods for Fracture and Damage*
(Dublin, Ireland, 30 June-5 July 1996).
The Proceedings of the Symposium, edited by P. E. O' Donoghue, M. D. Gilchrist and K. B. Broberg, have been published in the "Computational Mechanics Journal", 19, 447- 552; 20, 3-198, 1997.
- 96-3 *IUTAM Symposium on Variable Density Low Speed Turbulent Flows*
(Marseille, France, 7-10 July 1996). Co-sponsored by ICSU.
The Proceedings of the Symposium, edited by Louis Fulachier, John L. Lumley and Fabien Anselmet, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1997. ISBN 0-7923-4602-5.
- 96-4 *IUTAM Symposium on Mechanics of Granular and Porous Materials*
(Cambridge, UK, 15-17 July 1996).
The Proceedings of the Symposium, edited by N.A. Fleck and A.C.F. Cocks, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1997. ISBN 0-7923-4553-3.

1997

- 97-1 *IUTAM Symposium on Lubricated Transport of Viscous Materials* (Tobago, 7-10 January 1997).
The Proceedings of the Symposium, edited by Harold Ramkissoon, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1997. ISBN 0-7923-4897-4.
- 97-2 *IUTAM Symposium on Transformation Problems in Composite and Active Materials* (Cairo, Egypt, 9-12 March 1997).
The Proceedings of the Symposium, edited by Y.A. Bahei-El-Din and G.J. Dvorak, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1998. ISBN 0-7923-5122-3.
- 97-3 *IUTAM Symposium on Non-Linear Singularities in Deformation and Flow* (Haifa, Israel, 17-21 March 1997).
The Proceedings of the Symposium, edited by D. Durban and J.R.A. Pearson, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1998. ISBN 0-7923-5349-8.
- 97-4 *IUTAM Symposium on Variations of Domains and Free-Boundary Problems in Solid Mechanics* (Paris, France, 22-25 April 1997).
The Proceedings of the Symposium, edited by P. Argoul, M. Frémond and Q.S. Nguyen, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1998. ISBN 0-7923-5450-8.
- 97-5 *IUTAM Symposium on Simulation and Identification of Organized Structures in Flows* (Lyngby, Denmark, 25-29 May 1997).
The Proceedings of the Symposium, edited by J.N. Sørensen, E.J. Hopfinger, and N. Aubry, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1999. ISBN 0-7923-5603-9.
- 97-6 *IUTAM Symposium on Discretization Methods in Structural Mechanics* (Vienna, Austria, 1-6 June 1997).
The Proceedings of the Symposium, edited by H.A. Mang and F.G. Rammerstorfer, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands 1999. ISBN 0-7923-5591-1.

- 97-7 *IUTAM Symposium on Material Instabilities in Solids*
(Delft, The Netherlands, 9-13 June 1997)
The Proceedings of the Symposium, edited by R. de Borst en E. van der Giessen, have been published by John Wiley & Sons, Chichester, UK, 1998 . ISBN 0-471-97460-9.
- 97-8 *IUTAM Symposium on Statistical Energy Analysis*
(Southampton, UK. 8-11 July 1997).
The Proceedings of the Symposium, edited by F.J. Fahy and W.G Price, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1998, ISBN 0-7923-5457-5.
- 97-9 *IUTAM Symposium on Rheology and Computation*
(Sydney, Australia, 20-25 July 1997).
No formal Proceedings of the Symposium have been published. Selected papers have been published in several 1999-volumes of the "Journal of Non-Newtonian Fluid Mechanics", with a footnote attached to each of those papers.
- 97-10 *IUTAM Symposium on New Applications of Nonlinear and Chaotic Dynamics in Mechanics*
(Ithaca, NY, USA, 27 July-1 August 1997).
The Proceedings of the Symposium, edited by Francis C. Moon, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1998. ISBN 0-7923-5276-9.
- 97-11 *IUTAM Symposium on Computational Methods for Unbounded Domains*
(Boulder, USA, 3-7 August 1997).
The Proceedings of the Symposium, edited by Thomas L. Geers, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1998. ISBN 0-7923-5266-1.
- 97-12 *IUTAM Symposium on Micro- and Macrostructural Aspects of Thermoplasticity*
(Bochum, Germany, 25-29 August 1997).
The Proceedings of the Symposium, edited by O.T. Bruhns and E. Stein, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1998. ISBN 0-7923-5265-3.
- 97-13 *IUTAM Symposium on Dynamics of Slender Vortices*
(Aachen, Germany, 31 August - 3 September 1997).
The Proceedings of the Symposium, edited by E. Krause and K. Gersten, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1998. ISBN 0-7923-5041-3.

- 97-14 *IUTAM Symposium on Rheology of Bodies with Defects*
(Beijing, China, 2-6 September 1997).
The Proceedings of the Symposium, edited by Ren Wang, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1998. ISBN 0-7923-5297-1.
- 1998**
- 98-1 *IUTAM Symposium on Three-Dimensional Aspects of Air-Sea Interaction*
(Nice, France, 17-21 May 1998)
The Proceedings of the Symposium, edited by F. Dias and C. Khariff, have been published as a special issue of the "European Journal of Mechanics B / Fluids", Vol. 18, No. 3 (1999)
- 98-2 *IUTAM Symposium on Synthesis in Bio Solid Mechanics*
(Lyngby, Denmark, 24-27 May 1998).
The Proceedings of the Symposium, edited by Pauli Pedersen and Martin P. Bendsøe, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1999. ISBN 0-7923-5615-2.
- 98-3 *IUTAM/IUGG Symposium on Developments in Geophysical Turbulence*
(Boulder, USA, 16-19 June 1998).
The Proceedings of the Symposium, edited by R.M. Kerr and Y. Kimura, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2000 ISBN 0-7923-6673-5.
- 98-4 *IUTAM Symposium on Viscoelastic Fluid Mechanics*
(Stanford, USA, 21-25 June 1998).
A Report on this Symposium by E.S.G. Shaqfeh and a collection of selected papers have been published in the "Journal of Non-Newtonian Fluid Mechanics", Vol. 82 (1999), pp. 127-457.
- 98-5 *IUTAM Symposium on Unilateral Multibody Contacts*
(Munich, Germany, 3-7 August 1998).
The Proceedings of the Symposium, edited by F. Pfeiffer and Ch. Glocker, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1999. ISBN 0-7923-6030-3.
- 98-6 *IUTAM/IFToMM Symposium on Synthesis of Nonlinear Dynamical Systems*
(Riga, Latvia, 24-28 August 1998).
The Proceedings of the Symposium, edited by E. Lavendelis and M. Zakrzhevsky, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1999. ISBN 0-7923-6106-7.

- 98-7 *IUTAM Symposium on Advanced Optical Methods and Applications in Solid Mechanics*
(Poitiers, France, 31 August-4 September 1998).
The Proceedings of the Symposium, edited by A. Lagarde, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2000. ISBN 0-7923-6604-2.
- 98-8 *IUTAM/IASS Symposium on Deployable Structures: Theory and Applications*
(Cambridge, UK, 6-9 September 1998).
The Proceedings of the Symposium, edited by S. Pellegrino and S.D. Guest, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2000. ISBN 0-7923-6516-X.
- 98-9 *IUTAM Symposium on Mechanics of Passive and Active Flow Control*
(Göttingen, Germany, 7-11 September 1998).
The Proceedings of the Symposium, edited by G.E.A. Meier and P.R. Viswanath, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1999. ISBN 0-7923-5928-3.
- 1999**
- 99-1 *IUTAM Symposium on Nonlinearity and Stochastic Structural Dynamics*
(Madras, India, 4-8 January 1999).
The Proceedings of the Symposium, edited by S. Narayanan and R.N. Iyengar, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2000. ISBN 0-7923-6733-2.
- 99-2 *IUTAM Symposium on Mechanical and Electromagnetic Waves in Structured Media*
(Sydney, NSW, Australia, 18-22 January 1999).
The Proceedings of the Symposium, edited by R.C. McPhedran, L.C. Botten and N.A. Nicorovici, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2001. ISBN 0-7923-7038-4.
- 99-3 *IUTAM Symposium on Recent Developments in Nonlinear Oscillations of Mechanical Systems*
(Hanoi, Vietnam, 2-5 March 1999).
The Proceedings of the Symposium, edited by N. Van Dao and E.J. Kreuzer, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2000. ISBN 0-7923-6470-8.

- 99-4 *IUTAM/LACM/LABEM Symposium on Advanced Mathematical and Computational Mechanics Aspects of the Boundary Element Method* (Cracow, Poland, 31 May-3 June 1999).
The Proceedings of the Symposium, edited by T. Burczynski, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2001. ISBN 0-7923-7081-3.
- 99-5 *IUTAM Symposium on Segregation in Granular Flows* (Cape May, New Jersey, USA, 5-10 June 1999).
The Proceedings of the Symposium, edited by A.D. Rosato and D.L. Blackmore, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2000. ISBN 0-7923-6547-X.
- 99-6 *IUTAM Symposium on Nonlinear Wave Behaviour in Multi Phase Flow* (Notre Dame, Indiana, USA, 7-9 July 1999)
The Proceedings of the Symposium edited by H.C. Chang, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2000. ISBN 0-7923-6454-6.
- 99-7 *IUTAM Symposium on Theoretical and Numerical Methods in Continuum Mechanics of Porous Materials* (Stuttgart, Germany, 5-10 September 1999).
The Proceedings of the Symposium, edited by W. Ehlers, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2001. ISBN 0-7923-6766-9.
- 99-8 *IUTAM Symposium on Laminar-Turbulent Transition* (Sedona, Arizona, USA, 12-18 September 1999).
The Proceedings of the Symposium, edited by H. Fasel and W.S. Saric, have been published by Springer-Verlag, Berlin/Heidelberg/New York, 2000. ISBN 3-540-67947-2.
- 99-9 *IUTAM Symposium on Geometry and Statistics of Turbulence* (Hayama, Japan, 1-5 November 1999).
The Proceedings of the Symposium edited by T. Kambe, T. Nakano and T. Miyauchi, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2001. ISBN 0-7923-6711-1.
- 2000**
- 00-1 *IUTAM Symposium on Creep in Structures* (Nagoa, Japan, 3-7 April 2000).
The Proceedings of the Symposium, edited by S. Murakami and N. Ohno, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2000. ISBN 0-7923-6737-5.

-
- 00-2 *IUTAM Symposium on Bluff Body Wakes and Vortex-induced Vibration*
(Marseille, France, 13-16 June 2000).
The Proceedings of the Symposium edited by T. Leweke, P.W. Bearman and C.H.K. Williamson, have been published by Academic Press in the Journal of Fluids and Structures, Special Issue on Bluff Body Wakes and Vortex-Induced Vibrations, London, 2001. ISSN 0889-9746, Vol. 15, nos. 3/4.
- 00-2a *IUTAM Symposium on Scaling Laws in Ice Mechanics and Ice Dynamics*
(Fairbanks, Alaska, USA, 13-16 June 2000).
The Proceedings of the Symposium, edited by J.P. Dempsey and H.H. Shen, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2001. ISBN 1-4020-0171-1.
- 00-3 *IUTAM Symposium on Mechanical Waves for Composite Structures Characterization*
(Chania, Crete, Greece, 14-17 June 2000).
The Proceedings of the Symposium, edited by D.A. Sotiropoulos, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2001. ISBN 0-7923-7164-X.
- 00-4 *IUTAM Symposium on Advances in Mathematical Modelling of Atmosphere and Ocean Dynamics*
(Limerick, Ireland, 2-7 July 2000).
The Proceedings of the Symposium, edited by P.F. Hodnett, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2001. ISBN 0-7923-7075-9.
- 00-5 *IUTAM Symposium on Free Surface Flows*
(Birmingham, United Kingdom, 10-14 July 2000).
The Proceedings of the Symposium, edited by A.C. King and Y.D. Shikhmurzaev, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2001. ISBN 0-7923-7085-6.
- 00-6 *IUTAM Symposium on Diffraction and Scattering in Fluid Mechanics and Elasticity*
(Manchester, England, 17-20 July 2000).
The Proceedings of the Symposium, edited by I.D. Abrahams, P.A. Martin and M.J. Simon, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2002. ISBN 1-4020-0590-3.

- 00-7 *IUTAM Symposium on Field Analyses for Determination of Material Parameters-Experimental and Numerical Aspects* (Kiruna, Sweden, 31 July-4 August 2000).
The Proceedings of the Symposium, edited by P. Stahle and K.G. Sundin, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2003. ISBN 1-4020-1283-7.
- 00-8 *IUTAM Symposium on Smart Structures and Structronic Systems* (Magdeburg, Germany, 26-29 September 2000).
The Proceedings of the Symposium, edited by U. Gabbert and H.S. Tzou, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2001. ISBN 0-7923-6968-8.
- 00-9 *IUTAM Symposium on Designing for Quietness* (Bangalore, India, 12-14 December 2000).
The Proceedings of the Symposium, edited by M.L. Munjal, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2002. ISBN 1-4020-0765-5.
- 2001**
- 01-1 *IUTAM Symposium on Flow in Collapsible Tubes and Past Other Highly Compliant Boundaries* (Warwick, Coventry, March 26-30, 2001).
The Proceedings of the Symposium, edited by P.W. Carpenter and T.J. Pedley, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2003. ISBN 1-4020-1161-X.
- 01-2 *IUTAM Symposium on Material Instabilities and the Effect of Microstructure* (Austin, Texas, USA, 7-11 May 2001).
The Proceedings of the Symposium, edited by S. Kyriakides and N. Triantafyllidis, have been published by Elsevier Science Ltd. as a special issue of the International Journal of Solids and Structures, number 39, 2002.
- 01-3 *IUTAM Symposium on Turbulent Mixing and Combustion* (Kingston, Ontario, Canada, 3-6 June 2001).
The Proceedings of the Symposium, edited by A. Pollard and S. Candel, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2002. ISBN 1-4020-0747-7.

- 01-4 *IUTAM Symposium on Micromechanics of Martensitic Phase Transformation in Solids*
(Hong Kong, 11-15 June 2001).
The Proceedings of the Symposium, edited by Q.P. Sun, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2002.
ISBN 1-4020-0741-8
- 01-5 *IUTAM Symposium on Analytical and Computational Fracture Mechanics of Non-Homogeneous Materials*
(Cardiff, England, 18-22 June 2001).
The Proceedings of the Symposium, edited by B.L. Karihaloo, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2002.
ISBN 1-4020-0510-5
- 01-6 *IUTAM Symposium on Computational Mechanics of Solid Materials at Large Strains*
(Stuttgart, Germany, 20-24 August 2001).
The Proceedings of the Symposium, edited by C. Miehe, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2003.
ISBN 1-4020-1170-9
- 01-7 *IUTAM Symposium on Tubes, Sheets and Singularities In Fluid Dynamics*
(Zakopane, Poland, 2-7 September 2001).
The Proceedings of the Symposium, edited by K. Bajer and H.K. Moffatt, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2002. ISBN 1-4020-0980-1

2002

- 02-1 *IUTAM Symposium on Micromechanics of Fluid Suspensions and Solid Composites*
(Austin, Texas, USA, 3-5 April 2002).
The Proceedings of the Symposium have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, in a special issue of the Philosophical Transactions: Mathematical, Physical & Engineering Sciences in May 2003
- 02-2 *IUTAM Symposium on Unsteady Separated Flows*
(Toulouse, France, 8-12 April 2002).
The Proceedings of the Symposium edited by M. Braza, Ch. Hirsch and F. Hussain, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, in a special issue of Flow, Turbulence and Combustion, Volume 71, Nos 1-4, 2003. ISSN 1386-6184.

- 02-3 *IUTAM Symposium on Dynamics of Advanced Materials and Smart Structures* (Yamagata, Japan, 20-24 May 2002).
The Proceedings of the Symposium edited by K. Watanabe and F. Ziegler, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2003. ISBN 1-4020-1061-3.
- 02-4 *IUTAM Symposium on Asymptotics, Singularities and Homogenisation in Problems of Mechanics* (Liverpool, UK, 8-11 July 2002).
The Proceedings of the Symposium edited by A.B. Movchan, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2003. ISBN 1-4020-1780-4.
- 02-5 *IUTAM Symposium on Complementary, _Dual Variational Principles in Nonlinear Mechanics* (Shanghai, China, 13-16 August 2002).
The Proceedings of the Symposium edited by David Y. Gao have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, in 2004. ISBN 1-4020-7887-0 (HB) and ISBN 1-4020-7888-9 (E-book)
- 02-6 *IUTAM Symposium on Nonlinear Stochastic Systems* (Urbana-Champaign, Illinois, USA, 25-31 August 2002).
The Proceedings of the Symposium edited by N. Sri Namachchivaya and Y.K. Lin, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2003. ISBN 1-4020-1471-6.
- 02-7 *IUTAM Symposium Transsonicum IV* (Göttingen, Germany, 02-06 September 2002).
The Proceedings of the Symposium edited by H. Sobieczky, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2003. ISBN 1-4020-1608-5.
- 02-8 *IUTAM Symposium on Reynolds Number Scaling in Turbulent Flow* (Princeton, N.J. USA, 11-13 September 2002).
The Proceedings of the Symposium edited by A.J. Smits, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2003. ISBN 1-4020-1775-8.
- 02-9 *IUTAM Symposium on Evolutionary Methods in Mechanics* (Cracow, Poland, 24-27 September 2002).
The Proceedings of the Symposium edited by Tadeusz Burczynski and Andrzej Osyczka have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, in 2004.
ISBN 1-4020-2266-2 (HB) and ISBN 1-4020-2267-0 (E-book)

- 02-10 *IUTAM Symposium on Multiscale Modeling and Characterization of Elastic-Inelastic Behavior of Engineering Materials*
(Marrakech, Morocco, 20-25 October 2002).
The Proceedings of the Symposium edited by S. Ahzi, M. Charkaoui, M.A. Khaleel, H.M. Zbib, M.A. Zikry, and B. LaMatina, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2003.
ISBN 1-4020-1861-4.
- 2003**
- 03-1 *IUTAM Symposium on Mechanics of Physicochemical and Electromechanical Interactions in Porous Media*
(Kerkrade, The Netherlands 18-23 May 2003).
The Proceedings of the Symposium will be published by Kluwer Academic Publishers, Dordrecht, The Netherlands in 2004.
- 03-2 *IUTAM Symposium on Integrated Modeling of Fully Coupled Fluid-Structure Interactions*
(Rutgers, N.J. USA 02-06 June 2003).
The Proceedings of the Symposium edited by Haym Benaroya and Thomothy Wei, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2003. ISBN 1-4020-1806-1.
- 03-3 *IUTAM Symposium on Chaotic Dynamics and Control of Systems and Processes in Mechanics*
(Rome, Italy, 08-13 June 2003).
The Proceedings of the Symposium edited by G. Rega and F. Vestroni have been published by Springer, Dordrecht, The Netherlands in 2005.
ISBN 1-4020-3267-6 (HB) and ISBN 1-4020-3268-4 (E-book)
- 03-4 *IUTAM Symposium on Mesoscopic Dynamics of Fracture Process and Materials Strength*
(Osaka, Japan, 06-11 July 2003).
The Proceedings of the Symposium edited by H. Kitagawa and Y. Shibutani, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2004. ISBN 1-4020-2037-6 (HB) and ISBN 1-4020-2111-9 (e-book).
- 2004**
- 04-1 *IUTAM Symposium on Size Effects on Material and Structural Behavior at Micron- and Nano-Scales*
(Hong Kong, China, 30 May-4 June, 2004)

- The Proceedings of the Symposium edited by Q.P. Sun and P. Tong, have been published by Springer, Dordrecht, The Netherlands in 2006.
ISBN 1-4020-4945-5
- 04-3 *IUTAM Symposium on Non-Uniqueness of Solutions to the Navier-Stokes equations and their Connection with Laminar-Turbulent Transition* (Manchester, UK, 9-11 August, 2004)
The Proceedings of the Symposium edited by T. Mullin and R.R. Kerswell, have been published by Springer, Dordrecht, The Netherlands in 2005.
ISBN 1-4020-4048-2
- 04-4 *IUTAM Symposium on One Hundred Years of Boundary Layer Research* (Göttingen, Germany, 12-14 August, 2004)
The Proceedings of the Symposium edited by G.E.A. Meier, K.R. Sreenivasan et.al, have been published by Springer, Dordrecht, The Netherlands in 2006.
ISBN 1-4020-4149-7
- 04-5 *IUTAM Symposium on Elasto-hydrodynamics and Microelasto-hydrodynamics* (Cardiff, UK, 1-3 September, 2004)
The Proceedings of the Symposium edited by R.W. Snidle and H.P. Evans, have been published by Springer, Dordrecht, The Netherlands in 2006.
ISBN 1-4020-4532-8
- 04-6 *IUTAM Symposium on Mechanics and Reliability of Actuating Materials* (Beijing, China, 1-3 September, 2004)
The Proceedings of the Symposium edited by W. Yang, have been published by Springer, Dordrecht, The Netherlands in 2005.
ISBN 1-4020-4130-6
- 04-7 *IUTAM Symposium on Computational Approaches to Multiphase Flow* (Argonne, Illinois, USA, 4-7 October, 2004)
The Proceedings of the Symposium edited by S. Balachandar and A. Prosperetti, will be published by Springer, Dordrecht, The Netherlands in 2006.
ISBN 1-4020-4976-5
- 04-8 *IUTAM Symposium on Elementary Vortices and Coherent Structures: Significance in Turbulence Dynamics* (Kyoto, Japan, 26-28 October, 2004)
The Proceedings of the Symposium edited by Kida, Shigea, have been published by Springer, Dordrecht, The Netherlands in 2005.
ISBN 1-4020-4180-2

- 04-9 *IUTAM Symposium on Laminar-Turbulent Transition*
(Bangalore, India, 13-17 December, 2004)
The Proceedings of the Symposium edited by Govindarajan, Rama, have been published by Springer, Dordrecht, The Netherlands in 2006.
ISBN 1-4020-3459-8
- 2005**
- 05-1 *IUTAM Symposium on Multiscale Modelling of Damage and Fracture Processes in Composite Materials*
(Kazimierz Dolny, Poland 23-27 May, 2005).
The Proceedings of the Symposium edited by T. Sadowski, have been published by Springer Academic Publishers, Dordrecht, The Netherlands, 2006.
ISBN 1-4020-4565-4.
- 05-3 *IUTAM Symposium on Impact Biomechanics: From Fundamental Insights to Applications*
(Dublin, Ireland 11-15 July, 2005).
The Proceedings of the Symposium edited by M.D. Gilchrist, have been published by Springer Academic Publishers, Dordrecht, The Netherlands, 2005.
ISBN 1-4020-3795-3 (HB) and ISBN 978-1-4020-3795-5 (HB).
- 05-4 *IUTAM Symposium on Vibration Control of Nonlinear Mechanisms and Structures*
(Munich, Germany 18-22 July, 2005).
The Proceedings of the Symposium edited by H. Ulbrich and W. Günthner, have been published by Springer Academic Publishers, Dordrecht, The Netherlands, 2005. ISBN-10 1-4020-4160-8 (HB) and ISBN-13 978-1-4020-4160-0 (HB).
- 05-5 *IUTAM Symposium on Topological Design Optimization of Structures, Machines and Materials - Status and Perspectives*
(Aalborg and Lyngby, Denmark, 26-29 October, 2005).
The Proceedings of the Symposium edited by M.P. Bendsøe, N. Olhoff and O. Sigmund, have been published by Springer Academic Publishers, Dordrecht, The Netherlands, 2006. ISBN-10 1-4020-4729-0 (HB).

Proceedings of the International Congresses on Theoretical and Applied Mechanics (ICTAM)

Until September 4, 1964 the organization of the International Congresses for Applied Mechanics was supervised by the "International Committee for the Congresses of Applied Mechanics" and for each Congress the organization was separately entrusted to a local Organizing Committee who also undertook the publication of the Proceedings. Consequently, there is no central point from which Proceedings may be ordered, and for each volume, application must be made to the publishers who took care of that particular volume.

Since September 4, 1964 the same task will be fulfilled by the Standing Congress Committee of IUTAM, and local Organizing Committees to be established. The titles of the volumes and the names of the publishing firms are given below.

1st Congress, Delft (Netherlands), 22-26 April 1924.

Proceedings of the First International Congress for Applied Mechanics, Delft 1924, edited by C.B. Biezeno and J.M. Burgers (one vol.). Technische Boekhandel en Drukkerij J. Waltman Jr. Delft, 1925. No more copies are available for sale at Delft.

2nd Congress, Zürich (Switzerland), 12-17 September 1926.

Verhandlungen - Comptes rendus - Proceedings of the 2nd International Congress for Applied Mechanics, Zürich, 12-17 September 1926, herausgegeben von E. Meissner (one vol.). Orell Füssli Verlag, Zürich und Leipzig, 1927.

3rd Congress, Stockholm (Sweden), 24-29 August 1930.

Verhandlungen - Comptes rendus - Proceedings of the 3rd International Congress for Applied Mechanics, herausgegeben von A.C.W. Oseen und W. Weibull (3 vol.). AB. Sveriges Litografiska Tryckerier, Stockholm, 1931.

4th Congress, Cambridge (UK), 3-9 July 1934.

Proceedings of the Fourth International Congress for Applied Mechanics, Cambridge, UK, 3-9 July, 1934 (one vol.). University Press, Cambridge (UK), 1935.

5th Congress, Cambridge (Massachusetts, USA), 12-16 September 1938.

Proceedings of the Fifth International Congress for Applied Mechanics, held at Harvard University and the Massachusetts Institute of Technology, Cambridge, Massachusetts, September 12-16, 1938, edited by J.P. den Hartog and H. Peters (one vol.), John Wiley and Sons, Inc. New York (USA), and Chapman and Hall Ltd. London (UK), 1939.

6th Congress, Paris (France), 22-29 September 1946.

Proceedings not published (was given in the hands of Gauthier-Villars, Paris).

7th Congress, London (UK), 5-11 September 1948.

Proceedings of the Seventh International Congress for Applied Mechanics, 1948, published by the Organizing Committee (Introduction, Vol. I, Vol. II - Parts 1 and 2, Vol. III, Vol. IV).

8th Congress, Istanbul (Turkey), 20-28 August 1952.

Proceedings published by the Organizing Committee (Vol. I, Vol. II). Faculty of Sciences, University of Istanbul, P.O. Box 245, Istanbul (Turkey), 1953.

9th Congress, Brussels (Belgium), 5-13 September 1956.

Proceedings published by the Organizing Committee (Vol. I to Vol. VIII). Free University of Brussels, 50, avenue Franklin-Roosevelt, Brussels (Belgium), 1957.

10th Congress, Stresa (Italy), 31 August-7 September 1960.

Proceedings published by the Consiglio Nazionale delle Ricerche, Piazzelle delle Scienze 7, Roma (Italia), printed by Elsevier Publishing Company, Amsterdam-New York, 1962.

11th International Congress on Theoretical and Applied Mechanics (ICTAM), Munich (Germany), 30 August-5 September 1964.

The Proceedings, edited by H. Görtler, have been published by Springer-Verlag, Heidelberg Platz 3, Berlin (Germany), 1966.

12th International Congress on Theoretical and Applied Mechanics (ICTAM), Stanford, Cal. (USA), 26-31 August 1968.

The Proceedings, edited by M. Hetényi and W.G. Vincenti, have been published by Springer-Verlag, Berlin (Germany), 1969.

13th International Congress on Theoretical and Applied Mechanics (ICTAM), Moscow (USSR), 21-26 August 1972.

The Proceedings, edited by E. Becker and G.K. Mikhailov, have been published by Springer-Verlag, Berlin (Germany), 1973.

14th International Congress on Theoretical and Applied Mechanics (ICTAM), Delft (Netherlands), 30 August-4 September 1976.

The Proceedings, edited by W.T. Koiter, have been published by North-Holland Publishing Company, Amsterdam-New York-Oxford, 1976, 1977.

15th International Congress on Theoretical and Applied Mechanics (ICTAM), Toronto (Canada), 17-23 August 1980

The Proceedings, edited by F.P.J. Rimrott and B. Tabarrok, have been published by North-Holland Publishing Company, Amsterdam-New York-Oxford 1980.

16th International Congress on Theoretical and Applied Mechanics (ICTAM),
Lyngby (Denmark), 19-25 August 1984.

The Proceedings, edited by F.I. Niordson and N. Olhoff, have been published by Elsevier Science Publishers (North-Holland), Amsterdam, 1985.

17th International Congress on Theoretical and Applied Mechanics (ICTAM),
Grenoble (France), 21-27 August 1988.

The Proceedings, edited by P. Germain, M. Piau and D. Caillerie, have been published by North-Holland, Elsevier Science Publishers, Amsterdam, 1989. ISBN 0-444-87302-3.

18th International Congress on Theoretical and Applied Mechanics (ICTAM),
Haifa (Israel), 22-28 August 1992.

The Proceedings, edited by S.R. Bodner, J. Singer, A. Solan and Z. Hashin, have been published by Elsevier Science Publishers, Amsterdam, 1993.
ISBN 0-444-88889-6.

19th International Congress on Theoretical and Applied Mechanics (ICTAM),
Kyoto (Japan), 25-31 August 1996.

The Proceedings, edited by T. Tatsumi, E. Watanabe, T. Kambe, have been published by Elsevier Science Publishers, Amsterdam, 1997.
ISBN 0-444-82446-4.

20th International Congress on Theoretical and Applied Mechanics (ICTAM),
Chicago (USA), 27 August-2 September 2000.

The Proceedings, entitled "Mechanics for a new Millenium and edited by H.Aref and J.W.Phillips, have been published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 2001. ISBN 0-7923-7156-9.

21th International Congress on Theoretical and Applied Mechanics (ICTAM),
Warsaw (Poland), 15-21 August 2004.

The Proceedings, entitled "Mechanics of the 21st Century" and edited by W. Gutkowski and T.A. Kowaleski, have been published by Springer, Dordrecht, The Netherlands, 2005. ISBN 1-4020-3456-3.

Publications on the history of IUTAM*IUTAM - A Short History,*

edited by S. Juhasz, has been published by Springer-Verlag, Berlin, Germany, 1988. ISBN 3-540-50043-X.

The short history is dedicated to the memory of Professor Theodore von Karman who had an essential role in the formation of IUTAM. Contributions by S. Juhasz, Sir James Lighthill, G. Battimelli, J. Hult, N.J. Hoff, D.C. Drucker and F.I. Niordson are included in the book.

Mechanics at the Turn of the Century,

edited by W. Schiehlen and L. van Wijngaarden, has been published by Shaker Verlag, Aachen, Germany, 2000. ISBN 3-8265-7714-0.

This Report is the result of an initiative of the Bureau of IUTAM to provide some landmarks on the developments in Mechanics during the 20th Century, to report on the 50 years of impulse to Mechanics by the International Union of Theoretical and Applied Mechanics (IUTAM), to visualize by a poster Meters of Motion on the occasion of the 20th International Congress of Theoretical and Applied Mechanics (ICTAM), to look ahead on a very personal basis and to show the broad international involvement of scientists in IUTAM in recent years.

The booklet "Mechanics at the Turn of the Century" is accessible free of charge on the website of Shaker Verlag. The internet address is www.shaker.de and search for Schiehlen as the author. Moreover, this booklet is available upon request at the IUTAM Secretariat

Please note again:

The publications listed above, with the exception of the Annual Reports over the last five years and the booklet "Mechanics at the Turn of the Century", are not available at the IUTAM Secretariat. Please order directly from the publisher.

Details of all IUTAM publications may be found at

<http://www.iutam.net> or <http://www.iutam.org> or <http://www.iutam.info> .

List of Addresses

Abe, Prof. M. (Masato)

Kanagawa Institute of Technology, 1030 Shimoogino, 243-0292 Atsugi-shi, Japan,
email: abe@sd.kanagawa-it.ac.jp

Abrahams, Prof. I.D. (David)

University of Manchester, School of Mathematics, Oxford Road, M13 9PL Manchester,
UK, email: i.d.abrahams@manchester.ac.uk

Achenbach, Prof. J.D. (Jan)

Northwestern University, Center for Quality Engineering and Failure Prevention, 2137
Sheridan Road, IL 60208-3 Evanston, USA, email: achenbach@northwestern.edu

Acrivos, Prof. A. (Andreas)

City College of City University of New York, Levich Institute, 788 Cedro Way,
Stanford, CA 94305-1032, USA, email: acrivos@sci.cuny.cuny.edu

Adams, Prof. N.A. (Nikolaus)

Technische Universität Dresden, Institut für Strömungsmechanik, George-Bär-Strasse
3c, D-01062 Dresden, Germany, email: nikolaus.adams@ism.mw.tu-dresden.de

Adrian, Prof. R.J. (Ronald)

University of Illinois at Urbana-Champaign, Department of Theoretical and Applied
Mechanics, 216 Talbot Laboratory, MC-262, 104 South Wright Street, IL 61801-2
Urbana, USA, email: rjadrian@uiuc.edu; ronald.adrian@asu.edu

Ahzi, Prof. S. (Said)

University Louis Pasteur, IPST-ULP, IMFS-UMR 7507, 15-17 Rue du Marechal
Lefebvre, F 67100 Strasbourg, France, email: Said.Ahzi@ipst-ulp.u-strasbg.fr

Aköz, Prof. Y. (Yalcin)

Istanbul Technical University, Faculty of Engineering, Anabilim Daly 80626-Maslak,
Istanbul, Turkey, email: akoz@ins.itu.edu.tr

Al-Athel, Dr. S.A. (Saleh)

King Abdulaziz City for Science and Technology, P.O. Box 6086, Riyadh 11442, Saudi
Arabia, email: athel@kacst.edu.sa

Alfirevic, Prof. I. (Ivo)

University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture,
Institute of Applied Mechanics, Ivana Lucica 5, HR-10000 Zagreb, Croatia, email:
ivo.alfirevic@fsb.hr

Anderson, Dr. P.D. (Patrick)

Eindhoven University of Technology, Materials Technology, WH 4.142, PO Box 513, 5600 MB Eindhoven, Netherlands, email: p.d.anderson@tue.nl

Arantes e Oliveira, Prof. E.R. (Eduardo) de

Technical University of Lisbon, Department of Civil Engineering, Instituto Superior Technico, Av. Rovisco Pais, 1049-001 Lisboa, Portugal, email: arantes@civil.ist.utl.pt

Aref, Prof. H. (Hassan)

Virginia Tech, College of Engineering, 333 Norris Hall (0217), VA 24061 Blacksburg, USA, email: haref@vt.edu

Arinc, Prof. F. (Faruk)

Middle East Technical University, Department of Mechanical Engineering, E 104, 06531 Ankara, Turkey, email: arinc@ichmt.org

Asai, Prof. S. (Shigeo)

Nagoya University, Department of Materials Science and Engineering, Electromagnetic Processing of Materials, Furo-cho, Chikusa-ku, 464-8603 Nagoya, Japan, email: c42538a@nucc.cc.nagoya-u.ac.jp

Ashida, Prof. F. (Fumihito)

Shimane University, Department of Electronic and Control Systems Engineering, 1060 Nishikawatsu-cho, 690-8504 Matsue, Japan, email: ashida@ecs.shimane-u.ac.jp

Aubry, Prof. N. (Nadine)

New Jersey Institute of Technology, Department of Mechanical Engineering, University Heights, 07102 Newark, USA, email: aubry@njit.edu

Bai, Prof. Y. (Yi-long)

Chinese Academy of Sciences, Institute of Mechanics, 15 Zhong Guan Cun Road, Beijing 100080, China, email: baiyl@lnm.imech.ac.cn

Bajer, Dr. K. (Konrad)

Warsaw University, Institute of Geophysics, ul. Pasteura 7, 02-093 Warszawa, Poland, email: kbajer@fuw.edu.pl

Balachandar, Prof. S. (S.)

University of Illinois at Urbana-Champaign, Department of Theoretical & Applied Mechanics, 216 Talbot Lab, mc 262, IL 61801 Urbana, USA, email: bala1s@nefertari.tam.uiuc.edu

Baltov, Prof. A. (Anguel)

Bulgarian Academy of Sciences, Institute of Mechanics, 1, 15 novembre street, 1040 Sofia, Bulgaria, email: baltov@eagle.cu.bas.bg

Barthès-Biesel, Prof. D. (Dominique)

Université de Technologie de Compiègne, Génie Biologique, BP 20529, F-60 205 Compiègne Cedex, France, email: dbb@utc.fr

Battjes, Prof. J.A. (Jurjen)

Delft University of Technology, Department of Civil Engineering, Stevinweg 1, NL-2628 CN Delft, Netherlands, email: j.battjes@ct.tudelft.nl

Bearman, Prof. P.W. (Peter)

Imperial College of Science, Technology and Medicine, Department of Aeronautics, Prince Consort Road, SW7 2BY London, UK, email: p.bearman@imperial.ac.uk

Bechtold, Prof. J.E. (Joan)

University of Minnesota, Department of Orthopedic Surgery, Hennepin County Medical Center, 701 Park Avenue S, Minneapolis, MN 55415, USA, email: bechtol@attglobal.net

Belytschko, Prof. T. (Ted)

Northwestern University, Department of Mechanical Engineering, 2145 Sheridan Road, Evanston, IL 60208-3111, USA, email: tedbelytschko@northwestern.edu

Benallal, Prof. A. (Ahmed)

Ecole Normale Supérieure de Cachan, Laboratoire de Mécanique et Technologie, 61 av du Président Wilson, 94235 Cachan Cedex, France, email: benallal@lmt.ens-cachan.fr

Benaroya, Prof. (Haym)

Rutgers University, Department of Mech. and Aerospace Engineering, 98 Brett Road, NJ 08854 Piscataway, USA, email: benaroya@rci.rutgers.edu

Bendsøe, Prof. M.P. (Martin)

Technical University of Denmark, Department of Mathematics, Building 303, DK-2800 Lyngby, Denmark, email: m.p.Bendsoe@mat.dtu.dk

Beskos, Prof. D.E. (Dimitri)

University of Patras, Department of Civil Engineering, Structural Engineering Division, GR- 26500 Patras, Greece, email: d.e.beskos@upatras.gr

Bevilacqua, Prof. L. (Luiz)

National Laboratory for Scientific Computing (LNCC), Department of Mechanics, Av. Getúlio Vargas, 333, Quitandinha, Petropolis, 25651-070 Rio de Janeiro, Brazil, email: bevilacqua@abc.org.br

Biswas, Prof. G. (Gautam)

Indian Institute of Technology, Department of Mechanical Engineering, 208016 Kanpur, India, email: gtm@iitk.ac.in

Blake, Prof. J. (John)

University of Birmingham, School of Mathematics and Statistics, Edgbaston, B15 2TT
Birmingham, UK, email: j.r.blake@bham.ac.uk

Bodner, Prof. S.R. (Sol)

Technion - Israel Institute of Technology, Faculty of Mechanical Engineering, Technion
City, Haifa 32000, Israel, email: mersbod@techunix.technion.ac.il

Boger, Prof. D.V. (David)

The University of Melbourne, Chemical & Biomolecular Engineering, Victoria, 3010,
Australia, email: dvboger@unimelb.edu.au

Bogy, Prof. D.B. (David)

University of California Berkeley, Department of Mechanical Engineering, 6195
Etcheverry Hall, CA 94720-1 Berkeley, USA, email: dbogy@cml.me.berkeley.edu

Boley, Prof. B. (Bruno)

Columbia University, Department of Civil Engineering and Engineering Mechanics,
School of Engineering and Applied Science, 610 S.W. Mudd Building, New York, NY
10027, USA, email: boley@civil.columbia.edu

Bonnecaze, Prof. R.T. (Roger)

The University of Texas at Austin, Department of Chemical Engineering, Austin, TX
78712, USA, email: rtb@che.utexas.edu

Bonnet, Prof. M. (Marc)

CNRS et Ecole Polytechnique, Laboratoire de Mecanique des Solides,
91128 Palaiseau cedex, France, email: bonnet@lms.polytechnique.fr

Borodich, Prof. F.M. (Feodor)

Cardiff University, School of Engineering, Institute of Theoretical, Applied and
Computational Mechanics, Queen's Buildings, The Parade, CF24 3AA Cardiff, UK,
email: BorodichFM@Cardiff.ac.uk

Borst, Prof. R (René) de

Delft University of Technology, Department of Aerospace Engineering, Kluyverweg 1,
2629 HS Delft, Netherlands, email: R.deBorst@LR.TUdelft.nl

Boström, Prof. A. (Anders)

Chalmers University of Technology, Department of Applied Mechanics,
S- 412 96 Göteborg, Sweden, email: anders.bostrom@chalmers.se

Boulanger, Prof. P. (Philippe)

Université Libre de Bruxelles, Departement de Mathematique, U.L.B. Campus Plane CP
218 / 1, B-1050 Bruxelles, Belgium, email: phboul@ulb.ac.be

Braza, Dr. M. (Marianna)

Unite Mixte de Recherche 5502 CNRS-INPT/ENSEEIH-UPS, Institut de Mecanique des Fluides de Toulouse, Avenue du Professeur Camille Soula, F-31400 Toulouse, France, email: braza@imft.fr

Brilla, Prof. J. (Jozef)

Slovak Academy of Engineering Sciences, Radlinskeho 11, SK 813 68 Bratislava, Slovakia, email: ibrilla@elf.stuba.sk

Brändli, Dr. S. (Sebastian)

ETH Zürich, Stab ETH-Rat HAA F 3, Haldeliweg 15/17, 8092 Zürich, Switzerland, email: braendli@ethrat.ch

Burczynski, Prof. T. (Tadeusz)

Silesian University of Technology, Dept. for Strength of Materials and Computational Mechanics, Faculty of Mechanical Engineering, Konarskiego 18a, PL-44-100 Gliwice, Poland, email: burczyns@zeus.polsl.gliwice.pl

Busso, Prof. E.P. (Esteban)

Ecole des Mines de Paris, Director, Centre des Materiaux, B.P. 87, 91003 Evry CEDEX, France, email: Esteban.Busso@ensmp.fr

Böhm, Prof. H.J. (Helmut)

Vienna University of Technology, Institute of Light Weight Design and Structural Biomechanics (E317), Gusshausstrasse 27-29, A-1040 Vienna, Austria, email: hjb@ilsb.tuwien.ac.at

Calladine, Prof. C.R. (Christopher)

University of Cambridge, Department of Engineering, Trumpington Street, CB2 1PZ Cambridge, UK, email: crc@eng.cam.ac.uk

Campen, Prof. D.H. (Dick) van

Eindhoven University of Technology, Department of Mechanical Engineering, Den Dolech 2, PO Box 513, 5600 MB Eindhoven, Netherlands, email: D.H.v.Campen@tue.nl

Candel, Prof. S. (Sébastien)

Ecole Centrale Paris and Institut Universitaire de France, Laboratoire EM2C, CNRS, Ecole Centrale Paris, Grande Voie des Vignes, F 92295 Chatenay-Malabry Cedex, France, email: candel@em2c.ecp.fr

Cardon, Prof. A.H. (Albert)

Free University of Brussels (V.U.B.), Dept. Mechanics of Materials and Constructions (MEMC), V.U.B. -TW(KB) - MEMC, Pleinlaan 2, B-1050 Brussels, Belgium, email: mbourlau@vub.ac.be

Carpenter, Prof. P.W. (Peter)

University of Warwick, School of Engineering, Coventry, Coventry, CV4 7AL, UK,
email: espwc@eng.warwick.ac.uk

Carpinteri, Prof. A. (Alberto)

Politecnico di Torino, Department of Structural Engineering, Corso Duca degli Abruzzi
24, 10129 Torino, Italy, email: carpinteri@polito.it

Cercignani, Prof. C. (Carlo)

Politecnico di Milano, Dipartimento di Matematica, Piazza Leonardo da Vinci, 32, I-
20133 Milano, Italy, email: carcer@mate.polimi.it

Chang, Prof. H.C. (Hsueh-Chia)

University of Notre Dame, Department of Chemical Engineering, IN 46556 Notre Dame,
USA, email: chang.2@nd.edu

Chen, Prof. W.-H. (Wen-Hwa)

National Tsing Hua University, Department of Power Mechanical Engineering, Hsinchu,
email: whchen@pme.nthu.edu.tw

Chernousko, Prof. F.L. (Felix)

Russian Academy of Sciences, Institute for Problems in Mechanics, pr. Vernadskogo
101-1, 119526 Moscow, Russia, email: chern@ipmnet.ru

Chernyi, Prof. G.G. (Gorimir)

Moscow State University, Institute of Mechanics, 1, Michurinski Prospect, 117192
Moscow, Russia, email: ggcher@imec.msu.ru

Cheung, Prof. Y.K.

University of Hong Kong, Department of Civil Engineering, Room 6-18A, Haking Wong
Building, Pokfulam Road, Hong Kong, China-Hong Kong, email:
hreccyk@hkucc.hku.hk

Cinquini, Prof. C. (Carlo)

Università degli Studi di Pavia, Dipartimento di Meccanica Strutturale, Via Ferrata 1,
27100 Pavia, Italy, email: carlo.cinquini@unipv.it

Combescure, Prof. A. (Alain)

INSA de Lyon, LaMCos UMR 5514, 18-20, Allée des Sciences, INSA de Lyon, F-69621
Villeurbanne Cedex, France, email: alain.combescure@insa-lyon.fr

Comissiong, Dr. D.M.G. (Donna)

University of Coimbra, Center for Mathematics (CMUC), Apartado 3008, 3001 - 454
Coimbra, Portugal, email: donna@mat.uc.pt

Cowin, Prof. S.C. (Stephen)

The City University of New York, School of Engineering, New York Center for Biomedical Engineering, 2166 Broadway, Apartment 12D, 10024 New York, NY, USA, email: scowin@earthlink.net

Crandall, Prof. S.H. (Stephen)

Massachusetts Institute of Technology, Department of Mechanical Engineering, 3-360 MIT, MA 02139 Cambridge, USA, email: crandall@mit.edu

Cristescu, Prof. N.D. (Nicolai)

University of Florida, Dept. of Aerospace Eng., Mechanics and Eng. Science, 231 Aerospace Building, P.O. Box 116250, Gainesville, FL 32611-6250, USA, email: ndc@mae.ufl.edu

Crocker, Prof. M.J. (Malcolm)

Auburn University, Department of Mechanical Engineering, 201 Ross Hall, AL 36849 Auburn, USA, email: mcrocker@eng.auburn.edu

Cruse, Prof. T.A. (Thomas)

Vanderbilt University, Department of Mechanical Engineering, TN 37235 Nashville, USA, email: tcruse@woh.rr.com

Cui, Prof. E. (Er-jie)

Beijing Institute of Aerodynamics (BIA), P.O. Box 7201, Beijing 100074, China, email: ejcui@httx.com.cn

Cumo, Prof. M. (Maurizio)

University of Rome, Post-graduate School for Safety and Protection, Palazzo Baleani, Corso Vittorio Emanuele II, 244, 00186 Roma, Italy, email: maurizio.cumo@uniroma1.it

Cveticanin, Prof. L.J. (Livija)

University of Novi Sad, Faculty of Technical Sciences, Trg D. Obradovica 6, 21000 Novi Sad, Serbia and Montenegro, email: cveticanin@uns.ns.ac.yu

Daigle, Dr. G.A. (Gilles)

National Research Council, Institute for Microstructural Sciences, 1191 Montreal Road, K1A 0R6 Ottawa, Canada, email: gilles.daigle@nrc.ca

Davidson, Prof. L. (Lars)

Chalmers University of technology, Department of Thermo and Fluid Dynamik, 412 96 Göteborg, Sweden, email: lada@tfd.chalmers.se

Delale, Prof. C.F. (Can)

Istanbul Technical University, Faculty of Aeronautics and Astronautics, 34469 Maslak, 34469 Istanbul, Turkey, email: delale@itu.edu.tr

Dempsey, Prof. J.P. (John)

Clarkson University, Department of Civil and Environmental Engineering, Potsdam, NY 13699-5710, USA, email: john@jpdnz.cce.clarkson.edu

Denier, Dr. J.P. (Jim)

The University of Adelaide, School of Mathematical Sciences; Department of Applied Mathematics, Room 123, Mathematics Building, SA 5005 Adelaide, Australia, email: James.Denier@adelaide.edu.au

Deshpande, Prof. S.M. (Suresh)

Indian Institute of Science, AR & DB Centre of Excellence in Aerospace CFD, Department of Aerospace, 560012 Bangalore, India, email: suresh@aero.iisc.ernet.in

Dias, Prof. L. (Frederic)

Ecole Normale Supérieure de Cachan, Centre de Mathématiques et de Leurs Applications, F-94235 Cachan Cedex, France, email: dias@cmla.ens-cachan.fr

Dick, Prof. E. (Erik)

Universiteit Gent, Department of Flow, Heat and Combustion Mechanics, vakgroep TW03, Sint-Pietersnieuwstraat 41, 9000 Gent, Belgium, email: Erik.Dick@UGent.be

Dijksman, Dr. J.F. (Frits)

Philips Research Laboratories, Group Mechanics, Heat & Particle Optics, Prof. Holstlaan 4 (WB-1-57), NL-5656 AA Eindhoven, Netherlands, email: frits.dijksman@philips.com

Dowell, Prof. E.H. (Earl)

Duke University, Department of Mechanical Engineering and Materials Science, 185 Hudson Hall, NC 27708 Durham, USA, email: dowell@ee.duke.edu

Dual, Prof. J. (Jürg)

Swiss Federal Institute of Technology (ETH), Institute of Mechanical Systems, CLA J 23.2, ETH - Zentrum, CH-8092 Zürich, Switzerland, email: juerg.dual@imes.mavt.ethz.ch

Durban, Prof. D. (David)

Technion-Israel Institute of Technology, Department of Aeronautics and Space Engineering, Technion City, 32000 Haifa, Israel, email: aer6903@tx.technion.ac.il

Dvorák, Dr. R. (Rudolf)

Institute of Thermomechanics, Academy of Sciences of the Czech Republic, Fluid Dynamics Division, Dolejškova 5, CZ-18200 Praha, Czech Republic, email: dvorak@it.cas.cz

Eberhard, Prof. P. (Peter)

University of Stuttgart, Institute of Engineering and Computational Mechanics,
Pfaffenwaldring 9, 70569 Stuttgart, Germany, email: eberhard@itm.uni-stuttgart.de

Ehlers, Prof. W. (Wolfgang)

University of Stuttgart, Institute of Applied Mechanics, Pfaffenwaldring 7, D-70569
Stuttgart, Germany, email: ehlers@mechbau.uni-stuttgart.de

Ellyin, Prof. F. (Fernand)

University of Alberta, TransCanada/NSERC Senior Industrial Research Chair, Rm. 4-9
Mechanical Engineering Bldg., T6G 2G8 Edmonton, Alberta, Canada, email:
Fernand.Ellyin@ualberta.ca

Engelbrecht, Prof. J. (Juri)

Institute of Cybernetics, Department of Mechanics and Applied Mathematics,
Akadeemia 21, EE-12618 Tallinn, Estonia, email: je@ioc.ee

Estorff, Prof. O. (Otto) von

Hamburg University of Technology, Institute of Modelling and Computation,
Denickestraße 17, D-21073 Hamburg, Germany, email: estorff@tu-harburg.de

Fang, Prof. J. (Jing)

Beijing University, Department of Mechanics & Engineering Science, 100871 Beijing,
China, email: jfang@pku.edu.cn

Fasel, Prof. H. (Hermann)

University of Arizona, Tucson, AZ, USA, email: faselh@u.arizona.edu

Fennel, Prof. W. (Wolfgang)

Institut für Ostseeforschung Warnemuende (IOW), , D-18119 Rostock, Germany, email:
wolfgang.fennel@io-warnemuende.de

Fernholz, Prof. H.-H. (Hans)

Technische Universität Berlin, Hermann-Föttinger Institut für Strömungs-mechanik,
Müller-Breslau Strasse 8, D-10623 Berlin, Germany, email: fernholz@pi.tu-berlin.de

Fish, Prof. J. (Jacob)

Rensselaer Polytechnic Institute, Department of Mechanical, Aerospace and Nuclear
Engineering, CII, rm 7129, 110 8th Street, Troy, NY 12180, USA, email: fishj@rpi.edu

Fleck, Prof. N.A. (Norman)

Cambridge University, Department of Engineering, Trumpington St., CB2 1PZ
Cambridge, UK, email: naf1@eng.cam.ac.uk

Freund, Prof. L.B. (Ben)

Brown University, Division of Engineering, 182 Hope Street, Providence, RI 02912, USA, email: freund@brown.edu

Geers, Prof. M.G.D. (Marc)

Eindhoven University of Technology, Department of Mechanical Engineering, P.O. Box 513, 5600 MB Eindhoven, Netherlands, email: m.g.d.geers@tue.nl

Germain, Prof. P. (Paul)

Academie des Sciences, 23 Quai de Conti, 75006 Paris, France, email: seances@academie-sciences.fr

Giessen, Prof. E. (Erik) van der

University of Groningen, Department of Applied Physics, Micromechanics of Materials Group, Nijenborgh 4, 9747 AG Groningen, Netherlands, email: E.van.der.Giessen@rug.nl

Gilchrist, Prof. M.D. (Michael)

University College Dublin, Department of Mechanical Engineering, Belfield, Dublin 4, Ireland, email: michael.gilchrist@ucd.ie

Gjevik, Prof. B.N. (Bjorn)

University of Oslo, Department of Mathematics, Box 1053 Blindern, N 0316 Oslo, Norway, email: bjorn@math.uio.no

Gladwell, Prof. G.M.L. (Graham)

University of Waterloo, Department of Civil Engineering, , N2L 3G1 Waterloo, Canada, email: ggladwel@uwaterloo.ca

Goldhirsch, Prof. I. (Isaac)

Tel Aviv University, Dept. of Fluid Mechanics and Heat Transfer, The Iby and Aladar Fleischman Faculty of Engineering, 69978 Ramat Aviv, Israel, email: isaac@eng.tau.ac.il

Goldstein Junior, Prof. L. (Leonardo)

Unicamp, Faculdade de Engenharia Mecanica, Departamento de Engenharia Térmica e de Fluidos, Caixa Postal 6122, CEP 13083- Campinas - SP, Brazil, email: leonardo@fem.unicamp.br

Goryacheva, Prof. I.G. (Irina)

Russian Academy of Sciences, Institute of Problems in Mechanics, Vernadskogo prospect 101, 1, 119526 Moscow, Russia, email: goryache@ipmnet.ru

Govindarajan, Prof. R. (Rama)

Jawaharal Nehru Centre for Advanced Scientific Research, Engineering Mechanics Unit, Jakkur, 560 064 Bangalore, India, email: rama@jncasr.ac.in

Grannell, Dr. J.J. (James)

National University of Ireland, Department of Applied Mathematics, Cork, Ireland, email: j.grannell@ucc.ie

Gudmundson, Prof. P. (Peter)

Royal Institute of Technology (KTH), Department of Solid Mechanics, S 10044 Stockholm, Sweden, email: peter@hallf.kth.se

Gupta, Prof. N.K. (Narinder)

Indian Institute of Technology, Delhi, Dept. of Applied Mechanics, IIT Delhi, Hauz Khas, 110 016 New Delhi, India, email: nkgupta@am.iitd.ernet.in

Gutkowski, Prof. W. (Witold)

Institute of Fundamental Technological Research, Center of Mechanics and Information Technology, ul. Swietokrzyska 21, PL 00-049 Warszawa, Poland, email: witold.gutkowski@ippt.gov.pl

Guz, Prof. A.N. (Alexandr)

The National Academy of Sciences of Ukraine, Timoshenko Institute of Mechanics, 3 Nesterov Street, 252680 Kyiv, Ukraine, email: ang@imech.freenet.kiev.ua

Hansen, Prof. J. (Jorn)

University of Toronto, Institute for Aerospace Studies, 4925 Dufferin Street, M3H 5T6 Toronto, Canada, email: hansen@utias.utoronto.ca

Hashin, Prof. Z. (Zvi)

Tel Aviv University, Faculty of Engineering, Ramat Aviv, 69978 Tel Aviv, Israel, email: hashin@eng.tau.ac.il

Hassan, Prof. M.H.A. (Mohammed)

Third World Academy of Sciences (TWAS), c/o The Abdus Salam International Centre for Theoretical Physics (ICTP), Strada Costiera 11, 34014 Trieste, Italy, email: mhassan@twas.org

Hayes, Prof. M.A. (Michael)

University College Dublin, Department of Mechanical Engineering, 314 Engineering Building, Belfield, Dublin 4, Ireland, email: michael.hayes@ucd.ie

He, Prof. Y.-S. (You-Sheng)

Shanghai Jiao Tong University, Department of Engineering Mechanics, School of Civil Engineering and Mechanics, 1954 Hua Shan Road, 200030 Shanghai, China, email: yshe@mail.sjtu.edu.cn

Henningson, Prof. D. (Dan)

Royal Institute of Technology (KTH), Department of Mechanics, Osquars Backe 18, SE-10044 Stockholm, Sweden, email: henning@mech.kth.se

Herakovich, Prof. C.T. (Carl)

University of Virginia, 720 Garthfield Lane, VA 22901 Charlottesville, USA, email: herak@virginia.edu

Hetnarski, Prof. R.B. (Richard)

St. Raphael, Apt. 1209, 7117 Pelican Bay Blvd., Naples, FL 34108, USA, email: 632hetna@ritvax.isc.rit.edu

Hodge, Prof. P.G. (Philip)

Stanford University, Dept. of Applied Mechanics, School of Engineering, 580 Arastradero Rd., Apt #701, 94306-3948 Palo Alto CA, USA, email: phodge1@stanford.edu

Hodnett, Prof. P.F. (Frank)

University of Limerick, Department of Mathematics and Statistics, Limerick, Ireland, email: frank.hodnett@ul.ie

Holzapfel, Prof. G.A. (Gerhard)

Royal Institute of Technology (KTH), School of Engineering Sciences, Osquars Backe 1, SE-10044 Stockholm, Sweden, email: gh@hallf.kth.se

Homsy, Prof. G.M. (George)

University of California at Santa Barbara, Department of Mechanical and Environmental Engineering, Engineering II Building, Santa Barbara, CA 93106-5070, USA, email: bud@engineering.ucsb.edu

Hopfinger, Prof. E.J. (Emil)

LEGI/IMG, Domaine Universitaire, B.P. Box 53, F-38041 Grenoble Cedex 09, France, email: emil.hopfinger@hmg.inpg.fr

Hoshide, Prof. T. (Toshihiko)

Kyoto University, Department of Energy Conversion Science, Yoshida-Honmachi, Sakyo-ku, 606-8501 Kyoto, Japan, email: hoshide@energy.kyoto-u.ac.jp

Hourigan, Prof. K (Kerry)

Monash University, Department of Mechanical Engineering, Fluids Laboratory for Aeronautical and Industrial Research (FLAIR), Wellington Road, 3800 Clayton, Australia, email: kerry.hourigan@eng.monash.edu.au

Hu, Prof. H. (Haiyan)

Nanjing University of Aeronautics and Astronautics, Presidential Office, 29 Yudas Street, 210016 Nanjing, China, email: hhayae@nuaa.edu.cn

Huang, Prof. Y. (Yonggang)

University of Illinois at Urbana-Champaign, Dept. of Mechanical and Industrial Engineering, 362e meb, mc 244 1206 w green, Urbana, IL 61801, USA, email: huang9@uiuc.edu

Huerre, Prof. P. (Patrick)

CNRS-Ecole Polytechnique, Laboratoire d'Hydrodynamique, F-9 1128, Palaiseau Cedex, France, email: patrick.huerre@ladhyx.polytechnique.fr

Hult, Prof. J. (Jan)

Chalmers University of Technology, Department of Applied Mechanics, S-41296 Gothenburg, Sweden, email: jan.hult@me.chalmers.se

Hunt, Prof. J.C.R. (Julian)

University College London, Centre for Polar Observation & Modelling, Gower Street, WC1E 6BT London, UK, email: jcrh@cpom.ucl.ac.uk

Huraib, Mr. F.S. (Fahad)

Directorate of Technology and International Cooperation, P.o. Box 6086, Riyadh 11442, Saudi Arabia, email: int_coop@kacst.edu.sa

Hutchinson, Prof. J.W. (John)

Harvard University, Division of Applied Mechanics, 315 Pierce Hall 29 Oxford Street, 29 Oxford Street, Cambridge, MA 02138, USA, email: hutchinson@husm.harvard.edu

Huyghe, Dr. J.M. (Jacques)

Eindhoven University of Technology, Department of Biomedical Engineering, PO Box 513, 5600 MB Eindhoven, Netherlands, email: J.M.R.Huyghe@tue.nl

Idelsohn, Dr. S. R. (Sergio)

CIMEC, Guemes 3450, 3000 Santa Fe, Argentina, email: sergio@ceride.gov.ar

Inoue, Prof. T. (Tatsuo)

Fukuyama University, Department of Mechanical Systems Engineering, Gakuen-cho 1-Sanzo, Fukuyama 729-0292, Hiroshima, Japan, email: inoue@fucc.fukuyama-u.ac.jp

Iooss, Prof. G. (Gérard)

Université Nice, Institut Non Linéaire de Nice - UMR 6618 CNRS, 1361, Route des Lucioles, SOPHIA ANTIPOLIS, F-06560 Valbonne, France, email: gerard.iooss@inln.cnrs.fr

Ismail, Prof. M.K. (Mohamed)

Academy of Scientific Research and Technology, Egyptian Committee of Theoretical and Applied Mechanics, 5 Dessouk Street, Heliopolis, Cairo, Egypt, email: mkimki209@afmic.com

Ito, Prof. M. (Manabu)

Takushoku University, Faculty of Engineering, 5-45-2 Sendagi Bunkyo-ku, 113 Tokyo, Japan, email: ito-manabu@amy.hi-ho.ne.jp

Iyengar, Prof. R.N. (Narayana)

Indian Institute of Science, Department of Civil Engineering, 560012 Bangalore, India, email: rni@civil.iisc.ernet.in

Jaiani, Prof. G. (George)

Iv. Javakhishvili Tbilisi State University, I. Vekua Institute of Applied Mathematics, 2 University Str., 0186 Tbilisi, Georgia, email: jaiani@viam.hepi.edu.ge

James, Prof. D.F. (David)

University of Toronto, Department of Mechanical and Industrial Engineering, 5 King's College Road, M5S 3G8 Toronto, Ontario, Canada, email: david.james@utoronto.ca

Jiménez, Prof. J. (Javier)

Universidad Politécnica de Madrid, Motopropulsion y Termofluidodinámica E.T.S.I. Aeronáuticos, Plaza Cardenal Cisneros 3, E 28040 Madrid, Spain, email: jimenez@torroja.dmt.upm.es

Josefson, Prof. L (Lennart)

Chalmers University of Technology, Solid Mechanics, 412 96 Göteborg, Sweden, email: lejo@solid.chalmers.se

Joseph, Prof. D.D. (Daniel)

University of Minnesota, Department of Aerospace Engineering and Mechanics, 107 Akerman Hall, 110 Union Street S.E., MN 55455 Minneapolis, USA, email: joseph2aem.umn.edu

Kalischky, Prof. S. (Sandor)

Budapest University of Technology and Economics, Department of Structural Mechanics, Muegyetem rpt. 3, 1521 Budapest, Hungary, email: logo@ep-mech.me.bme.hu

Kambe, Prof. T. (Tsutomu)

IDS, Higashi-yama 2-11-3, Meguro-ku, 153-0043 Tokyo, Japan, email:

kambe@ruby.dti.ne.jp

Kaneda, Prof. Y. (Yukio)

Nagoya University, Department of Computational Science, Graduate School of

Engineering, Chikusa-ku, 464-8603 Nagoya, Japan, email: kaneda@cse.nagoya-u.ac.jp

Kant, Prof. T. (Tarun)

Indian Institute of Technology Bombay, Department of Civil Engineering, Powai, 400

076 Mumbai, India, email: tkant@civil.iitb.ac.in

Karihaloo, Prof. B.L. (Bhushan)

Cardiff University, School of Engineering, Queen's Buildings, The Parade, CF24 3AA

Cardiff, UK, email: karihaloob@Cardiff.ac.uk

Kerr, Prof. R.M. (Robert)

University of Warwick, School of Engineering, Gibbet Hill Road, VC4 7AL Coventry,

UK, email: Robert.Kerr@warwick.ac.uk

Kessissoglou, N.J. (Nicole)

The University of New South Wales, School of Mechanical and Manufacturing

Engineering, Sydney, NSW 2052, Australia, email: n.kessissoglou@unsw.edu.au

Keunings, Prof. R. (Roland)

Universite Catholique de Louvain, Centre for Systems Engineering and Applied

Mechanics (CESAME), Batiment Euler, Av. Georges Lemaitre, 4, B-1348 Louvain-la-

Neuve, Belgium, email: roland.keunings@inma.ucl.ac.be

Kida, Prof. S. (Shigeo)

Kyoto University, Department of Mechanical Engineering, Graduate School of

Engineering, Yoshida-Honmachi, Sakyo-ku, Kyoto 606-8501, Japan, email:

kida@mech.kyoto-u.ac.jp

Kim, Prof. S.J. (Seung Jo)

Seoul National University, School of Mechanical and Aerospace Engineering, San 56-1

Shillim-dong, Kwanak-gu, Seoul 151-742, Korea, Republic of, email: sjkim@snu.ac.kr

Kimura, Prof. Y. (Yoshifumi)

Nagoya University, School of Mathematics, Nagoya, Japan, email:

kimura@math.nagoya-u.ac.jp

Kitagawa, Prof. H. (Hiroshi)

Osaka University, Graduate School of Engineering, Department of Adaptive Machine Systems, 2-1 Yamada-oka, Suita, Osaka, 565-0871, Japan, email: kitagawa@ams.eng.osaka-u.ac.jp

Kitagawa, Dr. M. (Masaki)

Ishikawajima-Harima Heavy Industries Co., Ltd., Technical Development Division, 3-2-16 Toyosu Kotoku, 135-8733 Tokyo, Japan, email: m_kitagawa@ihi.co.jp

Kiya, Prof. M. (Masaru)

Kushiro National College of Technology, Kushiro 084-0916, Japan, email: kiya@office.kushiro-ct.ac.jp

Klimov, Prof. D.M. (Dmitry)

Institute for Problems in Mechanics, Prospect Vernadskogo 101, bldg 1, 117526 Moscow, Russia, email: klimov@ipmnet.ru

Kluwick, Prof. A. (Alfred)

Technische Universität Wien, Institut für Strömungslehre und Wärmeübertragung, Resselgasse 3/1/3, A-1040 Wien, Austria, email: alfred.kluwick@tuwien.ac.at

Knauss, Prof. W.G. (Wolfgang)

California Institute of Technology, Faculty of Aeronautics and Applied Mechanics, M/C 105-50, 91125 Pasadena, CA, USA, email: wgk@caltech.edu

Kobayashi, Prof. T. (Toshio)

University of Tokyo, Institute of Industrial Science, Department of Mechanical Engineering and Naval Architecture, 4-6-1 Komaba, Meguro-ku, 153-8505 Tokyo, Japan, email: kobaya@iis.u-tokyo.ac.jp

Kounadis, Prof. A.N. (Anthony)

National Technical University of Athens, School of Civil Engineering, Patission Street 42, GR-10682 Athens, Greece, email: kounadis@central.ntua.gr

Kowalewski, Prof. T.A. (Tomasz)

Institute of Fundamental Technological Research, Department of Mechanics and Physics of Fluids, Polish Academy of Sciences, ul. Swietokrzyska 21, PL 00-049 Warszawa, Poland, email: tkowale@ippt.gov.pl

Kozlov, Prof. V.V. (Victor)

Russian Academy of Sciences, 14 Leninsky Prospect, 119991 Moscow, Russia, email: Kozlov@ras.ru

Krause, Prof. E. (Egon)

Aerodynamisches Institut, Rheinisch- Westfälische Technische Hochschule (RWTH) Aachen, Wullnerstrasse 5-7, D-52062 Aachen, Germany, email: ek@aia.rwth-aachen.de

Kreuzer, Prof. E.J. (Edwin)

Technische Universität Hamburg-Harburg, Arbeitsbereich Mechanik und Meerestechnik, Eissendorfer Str. 42, D-21071 Hamburg, Germany, email: Kreuzer@tu-harburg.de

Kuhn, Prof. G.R. (Günther)

Universität Erlangen-Nuremberg, Institute for Applied Mechanics, Egerlandstrasse 5, D 91058 Erlangen, Germany, email: guenther.kuhn@itm.uni-erlangen.de

Kuwano, Prof. S. (Sonoko)

Osaka University, Graduate School of Human Sciences, Dept. of Environmental Psychology, 1-2 Yamadaoka, Suita, 565-0871 Osaka, Japan, email: kuwano@env.eng.osaka-u.ac.jp

Kuyumdzhev, Prof. H.N. (Hristo)

University of Rousse, Department of Mechanics, 8, Studentska Street, BG 7017 Rousse, Bulgaria, email: hnk@ru.acad.bg

Kwak, Prof. B.M. (Byung)

Korea Advanced Institute of Science and Technology, Department of Mechanical Engineering, 373-1 Guseong-dong, Yuseong-gu, 305-701 Deajeon, Korea, Republic of, email: bmkwak@khp.kaist.ac.kr

Kyriakides, Prof. S. (Stelios)

University of Texas at Austin, Center for Mechanics of Solids, Structures and Materials, WRW 110 C0600, TX 78712-1 Austin, USA, email: skk@mail.utexas.edu

Ladevèze, Prof. P. (Pierre)

Ecole Normale Supérieure de Cachan, Laboratoire de Mécanique et Technologie, 61 av du Président Wilson, 94235 Cachan Cedex, France, email: ladeveze@lmt.ens-cachan.fr

Lagarde, Prof. A. (Alexis)

Université de Poitiers, Faculté des Sciences, Laboratoire de Mécanique des Solides, Bd3, Téléport 2, BP 179, F-86960 Futuroscope Cedex, France, email: secret@lms.univ-poitiers.fr

Lavendelis, Prof. E. (E.)

Riga Technical University, Institute of Mechanics, 1 Kalku Street, LV-1658 Riga, Latvia, email:

Le Treut, Prof. H. (Hervé)

Université de Paris 6; Ecole Polytechnique et Ecole Normale Supérieure, Laboratoire de Météorologie Dynamique, Tour 45-55, 3ème étage; Case Postale 99; 4, place Jussieu, F-75252 Paris Cedex 05, France, email: letreut@lmd.jussieu.fr

Leal, Prof. L.G. (Gary)

University of California at Santa Barbara, Department of Chemical Engineering, Santa Barbara, CA 93106-5080, USA, email: lgl20@engineering.ucsb.edu

Leblond, Prof. J.B. (Jean-Baptiste)

University Pierre et Marie Curie, Laboratoire de Modelisation en Mecanique, Lab. de Modelisation en Mecanique, Univ. Pierre et Marie Curie, Tour 65-55, 4 place Jussieu, 75252 Paris Cedex 05, France, email: leblond@lmm.jussieu.fr

Lee, Dr. Y.-K. (Yi-Kuen)

Hong Kong University of Science and Technology, Department of Mechanical Engineering, Clear Water Bay, Kowloon, Hong Kong, China-Hong Kong, email: meyklee@ust.hk

Leung, Prof. A.Y.T. (Andrew)

City University of Hong Kong, Department of Building and Construction, 83 Tat Chee Avenue, Kowloon, Hong Kong SAR, China, email: andrew.leung@cityu.edu.hk

Leweke, Dr. T. (Thomas)

CNRS / Universites Aix- Marseille I & II, Institut de Recherche sur les Phenomenes Hors Equilibre (IRPHE), 49, rue F. Joliot-Curie - B.P. 146, F-13384 Marseille Cedex 13, France, email: Thomas.Leweke@irphe.univ-mrs.fr

Lin, Prof. Y.K. (Mike)

Florida Atlantic University, Center for Applied Stochastics Research, 777 Glades Rd., Boca Raton, FL 33431, USA, email: linyk@fau.edu

Linden, Prof. P.F. (Paul)

University of California, San Diego, Department of Mechanical & Aerospace Engineering, 9500 Gilman Drive, La Jolla, CA 92093-0411, USA, email: pflinden@ucsd.edu

Lorenzen, Dr. A. (Arne)

Aqua-Europe, Kaiserdamm 22, 14057 Berlin, Germany, email: lorenzen@Aqua-Europe.com

Lugner, Prof. P. (Peter)

Technische Universität Wien, Institut für Mechanik E 325, Wiedner Hauptstr. 8-10, A 1040 Wien, Austria, email: p.lugner@tuwien.ac.at

Lund, Prof. F. (Fernando)

Universidad de Chile, Departamento de Fisica, Facultad de Ciencias Fisicas y Matematicas, Casilla 487-3, Santiago, Chile, email: flund@cimat.cl

Lundberg, Prof. B. (Bengt)

Uppsala University, Department of Engineering Sciences, The Angstrom Laboratory, Box 534, SE-751 21 Uppsala, Sweden, email: bengt.lundberg@angstrom.uu.se

Lundström, Prof. S. (Staffan)

Luleå University of Technology, Division of Fluid Mechanics, SE-971 87 Luleå, Sweden, email: staffan.lundstrom@ltu.se

Ma, Prof. C.-C. (Chien-Ching)

National Taiwan University, Institute of Mechanical Engineering, No. 1 Sec. 4 Roosevelt Road, Taipei, 106 Taiwan, China-Taipei

Macosko, Prof. C.W. (Christopher)

University of Minnesota, Department of Chemical Engineering, Material Science, 151 Amund H, 421 Washington Avenue SE, 55455 Minneapolis, USA, email: macosko@umn.edu

Maier, Prof. G. (Giulio)

Politecnico di Milano, Dipartimento di Ingegneria Strutturale, Piazza Leonardo da Vinci, 32, I-20133 Milano, Italy, email: giulio.maier@polimi.it

Mang, Prof. H.A. (Herbert)

Vienna University of Technology, Institute for Mechanics of Materials and Structures, Karlsplatz 13, A-1040 Vienna, Austria, email: herbert.mang@tuwien.ac.at

Marinoschi, Dr. G. (Gabriela)

Romanian Academy, Institute of Mathematical Statistics and Applied Mathematics, email: gmarino@aix.acad.ro

Marn, Prof. J. (Jure)

University of Maribor, Faculty of Mechanical Engineering, Smetonova ulica 17, 2000 Maribor, Slovenia, email: jure.marn@uni-mb.si

Martins, Prof. J. A. C. (João)

Technical University of Lisbon, Instituto Superior Tecnico, Departamento de Engenharia Civil e Arquitectura, Avenida Rovisco Pais, 1049-001 Lisboa, Portugal, email: jmartins@civil.ist.utl.pt

Matejicek, Prof. F. (Franjo)

Strojarski Fakultet, Mechanical Engineering, Trg Ivane Brlic -Mazuranic 18, 35000 Slavonski Brod, Croatia, email: Franjo.Matejicek@sfsb.hr

McMeeking, Prof. R.M. (Robert)

University of California Santa Barbara, Department of Mechanical and Environmental Engineering, , CA 93106-5 Santa Barbara, USA, email: rmcm@engineering.ucsb.edu

McPhedran, Prof. R.C. (Ross)

University of Sydney, School of Physics, Sydney, Australia, email: r.mcphedran@physics.usyd.edu.au

Meier, Prof. G.E.A. (Gerd)

Deutsches Zentrum für Luft - und Raumfahrt (DLR), Institut für Experimentelle Stromungsmechanik, Bunsenstrasse 10, D 37073 Göttingen, Germany, email: g.e.a.meier@dlr.de

Mellowes, Dr. W. (W.)

University of the West Indies, Department of Chemical Engineering, St. Augustine, Trinidad, West Indies

Miehe, Prof. C. (Christian)

University of Stuttgart, Institute of Applied Mechanics (Chair I), Pfaffenwaldring 7, 70550 Stuttgart, Germany, email: miehe@mechbau.uni-stuttgart.de

Mijuca, Dr. D.M. (Dubravka)

University of Belgrade, Faculty of Mathematics, Studentski Trg 16, P.O. Box 550, 11000 Belgrade, Serbia and Montenegro, email: dmijuca@matf.bg.ac.yu

Mikhailov, Prof. G.K. (Gleb)

Lomonosovsky Pr. 14, Apt 97, 119296 Moscow, Russia, email: gkmikh@proc.ru

Moffatt, Prof. H.K. (Keith)

University of Cambridge, Department of Applied Mathematics and Theoretical Physics, Centre for Mathematical Sciences, Wilberforce Road, Cambridge CB3 0WA, UK, email: H.K.Moffatt@damp.cam.ac.uk

Monkewitz, Prof. P.A. (Peter)

Swiss Federal Institute of Technology Lausanne (EPFL), Laboratory of Fluid Mechanics (LMF), ME B2 485 (building ME), Station 9, CH-1015 Lausanne, Switzerland, email: peter.monkewitz@epfl.ch

Montanaro, Prof. A. (Adriano)

Università degli Studi di Padova, Dipartimento di Metodi e Modelli Matematici per le Scienze Applicate, Via Belzoni 7, 35131 Padova, Italy, email: montanaro@dmsa.unipd.it

Moratilla, Mr. A. (Angel)

Instituto Nacional de Tecnica Aeroespacial, Carretera de Ajalvir km. 4,00, Torrejon de Ardoz, 28850 Madrid, Spain, email: moratillara@inta.es

Moreau, Prof. R. (René)

Institut National Polytechnique de Grenoble (INPG), ENSHM de Grenoble, B.P. 95, , F-38402 Saint Martin d'Heres, Cedex, France, email: Rene.Moreau@hmg.inpg.fr

Morozov, Prof. N.F. (Nikita)

St. Petersburg State University, Math&Mech Faculty, Elasticity Dept., Vereiskaya Str. 22-24, apt. 15, St. Petersburg 198013, Russia, email: morozov@nm1016.spb.edu

Morrison, Prof. J.F. (Jonathan)

Imperial College, Department Aeronautics, South Kensington Campus, SW7 2AZ London, UK, email: j.morrison@imperial.ac.uk

Morro, Prof. A. (Angelo)

University of Genova, Dipartimento di Ingegneria Biofisica ed Elettronica, Via Opera Pia 11a, 16145 Genova, Italy, email: morro@dibe.unige.it

Mota Soares, Prof. C.A. (Carlos)

Instituto Superior Tecnico, Instituto de Engenharia Mecanica, Av.Rovisco Pais 1, 1096 Lisboa Codex, Portugal, email: mmsoares@alfa.ist.utl.pt

Movchan, Prof. A.B (Alexander)

University of Liverpool, Department of Mathematical Sciences, M & O Building, L69 3BX Liverpool, UK, email: abm@maths.liv.ac.uk

Mullin, Prof. T. (Tom)

Manchester University, Department of Physics, M13 9PL Manchester, UK, email: tom.mullin@man.ac.uk

Munjaj, Prof. M.L. (Manohar)

Indian Institute of Science, Dept. of Mechanical Engineering, Faculty for Research in Technical Acoustics (FRITA), Department of mechanical Engineering, , 560 012 Bangalore, India, email: munjal@mecheng.iisc.ernet.in

Murad, Prof. M.A. (Marcio Arab)

National Laboratory for Scientific Computing, Av. Getulio Vargas, 333, 25651-075 Quitandinha, Petrópolis-RJ, Brazil, email: murad@Incc.br

Murakami, Prof. S.M. (Sumio)

Aichi University of Technology, Dept. of Mechanical Systems Engineering, Nishihazama-cho, 443-0047 Gamagori-city, Aichi-prefectur, Japan, email: murakami@aut.ac.jp

Müller, Prof. I. (Ingo)

Technische Universität Berlin, Fakultät für Prozesswissenschaften, Fasanenstrasse 90, 10623 Berlin, Germany, email: im@thermodynamik.tu-berlin.de

Määttänen, Prof. M. (Mauri)

Helsinki University of Technology, Department of Mechanical Engineering, Laboratory for Mechanics of Materials, Puumiehenkuja 5A, 02150 Espoo, P.O. Box 4300, FIN-02015 TKK, Finland, email: mauri.maattanen@hut.fi

Nakra, Prof. B.C. (Bahadur)

Indian Institute of Technology, Department of Mechanical Engineering, Hauz Khas, 110 016 New Delhi, India, email: bcnakra@mech.iitd.ernet.in

Namachchivaya, Prof. N. Sri (Navaratnam)

University of Illinois at Urbana- Champaign, Department of Aerospace Engineering, 306 Talbot Laboratory, MC-236, 104 South Wright Street, IL 61801 Urbana, USA, email: navam@uiuc.edu

Narasimha, Prof. R. (Roddam)

Jawaharlal Nehru Centre for Advanced Scientific Research, Engineering Mechanics Unit, Jakkur P O, Bangalore 560 094, India, email: roddam@caos.iisc.ernet.in

Narayanan, Prof. S. (S.)

Indian Institute of Science, Department of Applied Mechanics, Chennai, 600 036, Madras, India, email: mcdyn@iitn.ernet.in

Needleman, Prof. A. (Alan)

Brown University, Division of Engineering, 182 Hope Street, RI 02912 Providence, USA, email: needle@engin.brown.edu

Nelson, Prof. P.A. (Philip)

University of Southampton, Institute of Sound and Vibration Research, Highfield, SO17 BJ Southampton, UK, email: pan@isvr.soton.ac.uk

Niordson, Prof. F. (Frithiof)

Technical University of Denmark, Department of Solid Mechanics, Building 404, DK-2800 Lyngby, Denmark, email: frithiof@niordson.com

O'Donoghue, Prof. P.E. (Padraic)

National University of Ireland Galway, Dept. of Civil Engineering, Galway, Ireland, email: padraic.odonoghue@ucg.ie

Oden, Prof. J.T. (John Tinsley)

University of Texas at Austin, Director, Institute for Computational Engineering and Sciences, 1 University Station, C0200, 201 E. 24th Street, ACE Bldg. 4.102, TX 78712 Austin, USA, email: oden@ices.utexas.edu

Oever, Mrs. W.P.J.M. (Ine) van den

Eindhoven University of Technology, Department of Mechanical Engineering, P.O. Box 513, 5600 MB Eindhoven, Netherlands, email: w.p.j.m.v.d.oever@tue.nl

Ogden, Prof. R.W. (Ray)

University of Glasgow, Department of Mathematics, University Gardens, G12 8QW Glasgow, UK, email: rwo@maths.gla.ac.uk

Ohashi, Prof. H. (Hideo)

Kogakuin University, 1-24-2 Nishi-Shinjuku, Shinjuku-ku, 163-8677 Tokyo, Japan, email: ohashi@cc.kogakuin.ac.jp

Ohno, Prof. N. (Nobutada)

Nagoya University, Department of Mechanical Engineering, Furo-cho, Chikasu-Ku, 464-8603 Nagoya, Japan, email: ohno@mech.nagoya-u.ac.jp

Okrouhlik, Prof. M. (Miloslav)

Academy of Sciences of the Czech Republic, Mechanics and Solids Department, Institute of Thermomechanics, Dolejskova 5, 182 00 Prague 8, Czech Republic, email: ok@it.cas.cz

Olhoff, Prof. N. (Niels)

Aalborg University, Institute of Mechanical Engineering, Pontoppidanstraede 101, DK-9220 Aalborg East, Denmark, email: no@ime.aau.dk

Oñate, Prof. E. (Eugenio)

International Center for Numerical Methods in Engineering (CIMNE), Edificio C-1, Building C1 2nd. Floor Campus Nord UPC, Gran Capitan s/n, 08034 Barcelona, Spain, email: onate@cimne.upc.edu

Paavola, Prof. J. (Juha)

Helsinki University of Technology, Department of Civil and Environmental Engineering, P.O. Box 2100, FIN-02015 HUT, Finland, email: paavola@cc.hut.fi

Peake, Prof. N. (Nigel)

University of Cambridge, Department of Applied Mathematics & Theoretical Physics, Center for Mathematical Sciences, Wilberforce Road, CB3 0WA Cambridge, UK, email: N.Peake@damtp.cam.ac.uk

Pearson, Prof. J.R.A. (Anthony)

25 Chaucer Road, CB2 2EB Cambridge, UK, email: jrap@pearson.co.uk

Pedley, Prof. T.J. (Timothy)

University of Cambridge, Department of Applied Mathematics and Theoretical Physics,
Centre for Mathematical Sciences, Wilberforce Road, Cambridge CB3 OWA, UK,
email: t.j.pedley@damtp.cam.ac.uk

Pellegrino, Prof. S. (Sergio)

University of Cambridge, Department of Engineering, Trumpington Street, CB2 1PZ
Cambridge, UK, email: pellegrino@eng.cam.ac.uk

Peregrine, Prof. D.H. (Howell)

University of Bristol, School of Mathematics, University Walk, Bristol BS8 1TW, UK,
email: d.h.peregrine@bris.ac.uk

Pfeiffer, Prof. F. (Friedrich)

Technical University of Munich, Institute for Applied Mechanics, Boltzmannstr.15, D-
85748 Garching, Germany, email: pfeiffer@amm.mw.tu-muenchen.de

Phan-Thien, Prof. N. (Nhan)

National University of Singapore, Division of Bioengineering, Faculty of Engineering, 9,
Engineering Drive 1, 117576 Singapore, Singapore, email: nhan@nus.edu.sg

Phillips, Prof. J.W. (James)

University of Illinois at Urbana-Champaign, Department of Theoretical and Applied
Mechanics, 216 Talbot Laboratory, 104 South Wright Street, 61801-2983 Urbana, IL,
USA, email: jwp@uiuc.edu

Pilipenko, Prof. V.V. (Victor)

National Academy of Sciences of Ukraine and National Space Agency Of Ukraine,
Institute of Technical Mechanics, 15, Leshko-Popel Street, 49005 Dniepropetrovsk,
Ukraine, email: pilipenko@pvv.dp.ua

Pister, Prof. K.S. (Karl)

University of California at Berkeley, 828 Solana Drive, 94599 Lafayette, USA, email:
karl@pister.net

Pitteri, Prof. M. (Mario)

Universita degli Studi di Padova, Dipartimento di Metodi e Modelli Matematici per le
Scienze Applicate, Via Belzoni 7, 35131 Padova, Italy, email: pitteri@dmsa.unipd.it

Podio-Guidugli, Prof. P. (Paolo)

Universita' di Roma, Dipartimento di Ingegneria Civile, Via Politecnico 1, I-00133
Rome, Italy, email: ppg@uniroma2.it

Pollard, Prof. A. (Andrew)

Queen's University at Kingston, Department of Mechanical Engineering, Computational and Experimental Fluid Dynamics Lab., K7L 3N6 Kingston, ON, Canada, email: pollard@me.queensu.ca

Prosperetti, Prof. A. (Andrea)

Johns Hopkins University, Department of Mechanical Engineering, 34th & Charles Streets, 122 Latrobe Hall, MD 21218 Baltimore, USA, email: prosperetti@jhu.edu

Ramkissoon, Prof. H. (Harold)

University of the West Indies, Department of Mathematics and Computer Science, St. Augustine, Trinidad, West Indies, email: ramfly@trinidad.net

Rammerstorfer, Prof. F.G. (Franz)

Vienna University of Technology (TU Wien), Institute of Lightweight Design and Structural Biomechanics, Gusshausstrasse 25-29/E317, A-1040 Vienna, Austria, email: ra@ilsb.tuwien.ac.at

Ravi-Chandar, Prof. K. (Krishnaswamy)

The University of Texas at Austin, Center for Mechanics of Solids, Structures and Materials, 210 E. 24th Street, WRW 117B, 1 University Station, C0600, Austin, Texas 78712-0235, USA, email: kravi@mail.utexas.edu

Reeks, Prof. M.W. (Mike)

University of Newcastle upon Tyne, School of Mechanical and Systems Engineering, Stephenson Building, Clarendon Rd, NE1 7RU Newcastle upon Tyne, UK, email: mike.reeks@ncl.ac.uk

Rega, Prof. G. (Giuseppe)

Universita di Roma La Sapienza, Dipartimento di Ingegneria Strutturale e Geotecnica, Via Antonio Gramsci 53, I 00197 Roma, Italy, email: giuseppe.rega@uniroma1.it

Ritchie, Prof. R.O. (Robert)

University of California at Berkeley, Department of Materials Science and Engineering, 577 Evans Hall, MC 1760, CA 94720-1 Berkeley, USA, email: roritchie@lbl.gov

Rodin, Prof. G.J. (Gregory)

The University of Texas at Austin, Department of Aerospace Engineering and Engineering Mechanics, TICAM, C0200, TX 78712 Austin, USA, email: gjr@ticam.utexas.edu

Rosato, Prof. A.D. (Anthony)

New Jersey Institute of Technology, Mechanical Engineering Department, University Heights, NJ 07102 Newark, USA, email: rosato@adm.njit.edu

Rothhammer Engel, Dr. F. (Francisco)

Universidad de Chile, Facultad de Medicina, Instituto de Ciencias Biomédicas, campus norte, Las Palmeras 3435 Nunoa, Santiago, Chile, email: frothham@machi.med.uchile.cl

Rozvany, Prof. G. (George)

Budapest University of Technology and Economics, Faculty of Civil Engineering, Department of Structural Mechanics, Muegyetem rkp. 3, Kmf 35, H-1521 Budapest, Hungary, email: rozvany@eik.bme.hu

Rubin, Prof. M.B. (Miles)

Technion - Israel Institute of Technology, Faculty of Mechanical Engineering, Technion City, Haifa 32000, Israel, email: mbrubin@tx.technion.ac.il

Rudnicki, Prof. J.W. (John)

Northwestern University, Department of Civil and Environmental Engineering and Department of Mechanical Engineering, 2145 Sheridan Road, Evanston, IL 60208-3109, USA, email: jwrudn@northwestern.edu

Rushchitsky, Prof. J.J. (Jeremiah)

S.P. Timoshenko Institute of Mechanics, Secretary-General of the National Committee of Ukraine on Theoretical and Applied Mechanics, Nesterov str.3, Kyiv 03680, Ukraine, email: rushch@imech.freenet.kiev.ua

Ruzic, Prof. D.D. (Dobroslav)

University of Belgrade, Faculty of Mechanical Engineering, Applied Mechanics and Theory of Structures, Kraljice Marije 16, 11120 Belgrade, Serbia and Montenegro, email: druzic@mas.bg.ac.yu

Sadowski, Prof. T. (Tomasz)

Lublin University of Technology, Faculty of Civil and Sanitary Engineering, Department of Solid Mechanics, Nadbystrzycka Str. 40, PL 20-618 Lublin, Poland, email: sadowski@akropolis.pol.lublin.pl

Salençon, Prof. J. (Jean)

Ecole Polytechnique, Laboratoire des Mécanique des Solides, F-91128 Palaiseau Cedex, France, email: jean.salencon@polytechnique.org

Saric, Prof. W.S. (William)

Arizona State University, Mechanical and Aerospace Engineering, P.O. Box 876106, 85287-6106 Tempe, AZ, USA, email: saric@asu.edu

Savage, Prof. S.B. (Stuart)

McGill University, Department of Civil Engineering and Applied Mechanics, 817 Sherbrooke Street West, H3A 2K6 Montreal, Quebec, Canada, email: stuart.savage@mcgill.ca

Sayir, Prof. M.B. (Mahir)

Swiss Federal Institute of Technology (ETH), Department of Mechanical and Process Engineering, ETH-Zentrum, CH-8092 Zürich, Switzerland, email: mahir.sayir@imes.mavt.ethz.ch

Schiehlen, Prof. W. (Werner)

University of Stuttgart, Institute of Engineering and Computational Mechanics, Pfaffenwaldring 9, 70550 Stuttgart, Germany, email: schiehlen@itm.uni-stuttgart.de

Schrefler, Prof. B.A. (Bernhard)

University of Padova, Faculty of Engineering, Dipartimento di Costruzioni e Trasporti, Via F. Marzolo 9, 35131 Padova, Italy, email: bas@dic.unipd.it

Schröder, Prof. W. (Wolfgang)

Rheinisch-Westfälische Technische Hochschule (RWTH) Aachen, Aerodynamisches Institut, Wuellnerstrasse 5-7, D-52062 Aachen, Germany, email: office@aia.rwth-aachen.de

Shaqfeh, Prof. E.S.G. (Eric)

Stanford University, Department of Chemical Engineering, 207 Stauffer III, 381 North-South Mall, Stanford, CA 94305-5025, USA, email: eric@chemeng.stanford.edu

Sharp, Prof. R.S. (Robin)

Imperial College London, Electrical and Electronic Engineering, South Kensington Campus, Exhibition Road, SW7 2AZ London, UK, email: robin.sharp@imperial.ac.uk

Shen, Prof. H.H. (Hayleyh)

Clarkson University, Department of Civil and Environmental Engineering, Potsdam, NY 13699-5710, USA, email: hhshen@clarkson.edu

Shibutani, Prof. Y. (Yoji)

Osaka University, Department of Mechanical Engineering, 2-1, Yamadaoka, Suita, 565-0871 Osaka, Japan, email: sibutani@mech.eng.osaka-u.ac.jp

Shrivastava, Prof. S. (Suresh)

McGill University, Department of Civil Engineering & Applied Mechanics, 817 Sherbrooke St. West, Montréal, QC H3A 2K6, Canada, email: suresh.shrivastava@mcgill.ca

Sigmund, Prof. O. (Ole)

Technical University of Denmark, Department of Mechanical Engineering, Section of Solid Mechanics, Nils Koppels Alle, Building 404, DK-2800 Lyngby, Denmark, email: sigmund@mek.dtu.dk

Skerget, Prof. L. (Leopold)

University of Maribor, Faculty of Mechanical Engineering, Smetanova 17, 2000
Maribor, Slovenia, email: leo@uni-mb.si

Smits, Prof. A.J. (Alexander)

Princeton University, Department of Mechanical and Aerospace Engineering, Olden
Street, NJ 08544 Princeton, USA, email: asmits@princeton.edu

Snidle, Prof. R.W. (Ray)

Cardiff University, Cardiff School of Engineering, The Parade, CF24 3AA Cardiff, UK,
email: snidler@cf.ac.uk

Sobczyk, Prof. K. (Kazimierz)

Institute of Fundamental Technological Research (IPPT), Department of Dynamics of
Complex Systems, Swietokrzyska 21, 00-049 Warsaw, Poland, email:
ksobcz@ippt.gov.pl

Sobieczky, Prof. H. (Helmut)

DLR German Aerospace Center, Bunsenstrasse 10, D 37073 Göttingen, Germany, email:
helmut.sobieczky@dlr.de

Soldati, Prof. A. (Alfredo)

Università degli Studi di Udine, Centro Interdipartimentale di Fluidodinamica e
Idraulica, Dipartimento di Energetica e Macchine, Via delle Scienze 208, 33100 Udine,
Italy, email: soldati@uniud.it

Sreenivasan, Prof. K. R. (Katepalli)

International Centre for Theoretical Physics, Strada Costiera 11, 34014 Trieste, Italy,
email: krs@ictp.it

Srinivasan, Prof. J.

Indian Institute of Science, Centre for Atmospheric and Oceanic Sciences, Bangalore
560012, India, email: jayes@caos.iisc.ernet.in

Steenhoven, Prof. A.A. (Anton) van

Eindhoven University of Technology, Department of Mechanical Engineering, Den
Dolech 2, PO Box 513, 5600 MB Eindhoven, Netherlands, email:
A.A.v.Steenhoven@tue.nl

Stein, Prof. E. (Erwin)

University of Hannover, Institut für Baumechanik und Numerische Mechanik (IBNM),
Appelstraße 9A, D-30167 Hannover, Germany, email: stein@ibnm.uni-hannover.de

Steinmann, Prof. P. (Paul)

University of Kaiserslautern, Applied Mechanics, Gottlieb-Daimler-Strasse, 67653
Kaiserslautern, Germany, email: ps@rhrk.uni-kl.de

Stépán, Prof. G. (Gábor)

Technical University of Budapest, Department of Applied Mechanics, Muegyetem rkp 3,
H-1521 Budapest, Hungary, email: stepan@mm.bme.hu

Storåkers, Prof. B. (Bertil)

Royal Institute of Technology (KTH), Department of Solid Mechanics, Osquars Backe 1,
S-10044 Stockholm, Sweden, email: bertil@hallf.kth.se

Styczek, Prof. A. (Andrzej)

Warsaw University of Technology, Institute of Aeronautics and Applied Mechanics, 24
Nowowiejska Str., 00-665 Warsaw, Poland, email: jack@meil.pw.edu.pl

Stähle, Prof. P. (Per)

Malmö University, Professor of Solid Mechanics, SE 205 06 Malmö, Sweden, email:
per.stahle@ts.mah.se

Suhubi, Prof. E.S. (Erdogan)

Istanbul Technical University, Department of Engineering Sciences, Maslak 80626,
Istanbul, Turkey, email: suhubi@itu.edu.tr

Sun, Prof. Q.P. (Qing-Ping)

Hong Kong University of Science and Technology, Department of Mechanical
Engineering, Clear Water Bay, Kowloon, Hong Kong, China, email: meqpsun@ust.hk

Suquet, Prof. P. (Pierre)

Centre National de Recherche Scientifique (CNRS), Laboratoire de Mécanique et
d'Acoustique, 31 Chemin Joseph Aiguier, 13402 Marseille Cedex 20, France, email:
suquet@lma.cnrs-mrs.fr

Szefer, Prof. G. (Gwidon)

Krakow University of Technology, Institute of Structural Mechanics, ul. Warszawska 24,
31-155 Krakow, Poland, email: szefer@limba.wil.pk.edu.pl

Sørensen, Prof. J.N. (Jens Nørkær)

Technical University of Denmark, Department of Mechanical Engineering, Fluid
Mechanics Section, Building 403, DK-2800 Lyngby, Denmark, email: jns@mek.dtu.dk

Tamuzs, Prof. V. (Vitauts)

University of Latvia, Institute of Polymer Mechanics, Aizkraukles iela 23,
Lv-1006 Riga, Latvia, email: tamuzs@pmi.lv

Tanishita, Prof. K. (Kazuo)

Keio University, Department of System Design Engineering, Kohoko-ku, Hiyoshi 3-14-1, 223-8522 Yokohama, Japan, email: tanishita@sd.keio.ac.jp

Tanner, Prof. R.I. (Roger)

University of Sydney, Faculty of Engineering, School of Aerospace, Mechanical and Mechatronic Engineering, Building J07, NSW 2600 Sydney, Australia, email: rit@aeromech.usyd.edu.au

Tasdemir, Prof. M.A. (Mehmet Ali)

Istanbul Teknik Universitesi, Fen-Edebiyat Facultesi, 80626, Maslak, Istanbul, Turkey, email: tasdemir@mim.itu.edu.tr

Tatsumi, Prof. T. (Tomomasa)

Kyoto University (Emeritus Professor), 26-6 Chikuzendai, Momoyama, Fushimi, 612-8032 Kyoto, Japan, email: tatsumi@skyblue.ocn.ne.jp

Tauchert, Prof. T.R. (Theodore)

University of Kentucky, College of Engineering, Mechanical Engineering Department, 263 RGAN Bldg., KY 40506-0 Lexington, USA, email: tauchert@engr.uky.edu

Thess, Prof. A. (André)

Ilmenau University of Technology, Department of Mechanical Engineering, P.O. Box 100565, D 98684 Ilmenau, Germany, email: thess@tu-ilmenau.de

Thomas, Dr. P. (Luis)

Universidad Nacional del Centro de la Pcia. de Buenos Aires, Facultad de Ciencias Exactas, Instituto de Fisica Arroyo Seco, Geophysical Flow Dynamics, Pinto 399, B7000GHG Tandil, Argentina, email: lthomas@exa.unicen.edu.ar

Toit, Prof. C.G. (Charl) du

North-West University, Potchefstroom Campus, School of Mechanical and Materials Engineering, Private Bag X6001, 2520 Potchefstroom, South Africa, email: mgicgdt@puk.ac.za

Tomizuka, Prof. M. (Masayoshi)

University of California at Berkeley, Department of Mechanical Engineering, 5100B Etcheverry Hall, CA 94720-1 Berkeley, USA, email: tomizuka@me.berkeley.edu

Tong, Prof. P. (Pin)

Hong Kong University of Science and Technology, Department of Mechanical Engineering, Clear Water Bay, Kowloon, Hong Kong, China, email: pintong@ust.hk

Toropov, Prof. V. (Vassili)

University of Bradford, School of Engineering, , BD7 1DP Bradford, West Yorkshire, UK, email: v.v.toropov@bradford.ac.uk

Triantafyllidis, Prof. N. (Nicolas)

University of Michigan, Department of Aerospace Engineering, MI 48109 Ann Arbor, USA, email: nick@engin.umich.edu

Troger, Prof. H. (Hans)

Technical University of Wien, Institut für Allgemeine Mechanik, Wiedner Hauptstrasse 8-325, 1040 Wien, Austria, email: Hans.TROGER@tuwien.ac.at

True, Prof. H. (Hans)

Technical University of Denmark, Informatics and Mathematic Modelling, Building 321, Richard Petersens Plads, DK-2800 Kgs.Lyngby, Denmark, email: ht@imm.dtu.dk

Ttoshev, Dr. E. (Evtim)

Bulgarian Academy of Sciences, Institute of Mechanics, 1113 Sofia, Bulgaria

Tuck, Prof. E.O. (Ernie)

The University of Adelaide, School of Mathematical Sciences; Department of Applied Mathematics, Room 110, Mathematics Building, SA 5005 Adelaide, Australia, email: etuck@maths.adelaide.edu.au

Tvergaard, Prof. V. (Viggo)

Technical University of Denmark, Department of Mechanical Engineering, Solid Mechanics, Nils Koppels Alle, Building 404, DK-2800 Lyngby, Denmark, email: viggo@mek.dtu.dk

Uetani, Prof. K. (Koji)

Kyoto University, Dept. of Architecture & Architectural Engineering, Graduate School of Engineering, KyotodaigakuKatsura Nishikyo, Kyoto, 615-8540, Japan, email: uetani@archi.kyoto-u.ac.jp

Ulbrich, Prof. H. (Heinz)

TU München, Lehrstuhl für Agewandte Mechanik, Boltzmannstrasse 15, D-85748 Garching, Germany, email: ulbrich@amm.mw.tu-muenchen.de

Ureta Aravena, Dr. T. (Tito)

Universidad de Chile, Facultad de Ciencias, Las Palmeras 3425, Nunoa, Santiago, Chile, email: tiureta@uchile.cl

Valásek, Prof. M. (Michael)

Czech Technical University of Prague, Faculty of Mechanical Engineering, Dept. of Mechanics, Karlovo Nanesti 13, CZ-12135 Praha 2, Czech Republic, email: valasek@fsik.cvut.cz

Van Dao, Prof. N. (Nguyen)

Vietnam National University, Hanoi, 144, Xuan Thuy Street, Cau Giay, Hanoi, Viet Nam, email: dao-nv@rmit.edu.vn

Vandepitte, Prof. D.V.H. (Dirk)

K.U. Leuven, PMA Division, Kasteelpark Arenberg 41, B-3001 Leuven, Belgium, email: Dirk.Vandepitte@mech.kuleuven.be

Vardoulakis, Prof. I. (Ioannis)

National Technical University of Athens, School of Mathematical and Physical Sciences, Laboratory of Geomaterials, Iroon Polytechniou 5, Zografos-15700, Athens, Greece, email: I.Vardoulakis@mechan.ntua.gr

Vatta, Prof. F. (Furio)

Politecnico di Torino, Dipartimento di Meccanica, Corso Duca degli Abruzzi 24, 10129 Torino, Italy, email: furio.vatta@polito.it

Velarde, Prof. M.G. (Manuel)

CISM, Palazzo del Torso, Piazza Garibaldi 18, 33100 Udine, Italy, email: cism@cism.it or velarde@fluidos.pluri.ucm.es

Verheij, Prof. J.W. (Jan)

TNO Science and Industry, Department of Acoustics, Stieltjesweg 1, PO Box 155, 2600 AD Delft, Netherlands, email: Jan.Verheij@tno.nl

Vollmann, Dr. J. (Jacqueline)

Swiss Federal Institute of Technology, Institute of Mechanical Systems, ETH Zürich, CLA H 21.1, CH 8092 Zürich, Switzerland, email: vollmann@imes.mavt.ethz.ch

Wagner, Prof. S.N.W. (Siegfried)

University of Stuttgart, Department of Aerospace Engineering, Pfaffenwaldring 21, D-70550 Stuttgart, Germany, email: wagner@iag.uni-stuttgart.de

Wagner, Prof. M. (Manfred)

Technische Universität Berlin, Polymertechnik / Kunststofftechnik, Fasanenstrasse 90, D-10623 Berlin, Germany, email: manfred.wagner@tu-berlin.de

Waldvogel, Prof. F. (Francis)

ETH- Zürich, ETH-Rat, CH-1015 Lausanne, Switzerland, email: waldvogel@ethrat.ch

Wang, Prof. W.-C. (Wei-Chung)

National Tsing Hua University, Dept. of Power Mechanical Engineering, No. 101 Sec. 2, Guang-fu Road, Hsinchu City 300, Taiwan, China-Taipei

Walters, Prof. K. (Ken)

University of Wales, Department of Mathematics, , SY23 3BZ Aberystwyth, UK, email: kew@aber.ac.uk

Watanabe, Prof. E. (Eiichi)

Kyoto University, 6-24 Ohike-2-Chome, Ibaraki, 567-0826 Osaka, Japan, email: wataei@circus.ocn.ne.jp

Watanabe, Prof. K. (Kazumi)

Yamagata University, School of Engineering, Department of Mechanical Engineering, Yonezawa, 992-8510 Yamagata, Japan, email: tg111@dip.yz.yamagata-u.ac.jp

Weaver, Prof. D. (David)

McMaster University, Department of Mechanical Engineering, 1280 Main Street West, Ont. L8S 4 Hamilton, Canada, email: weaverds@mcmaster.ca

Weir, Dr. G. (Graham)

Industrial Research Limited, P.O. Box 31-310, Lower Hutt, New Zealand, email: g.weir@irl.cri.nz

Wijngaarden, Prof. L. (Leen) van

University of Twente, Department of Applied Physics, Physics of Fluids, GebouwCTb,kamer 127, P.O. Box 217, 7500 AE Enschede, Netherlands, email: l.vanwijngaarden@tnw.utwente.nl

Williamson, Prof. C.H.K. (Charles)

Cornell University, Department of Mechanical and Aerospace Engineering, 252 Upson Hall, NY 14853-7 Ithaca, USA, email: cw26@cornell.edu

Willis, Prof. J. (John)

University of Cambridge, DAMPT, Centre for Mathematical Sciences, Wilberforce Road, Cambridge CB3 0WA, UK, email: J.R.Willis@damtp.cam.ac.uk

Wilmanski, Prof. K. (Krzysztof)

Weierstrass Institute for Applied Analysis and Stochastics, Mohrenstr. 39, 10117 Berlin, Germany, email: wilmansk@wias-berlin.de

Wolodko, Dr. J.D. (John)

University of Alberta, Department of Mechanical Engineering, Advanced Composite Materials Engineering Group, Rm. 4-9 Mechanical Engineering Bldg., T6G 2G8 Edmonton, Alberta, Canada, email: jwolodko@ualberta.ca

Worster, Prof. M.G. (Grae)

University of Cambridge, Dept. of Applied Mathematics and Theoretical Physics, Centre for Mathematical Sciences, Centre for Mathematical Sciences, Wilberforce Road, CB3 0WA Cambridge, UK, email: grae@damtp.cam.ac.uk

Wriggers, Prof. P. (Peter)

Universität Hannover, Institut für Baumechanik und Numerische Mechanik, Appelstrasse 9A, 30167 Hannover, Germany, email: wriggers@ibnm.uni-hannover.de

Wu, Prof. T.-T. (Tsong-Tsong)

National Taiwan University, Institute of Applied Mechanics, Taipei 106, email: wutt@ndt.iam.ntu.edu.tw

Wu, Prof. W.-F. (Wen-Fang)

National Taiwan University, Dept. of Mechanical Engineering, No. 1, Sec. 4, Roosevelt Road, 10617 Taipei, China-Taipei, email: wfwu@ntu.edu.tw

Yabuno, Prof. H.Y. (Hiroshi)

University of Tsukuba, Graduate School of Systems and Information Engineering, 1-1-1, Ten-no-dai, Tsukuba, Ibaraki, 305-8573, Japan, email: yabuno@esys.tsukuba.ac.jp

Yagawa, Prof. G. (Genki)

University of Tokyo, School of Engineering, Department of Quantum Engineering and Systems, 7-3-1 Hongo, Bunkyo-ku, 113- 8656 Tokyo, Japan, email: yagawa@q.t.u-tokyo.ac.jp

Yang, Prof. W. (Wei)

Tsinghua University, Department of Engineering Mechanics, 100084 Beijing, China, email: yw-dem@tsinghua.edu.cn

Yeh, Prof. C.-S. (Chau-Shiung)

National Taiwan University, Institute of Applied Mechanics, No. 1 Sec. 4 Roosevelt Road, Taipei, 106 Taiwan, China-Taipei, email: csyeh@spring.iam.ntu.edu.tw

Yoo, Prof. J.Y. (Jung Yul)

Seoul National University, School of Mechanical and Aerospace Engineering, San 56-1, Shilim-dong, Kwanak-Ku, Seoul 151-742, Korea, Republic of, email: jyyoo@snu.ac.kr

Yoon, Prof. S.W. (Suk Wang)

Sung Kyun Kwan University, Department of Physics, 300 Chunchun-dong, 440-746 Suwon, Korea, Republic of, email: swyoon@skku.ac.kr

Yu, Prof. T.X. (Tongxi)

Hong Kong University of Science and Technology, Department of Mechanical Engineering, Clear Water Bay, Kowloon, Hong Kong, China-Hong Kong, email: metxyu@ust.hk

Zaleski, Prof. S. (Stéphane)

Universite Pierre et Marie Curie, LMM, UPMC, 4, place Jussieu, Case 162, 75252 Paris Cedex 05, France, email: zal@ccr.jussieu.fr

Zaoui, Prof. A. (Andre)

CNRS, Ecole Polytechnique, Laboratoire de Mécanique des Solides, Ecole Polytechnique, 91128 Palaiseau cedex, France, email: zaoui@lms.polytechnique.fr

Zehnder, Prof. A.J.B. (Alexander)

ETH Zürich, Board of the Federal Institutes of Technology (ETH-Rat), ETH Centrum, CH 8092 Zürich, Switzerland, email: zehnder@ethrat.ch

Zenit, Dr. J.R. (Roberto)

Universidad Nacional Autónoma de México, Instituto de Investigaciones en Materiales, Apdo-Postal 70-360, Cd. Universitaria, D.F. 04510 Mexico, Mexico, email: zenit@servidor.unam.mx

Zhao, Prof. H. (Han)

LMT-Cachan, 61, Avenue du Président Wilson, 94235 Cachan Cedex, France, email: zhao@lmt.ens-cachan.fr

Zheng, Prof. Z. (Zhemín)

Chinese Academy of Sciences, Institute of Mechanics, 15 Bei Si Huan Xi Lu Road, 100080 Beijing, China, email: zhengzm@imech.ac.cn

Zhong, Prof. W.X. (Wanxie)

Dalian University of Technology, Research Institute of Engineering Mechanics, 116024 Dalian, China, email: zwoffice@dlut.edu.cn

Zhou, Prof. H. (Heng)

Tianjin University, Department of Mechanics, No.92 Weijin Road, Tianjin 300072, China, email: hzhou1@tju.edu.cn

Zhuang, Prof. F.-G. (Feng-Gan)

China Aerospace Corporation, Science and Technology Council, P.O. BOX 849, 100830 Beijing, China, email: zhuangfg@public.bta.net.cn

Ziegler, Prof. F. (Franz)

Technische Universität Wien, Center of Mechanics and Structural Dynamics, Wiedner Hauptstrasse 8 /E2063, A-1040 Wien, Austria, email: franz.ziegler@tuwien.ac.at

Zu, Prof. J.W. (Jean)

University of Toronto, Department of Mechanical and Industrial Engineering, 5 King's
College Road, Toronto, Ontario M5S 3G8, Canada, email: zu@mie.utoronto.ca

<http://www.iutam.net>
<http://www.iutam.org>
<http://www.iutam.info>

A catalogue record is available from the Library of the Eindhoven University of Technology

ISBN-10: 90-386-2738-6

ISBN-13: 978-90-386-2738-0

