INTERNATIONAL UNION OF THEORETICAL AND APPLIED MECHANICS

REPORT 1996

IUAM

University College Dublin
IRELAND
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**Bureau**

The following members of the Bureau of IUTAM have been elected for the period 1 November 1996 to 31 October 2000:

**Officers:**
- President: Professor W. Schiehlen (Germany)
- Vice-President: Professor L. van Wijngaarden (The Netherlands)
- Treasurer: Professor L.B. Freund (USA)
- Secretary-General: Professor M.A. Hayes (Ireland)

**Members:**
- Professor J. Engelbrecht (Estonia) elected (1996)
- Professor H.K. Moffatt (UK) (1992)
- Professor T. Tatsumi (Japan) (1992)
- Professor Ren Wang (China) (1996)

**Secretariat:**
IUTAM-Secretariat, Mathematical Physics Department, University College, Belfield, Dublin 4, Ireland
Telephone: +353 1 706 8370, Telefax: +353 1 706 1172
E-mail: iutam@ucd.ie

**Past Officers:**

<table>
<thead>
<tr>
<th>Year</th>
<th>Elected</th>
<th>President</th>
<th>Vice-President</th>
<th>Treasurer</th>
<th>Secretary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1948</td>
<td>J. Péres (France)</td>
<td>R.V. Southwell (UK)</td>
<td>H.L. Dryden (USA)</td>
<td>G. Temple (UK)</td>
<td>F.A. v. d. Dungen (Belgium)</td>
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<tr>
<td>1952</td>
<td>H.L. Dryden (USA)</td>
<td>J. Péres (France)</td>
<td>G. Temple (UK)</td>
<td>H.L. Dryden (USA)</td>
<td>F.A. v. d. Dungen (Belgium)</td>
</tr>
<tr>
<td>1956</td>
<td>F.K.G. Odqvist (Sweden)</td>
<td>H.L. Dryden (USA)</td>
<td>G. Temple (UK)</td>
<td>H.L. Dryden (USA)</td>
<td>F.A. v. d. Dungen (Belgium)</td>
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<tr>
<td>1960</td>
<td>G. Temple (UK)</td>
<td>F.K.G. Odqvist (Sweden)</td>
<td>W.T. Koiter (Netherlands)</td>
<td>M. Roy (France)</td>
<td>M. Roy (France)</td>
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<tr>
<td>1964</td>
<td>M. Roy (France)</td>
<td>G. Temple (UK)</td>
<td>W.T. Koiter (Netherlands)</td>
<td>M. Roy (France)</td>
<td>M. Roy (France)</td>
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<td>1968</td>
<td>W.T. Koiter (Netherlands)</td>
<td>M. Roy (France)</td>
<td>H. Görtler (Germany)</td>
<td>F.I. Niordson (Denmark)</td>
<td>F.I. Niordson (Denmark)</td>
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<tr>
<td>1972</td>
<td>H. Görtler (Germany)</td>
<td>W.T. Koiter (Netherlands)</td>
<td>D.C. Drucker (USA)</td>
<td>J. Hult (Sweden)</td>
<td>J. Hult (Sweden)</td>
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<td>1976</td>
<td>F.I. Niordson (Denmark)</td>
<td>H. Görtler (Germany)</td>
<td>D.C. Drucker (USA)</td>
<td>J. Hult (Sweden)</td>
<td>J. Hult (Sweden)</td>
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<tr>
<td>1980</td>
<td>D.C. Drucker (USA)</td>
<td>F.I. Niordson (Denmark)</td>
<td>E. Becker (Germany)</td>
<td>W. Schiehlen (Germany)</td>
<td>W. Schiehlen (Germany)</td>
</tr>
<tr>
<td>1984</td>
<td>J. Lighthill (UK)</td>
<td>D.C. Drucker (USA)</td>
<td>L.v. Wijngaarden (Netherlands)</td>
<td>W. Schiehlen (Germany)</td>
<td>W. Schiehlen (Germany)</td>
</tr>
<tr>
<td>Year</td>
<td>Place</td>
<td>Congress-President</td>
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<tr>
<td>1988</td>
<td>P. Germain (France)</td>
<td>J. Lighthill (UK), L.v. Wijngaarden (Netherlands), W. Schiehlen (Germany)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1992</td>
<td>L.v. Wijngaarden (Netherlands)</td>
<td>P. Germain (France), B.A. Boley (USA), F. Ziegler (Austria)</td>
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</table>

**Past Congress Presidents**

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

**Adhering Organisations**

**Argentina** (1959)
Asociacion Argentina de Mecanica Computacional, Guemes 3450, 3000 Santa Fe
Chairman: Dr. S.R. Idelsohn
Representative: Dr. S.R. Idelsohn

**Australia** (1964)
The Australian National Committee for Theoretical and Applied Mechanics of the Australian Academy of Sciences, GPO Box 783, Canberra City, ACT 2601
Chairman: Prof. N. Phan-Thien
Representative: Prof. N. Phan-Thien and Prof. R.I. Tanner

**Austria** (1951)
Austrian National Committee for Theoretical and Applied Mechanics, Österreichische Akademie der Wissenschaften, Dr.-Ignaz-Seipel-Platz 2, A–1010 Wien
Chairman: Prof. H. Mang
Deputy Chairman: Prof. A. Klwick

**Belgium** (1949)
The National Committee for Theoretical and Applied Mechanics of the Class of Sciences of the Royal Belgian Academy, Hertogsstraat 1, B–1000 Brussels
President: Prof. Roland Keunings
Vice-President: Prof. Albert Cardon
Secretary: Prof. R. Bourgeois
Representatives: Prof. R. Keunings, Prof. A. Cardon, Prof. R. Bourgeois

**Brazil** (1982)
Associação Brasileira de Ciências Mecânicas, Avenida Rio Branco 124/18 andar, 20040-001 Rio de Janeiro
President: Prof. C.A. Almeida
Representative: Prof. L. Bevilacqua

**Bulgaria** (1969)
Bulgarian National Committee for Theoretical and Applied Mechanics at the Bulgarian Academy of Sciences, "Acad. G. Bonchev" str.bl. 4, BUL–1113 Sofia
President: Prof. St. Radev
Secretary: Prof. M. Mihovski
Representative: Prof. St. Radev
Canada (1963)
The National Research Council of Canada, Ottawa, Canada K1A OR6
President: Dr. A. Carty
National Committee for IUTAM, Chairman: Prof. S.B. Savage
Secretary: Prof. S. Dost
Representatives: Prof. S. Dost, Prof. F.P.J. Rimrott, Prof. S.B. Savage, Prof. B. Tabarrok

Chile (1996)
The Chile National Committee on Theoretical and Applied Mechanics, Academia Chilena de Ciencias, Almirante Montt 454, Santiago, Chile
President: Prof. E. Tirapegui
Representative: Prof. F. Lund

China (1989)
The Chinese Society of Theoretical and Applied Mechanics, 15 Zhong Guan Cun Road, Beijing 100080
Chairman: Prof. Feng-Gan Zhuang
Representatives: Prof. You-Sheng He, Prof. K.C. Hwang, Prof. Ren Wang, Prof. Z.M. Zheng
The Society of Theoretical and Applied Mechanics, Institute of Applied Mechanics, National Taiwan University, Taipei 106
President: Prof. Wen-Hwa Chen
Representatives: Prof. H.H. Chiu, Prof. G.J. Hwang

Croatia (1994)
Croatian Society of Mechanics, Ivana Lucica 5, HR–10000 Zagreb, Croatia.
President: Prof. dr. sc. Nikola Vrankovic
Representative: Prof. I. Alfirevic

Czech Republic (1993), (former Czechoslovakia (1949))
The National Committee of Theoretical and Applied Mechanics, Academy of Sciences of the Czech Republic, Institute of Thermomechanics, Dolejskova 5, CZ–18200 Prague 8
President: Dr. R. Dvorak
Secretary: Dr. M. Okrouhlik
Representative: Dr. R. Dvorak

Denmark (1949)
President: Prof. B. Munk Olsen
Secretary: Prof. T.A. Bak

Egypt (1976)
Academy of Scientific Research and Technology, 101 Kasr El Eini Street, Cairo
ECTAM Chairman: Prof. M.K. Ismail
Correspondent: ASRT President Prof. H.A. Morsi
Secretary: Prof. Dr. M.R. Farwuez
Representative: Prof. Dr. M.K. Ismail

Estonia (1992)
Estonian Committee for Mechanics, Akadeemia tee 21, EE–0026 Tallinn
Chairman: Prof. J. Engelbrecht
Representative: Prof. J. Engelbrecht

Finland (1952)
The Finnish National Committee on Mechanics, Helsinki University of Technology, SF–02150 Espoo 15
Chairman: Prof. M.J. Mikkola
Secretary: Prof. M. Määttänen
Representatives: Prof. M.J. Mikkola, Prof. M. Määttänen

France (1949)
Comité National Français de Mécanique, Académie des Sciences, 23, quai Conti, F–75006 Paris
President: Prof. Gerard Iooss
Vice President: M. Huy Duong Bui
Secretary: Prof. Olivier Maisonneuve
Representatives: Prof. D. Barthes-Biesel, Prof. R. Moreau, Prof. J. Salençon, Prof. P. Suquet.

Germany (1950)
Deutsches Komitee für Mechanik (DEKOMECH), Institut für Baumechanik und Numerische Mechanik, Universität Hannover, Appelstraße 9 A, D–30167 Hannover
Chairman: Prof. E. Stein
Secretary: Prof. G. Kuhn
Representatives: Prof. U. Gabbert, Prof. E. Krause, Prof. G. Kuhn, Prof. S. Wagner

Greece (1979)
Hellenic Society for Theoretical and Applied Mechanics, National Technical University of Athens, GR–10682 Athens
President: Prof. P.S. Theocaris
Secretary: Prof. D. Beskos
Representative: Prof. A.N. Kounadis

Hong Kong (1996)
The Hong Kong Society of Theoretical and Applied Mechanics (HKSTAM),
Department of Mathematics, H.K. University of Science & Technology, Clear
Water Bay, Kowloon, Hong Kong
President: Prof. Din-Yu Hsieh
Vice-President: Prof. A.T. Chwang
Secretary: Prof. T.X. Yu
Representative: Prof. Pin Tong

Hungary (1948)
Hungarian National Committee for IUTAM, Department of Stuctural
Mechanics, Technical University Budapest, Muegyetem rkp. 3, H-1521
Budapest
President: Prof. S. Kaliszky
Secretary: Prof. G. Stepanc
Representative: Prof. S. Kaliszky

India (1950)
National Committee for Theoretical and Applied Mechanics of the Indian
National Science Academy, Bahadur Shah Zafar Marg, New Delhi - 110 002
Chairman: Prof. V. Ramamurti
Secretary: Prof. V.A. Chandrasekaran
Representatives: Prof. V.A. Chandrasekaran, Prof. B.C. Majumdar, Prof. V.
Ramamurti

Ireland (1984)
Irish National Committee for Theoretical and Applied Mechanics, Royal Irish
Academy, 19 Dawson Street, Dublin 2
Chairman: Prof. P.F. Hodnett
Secretary: Dr. J.J. Grannell
Representative: Prof. P.F. Hodnett

Israel (1950)
The Israel Society of Theoretical and Applied Mechanics, Dept. of Mechanical
Engineering, Technion-Israel Institute of Technology, Haifa 32000
President: Prof. S.R. Bodner
Representatives: Prof. S.R. Bodner, Prof. T. Miloh

Italy (1949)
Associazione Italiana di Meccanica Teorica ed Applicata, Piazza Leonardo da
Vinci 32, I-20133 Milano
President: Prof. E. Marchi
Secretary: Prof. A. Morro
Representatives: Prof. G. Bianchi, Prof. C. Cercignani, Prof. P. Podio-Guidugli,
Prof. F. Vatta

Japan (1951)
The National Committee for Theoretical and Applied Mechanics of the Science
Council of Japan, 22-34 Roppongi 7-chome, Minato-ku, Tokyo 106
President: Prof. Y. Yamamoto
Representatives: Prof. M. Ito, Prof. T. Kambe, Prof. H. Ohashi, Prof. G.
Yagawa.

Kazakhstan (1996)
The Kazakhstan National Committee on Theoretical and Applied Mechanics,
National Academy of Sciences of the Republic of Kazakhstan, Abai Avenue,
31, 480091 Almaty, Kazakhstan
Chairman: Prof. U.A. Joldasbekov
Secretary: A.A. Baimukhametov
Representative: N.N.

Korea, Republic (1990)
Korean Society of Theoretical and Applied Mechanics, Department of
Aerospace Engineering, Seoul National University, Seoul 151-742
President: Prof. Chol-Hui Pak
Secretary: Prof. Seung Jo Kim
Representatives: Prof. Hang Shoon Choi, Prof. Chol-Hui Pak

Latvia (1992)
Latvian National Committee for Mechanics, Latvian Academy of Sciences,
Turize iela, 19, Riga LV-1524
President: Prof. V. Tamuzs
Vice-President: Prof. O. Lieiana
Representative: Prof. V. Tamuzs

Netherlands (1952)
Department for Mechanics of the Royal Institution of Engineers in the
Netherlands, c/o Phillips Research Laboratories, Building WB-1-57, Prof.
Holstlaan 4, NL 5656 AA Eindhoven.
President: Dr. J.F. Dijksman
Representatives: Prof. J.A. Battjes, Prof. D.H. van Campen, Dr. J.F. Dijksman
New Zealand (1979)
The Royal Society of New Zealand, P.O. Box 598, Wellington
President: Prof. P.M. Black.
Executive Officer: Mr. V.R. Moore
Representative: Prof. I. Collins

Norway (1949)
The National Committee on Theoretical and Applied Mechanics, Norwegian Academy of Sciences and Letters, Dept. of Mathematics, University of Oslo, P.O.Box 1053, Blindern, N–0316 Oslo 3
President: Prof. B. Gjevik
Representative: Prof. B. Gjevik

Poland (1952)
Committee for Mechanics of the Polish Academy of Sciences, ul. Swietokrzyska 21, PL–00 049 Warszawa
Chairman: Prof. G. Szefer
Representatives: Prof. W. Gutowski, Prof. H. Zorski

Portugal (1968)
Portuguese Society of Theoretical, Applied and Computational Mechanics, Laboratorio Nacional de Engenharia Civil, Avenida do Brasil 101, P–1799 Lisboa Codex
Chairman: Prof. J. Novaes Barbosa
Vice-Presidents: Prof. C. Mota Soares, Prof. J. Teixeira de Freitas
Representative: Prof. E.R. de Arantes e Oliveira

Romania
Foreign Relations Department, Romanian Academy, Calea Victoriei 125, ROM–71102 Bucharest
Head of Department: Ms. I. Precup
Representative: Prof. N.D. Cristescu

Russia (1956) (former USSR from 1956–1991)
Russian National Committee on Theoretical and Applied Mechanics, Prospekt Vernadskogo 101, Moscow 117526
President: Prof. G.G. Chernyi
Secretary: Prof. G.K. Mikhailov
Representatives: Prof. G.G. Chernyi, Prof. K.V. Frolov, Prof. G.K. Mikhailov, Prof. I.F. Obraztsov

Saudi Arabia (1988)
King Abdulaziz City of Science and Technology, Int. Co-op. Dept. Director: Fahad Huraiib, P.O. Box 6086, Riyadh 11442
President: Dr. S.A. Al-Athel
Representative: Dr. S.A. Al-Athel

Slovakia (1993) (former Czechoslovakia (1949))
The Slovak Society for Mechanics, Council of Scientific Societies, Stefánikova 49, SK–811 04 Bratislava
President: Prof. J. Brilla
Representative: Prof. J. Brilla

Slovena (1994)
Slovene Mechanics Society, Mechanical Engineering Department, Faculty of Technical Sciences, Smetanova 17, SLO–62000 Maribor
President: Prof. M. Oblak
Secretary: Mr. I. Ciglaric
Representative: Prof. M. Saje

South Africa (1994)
Foundation for Research Development (FRD), Association for Theoretical and Applied Mechanics (SAAM), South African ICSU Secretariat, P.O. Box 2600, Pretoria 0001
President: Prof. B.D. Reddy
Representative: Prof. B.D. Reddy

Spain (1950)
The National Institute of Aerospace Technology, "Esteban Terradas", Carretera de Ajalvir km. 4, Torrejón de Ardoz, E–28850 Madrid
Representative: Prof. G. Moreno Labata

Sweden (1950)
Swedish National Committee for Mechanics, Department of Mechanics & Hydromechanics, Royal Institute of Technology, S–10044 Stockholm
President: Prof. Henrik Alfredsson
Vice President: Prof. Lennart Karlsson
Secretary: Prof. Gustav Amberg
Representatives: Prof. F. Bark, Prof. A. Boström, Prof. B. Lundberg
Switzerland (1950)
Board of the Federal Institutes of Technology, (Rat der Eidgenössischen Technischen Hochschulen), ETH-Zentrum, CH–8092 Zürich
President: Prof. F. Waldvogel
Vice-President: Dr. S. Bieri
Secretary-General: Dr. J. Fulda
Representatives: Prof. P.A. Monkewitz, Prof. M. Sayir

Turkey (1977)
Turkish National Committee of Theoretical and Applied Mechanics, Istanbul Teknik Üniversitesi, Fen-Edebiyat Fakültesi, Maslak 80626 Istanbul
President: Prof. E. Suhubi
Secretary-General: Prof. M. Demiralp
Representative: Prof. E. Suhubi

Ukraine (1995)
The National Academy of Sciences of Ukraine, 54, Volodymyrska Str., Kyiv 252601
President: Prof. B.E. Paton
Chairman of the National Committee of Ukraine on Theoretical & Applied Mechanics: Prof. A.N. Guz
Representatives: Prof. A.N. Guz', Prof. V.V. Pilipenko

UK (1948)
The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG
Executive Secretary of the Royal Society: Dr. P.T. Warren
Chairman of UK Panel for IUTAM: Prof. J.R. Willis
Secretary of UK Panel for IUTAM: Prof. P.W. Carpenter
Representatives: Prof. C.R. Calladine, Prof. T.J. Pedley, Prof. P.W. Carpenter, Prof. J.R. Willis

USA (1949)
The U.S. National Committee on Theoretical and Applied Mechanics, National Academy of Sciences, 2101 Constitution Avenue, N.W., Washington, DC., 20418
Chairman: Prof. Earl H. Dowell
Vice-Chairman: Prof. J. Tinsley Oden
Secretary: Prof. P.G. Hodge, Jr.
Representatives: Prof. Jan D. Achenbach, Prof. H. Aref, Prof. E. H. Dowell, Prof. P.G. Hodge Jr., Prof. G. Leal

Vietnam (1990)
Vietnamese Association of Mechanics (VAM), Hoi Co Hoc Vietnam, 224 Doi Can, Hanoi
President: Prof. Nguyen Van Dao
Secretary: Prof. Do Sanh
Representative: Prof. Nguyen Van Dao

Yugoslavia (1952)
Yugoslav Society of Mechanics, Fac. of Mechanical Engineering, University of Belgrade, 27. Marta 80, YU–11000 Beograd
President: Prof. V. Djordjevic
Secretary: Prof. R. Nikolic
Representative: Prof. D. Ruzic
Affiliated Organizations

CISM (1970)
International Centre for Mechanical Sciences, Palazzo del Torso, Piazza Garibaldi, I–33100 Udine, Italy
President: Avv. Vinicio Turello
Secretary-General: Prof. G. Bianchi
Rectors: Prof. S. Kaliszky, Prof. M. Sayir, Prof. W. Schneider
Representative: Prof. G. Bianchi
Representative of IUTAM in CISM: Prof. L. van Wijngaarden

ICHMT (1972)
International Centre for Heat and Mass Transfer, P.O. Box 522, YU–11000 Beograd, Yugoslavia
President: Prof. Y. Mori
Secretary-General: Prof. N. Afgan
Representative: Prof. N. Afgan
Representative of IUTAM in ICHMT: Prof. L.I. Sedov

ICR (1974)
International Committee on Rheology, Prof. D.F. James, Dept. of Mechanical and Industrial Engineering, University of Toronto, Toronto, Ont M5S 3G8, Canada
Chairman: Prof. D. De Kee
Secretary: Prof. D.F. James
Representative: Dr. J.R.A. Pearson
Representative of IUTAM in ICR: Prof. F.I. Niordson

IAVSD (1977)
International Association for Vehicle System Dynamics, Prof. R.S. Sharp, School of Mechanical Engineering, Cranfield University, Wharley End, Bedford MK43 0AL, UK
President: Prof. H.G. Pacejka
Vice-Presidents: Prof. W. Kortüm, Prof. J.K. Hedrick
Secretary: Prof. R.S. Sharp
Representative: Prof. R.S. Sharp
Representative of IUTAM in IAVSD: Prof. W. Schiehlen

EUROMECH - European Mechanics Society (1978)
Prof. B. Lundberg, School of Engineering, Uppsala University, Box 534, S–75121 Uppsala, Sweden
President: Prof. D.G. Crighton
Secretary General: Prof. B. Lundberg
Representative: Prof. B. Lundberg

Representative of IUTAM in EUROMECH: Prof. L. van Wijngaarden
ISIMM (1978)
International Society for the Interaction of Mechanics and Mathematics, Prof. C. Trimarco, Istituto di Matematiche Applicate "Ulisse Dini", Facoltà di Ingegneria, Università di Pisa, I–56126 Pisa, Italy
President: Prof. G. Capriz
Vice-President: Prof. R.J. Knops
Secretary: Prof. C. Trimarco
Representative: Prof. M.A. Hayes
Representative of IUTAM in ISIMM: Prof. G. Iooss

ICF (1978)
International Congress on Fracture, Prof. T. Yokobori, School of Science and Engineering, Teikyo University, Toyosatodai 1-1, Utsunomiya, 320, Japan
Founder President: Prof. T. Yokobori
President: Prof. J.B. Leblond
Representative of IUTAM in ICF: Prof. T. Yokobori

ICM (1982)
International Congress on Mechanical Behaviour of Materials, Prof. A. Bakker, Laboratory of Materials Science, Delft University of Technology, P.O. Box 5025, NL–2600 GA Delft, The Netherlands
President: Prof. A. Bakker
Vice-Presidents: Prof. J. Carlsson, Prof. T. Inoue, Prof. M. Yan
Secretary: Dr. J. Zuidema
Representative: Prof. T. Inoue
Representative of IUTAM in ICM: Prof. S.R. Bodner

AFMC (1982)
Asian Fluid Mechanics Committee, Prof. R. Narasimha, Centre for Atmospheric Sciences, Indian Institute of Science, Bangalore 560 012, India
Chairman: Prof. R. Narasimha
Representative: Prof. R. Narasimha
Representative of IUTAM in AFMC: Prof. I. Imai

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: Prof. A. Samuelsson
Vice-Presidents: Prof. T.J.R. Hughes, Prof. Y.K. Cheung
Secretary: Prof. E. Oñate
Representative: Prof. J.T. Oden
Representative of IUTAM in IACM: Prof. E.R. de Arantes e Oliveira

CACOFD (1992)
Caribbean Congress of Fluid Dynamics, c/o The Department of Civil Engineering, The University of the West Indies, St. Augustine, Trinidad, West Indies
President: Dr. H. Ramkissoon
Vice Presidents: Dr. C. Depradine, Prof. F. Malpica Perez, Prof. C. Trevino.
Secretary: Dr. W. Mellows
Representative: Dr. H. Ramkissoon
Representative of IUTAM in CACOFD: Prof. D.D. Joseph

IABEM (1994)
International Association for Boundary Element Methods, Prof. T.A. Cruse, Dept. of Mechanical Engineering, Vanderbilt University, Nashville, Tennessee 37235, USA
President: Prof. T.A. Cruse
Vice-President: Prof. D. Beskos
Secretary: Prof. J. Berger
Representative: Prof. F. Ziegler
Representative of IUTAM in IABEM: N.N.

ISSMO (1996)
International Society for Structural and Multidisciplinary Optimization, Prof. G. Rozvany, FB 10, University–GH–Essen, D–45117 Essen, Germany
President: Prof. R. Haftka
Vice-Presidents: Prof. U. Kirsch, Prof. N. Olhoff
Secretary: Prof. G. Rozvany
Representative: Prof. G. Rozvany
Representative of IUTAM in ISSMO: Prof. N. Olhoff

HYDROMAG (1996)
International Association for Hydromagnetic Phenomena and Applications, Prof. S. Asai, Dept of Materials Sciences, University of Nagoya, Furo-cho, Chikusa-ku, Nagoya 464-0, Japan
President: Prof. R. Moreau
Vice Presidents: Prof. S. Asai, Prof. H. Branover, Prof. Charles
Secretary General: Prof. S. Asai
Representative: Prof. R. Moreau
Representative of IUTAM in HYDROMAG: Prof. H.K. Moffatt

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Prof. S. Kaliszky (Hungary)
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Prof. R. Keunings (Belgium)
Prof. A. Kluitwick (Austria)
* Prof. W.T. Koiter (The Netherlands)
Prof. A.N. Kounadis (Greece)
Prof. E. Krause (Germany)
* Prof. Y.H. Ku (USA)
Prof. G. Kuhn (Germany)
Prof. P.S. Larsen (Denmark)
Prof. G. Leal (USA)
** Sir James Lighthill (UK)
Prof. F. Lund (Chile)
 §§ Prof. B. Lundberg (Sweden)
Prof. M. Määtänäen (Finland)
Prof. B.C. Majumdar (India)
Prof. G.K. Mikhailov (Russia)
Prof. M.J. Mikkola (Finland)
Prof. T. Miloh (Israel)
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Prof. P.A. Monkewitz (Switzerland)
Prof. R. Moreau (France)
Prof. G. Moreno Labata (Spain)
§ Prof. R. Narasimha (India)
* Prof. F.I. Niordson (Denmark)
Prof. I.F. Obraztsov (Russia)
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Prof. H. Ohashi (Japan)
Prof. N. Ohloff (Denmark)
Prof. Chol-Hui Pak (Korea)

§ Dr. J.R.A. Pearson (UK)
Prof. P.T. Pedersen (Denmark)
Prof. T.J. Pedley (UK)
Prof. N. Phan-Thien (Australia)
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§ Prof. C. Polizzotto (Italy)
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*** Prof. L. van Wijngaarden (The Netherlands)
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Prof. G. Yagawa (Japan)
§ Prof. T. Yokobori (Japan)
Prof. Z.M. Zheng (China)
§ Prof. F. Ziegler (Austria)
Prof. H. Zorski (Poland)

* Members elected by the General Assembly for the period 1996 - 1998.
** Members-At-Large elected by the General Assembly for the period 1996-1998
*** Bureau members
§ Representing Affiliated Organization
§§ Representing also Affiliated Organization.
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* Prof. H. Aref (USA) 2000
* Prof. S.R. Bodner (Israel) 2000
Prof. D. Bogy (USA) 2000
Prof. C.R. Calladine (UK) 1998
Prof. C. Cercignani (Italy) 1998
Prof. J. Engelbrecht (Estonia) 2000
Prof. I.B. Freund (USA) 2000
Prof. G.M.L. Gladwell (Canada) 2000
Prof. M.A. Hayes (Ireland) 1998, Rep. of ISIMM
Prof. N.J. Hoff (USA)
Prof. T. Inoue (Japan) 1998, Rep. of ICM
Prof. J. Jiménez (Spain) 1998
* Prof. S. Kaliszky (Hungary) 1998
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Prof. Y.H. Ku (USA)
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* Prof. N. Olhoff
(Denmark) 2000, Secretary
Dr. J.R.A. Pearson (UK) 2000, Rep. of ICR
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Prof. Ren Wang (China) 1998
Prof. L. van Wijngaarden
(Netherlands) 2000
Prof. Fen-gan Zhuang (China) 2000
Prof. F. Ziegler (Austria) 1998

* Members of Executive Committee (1996-2000)
Year, where stated, indicates end of term (applies to members elected after 1972).

Members of the Symposia Panels

The Bureau of IUTAM in 1977 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 1996 for the period up to and including the 2000 meeting of the General Assembly:

Fluid Mechanics
Prof. A. Acrivos (USA), Chairman
Prof. P. Suquet (France)
Prof. R. Moreau (France)
Prof. W. Schiehlen (Germany)
Prof. T. Tatsumi (Japan)
Prof. N. Olhoff

Solid Mechanics
Prof. J. Salençon (France), Chairman
Prof. J.D. Achenbach (USA)
Prof. G. Maier (Italy)
Prof. K. Sobczyk (Poland)
Prof. B. Storákers (Sweden)

Reports of IUTAM Symposia held in 1996

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Scientific Committee
D.H. von Campen (Netherlands, Chairman) C. Grebogi (U.S.A.)
S. Arimoto (Japan) P.C. Muller (Germany)
J. Brindley (U.K.) A.H. Nayfeh (U.S.A.)
A. De Carli (Italy) W.O. Schiehlen (Germany)
F.L. Chernousko (Russia) G. Schweitzer (Switzerland)

Short summary of scientific progress achieved
The Symposium brought together scientists active in different fields of dynamics and control with the aim to exchange ideas and to stimulate the interaction between dynamics and control for advanced engineering applications.

The Scientific Committee selected the participants to be invited and the papers to be presented at the Symposium. As a result of this procedure, 90 active scientific participants from 18 countries followed the invitation, and 53 papers were presented in lecture and poster-discussion sessions.

The scientific presentations were devoted to control of chaos, vehicle dynamics and control, motion control, optimal control, dynamics and bifurcation of nonlinear systems, modelling and dynamics of engineering systems, vibration control, adaptive control, optimization and control, modelling and control of engineering systems, mechatronic systems, system...
identification, analysis and control of nonlinear systems.

The papers indicated a wide variety of advanced engineering applications of the interaction between dynamics and control. Scientists from different fields exchanged ideas and many new contacts have been established. The presentations and discussions initiated further theoretical and applied investigations with respect to the interaction between dynamics and control.

<table>
<thead>
<tr>
<th>Countries represented</th>
<th>and number of participants</th>
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<tr>
<td>Austria</td>
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</table>

Proceedings of the Symposium

Financial support
Generous financial support contributed to the success of the Symposium. The help of the following sponsors is gratefully acknowledged:

- International Union of Theoretical and Applied Mechanics
- Royal Dutch Academy of Sciences
- Division of Mechanics, Royal Dutch Institute of Engineers
- Division MRBT, Royal Dutch Institute of Engineers
- Eindhoven University of Technology
- Stevin Centre for Computational and Experimental Engineering Science, Eindhoven
- TNO Institute of Applied Physics, Delft
- TNO Road Vehicles Research Institute, Delft
- TNO Institute of Building and Construction Research, Delft
- Shell Netherlands B.V., Rotterdam
- Philips Medical Systems, Best
- Philips Research, Eindhoven
- Philips Centre for Manufacturing Technology, Eindhoven
- DAF Trucks N.V., Eindhoven
- Van Doorne's Transmissie B.V., Tilburg
- Ocê Netherlands B.V., Venlo
- DAF Special Products, Eindhoven
- MARC Analysis Research Corp. Europe, Zoetermeer
- Silicon Graphics B.V. Computer Systems
- LMS International N.V., Leuven, Belgium
- Kluwer Academic Publishers, Dordrecht
- World Trade Center Eindhoven N.V.

SCIENTIFIC PROGRAM

Opening Session
J.H. van Lint: Welcome Address by the Rector of the Eindhoven University of Technology
L. van Wijngaarden: Welcome Address by the President of IUTAM
D.H. van Campen: Introduction and Welcome

Session 1: Control of Chaos I
Chairman: A.K. Bajaj
C. Grebogi: Grazing Bifurcations in Impact Oscillators
E.J. Kostelich: Targeting and Control of Chaos
H. Hu: Controlling Chaotic Motion of a Mechanical System with a Set-up Elastic Stop

Session 2: Vehicle Dynamics and Control
Chairman: E. Kreuzer
W. Schiehlen and U.N. Petersen: Control Concepts for Lateral Motion of Road Vehicles in Convoy
I. Pratt and R.M. Goodall: Optimisation of Non-linear Inter-vehicle Active Suspension Control Laws Applied to Railway Trains
R.S. Sharp: Decoupling in Automotive Active Suspension System Design

Session 3: Motion Control
Chairman: K. Popp
S. Arimoto: Nonlinear Position-dependent Circuits: A Language for Describing Motions of Nonlinear Mechanical Systems
A. De Carli and L. Onofri: A Benchmark Example to Qualify a Control Strategy for Motion Control
T.-H. Chin: New Drive for Motion Control: Survey of the Techniques of Vector-Controlled Induction Motors without Speed Sensors

Session 4: Optimal Control
Chairman: J. Brindley
P.C. Müller: Optimal Control of Mechanical Descriptor Systems
F.L. Chernousko: Design of Control under Mixed Constraints
H. Irschik, K. Schlacher and W. Haas: Output Annihilation and Optimal H2-Control of Plate Vibrations by Piezoelectric Actuation

Session 5: Dynamics and Bifurcation of Nonlinear Systems
Chairman: G. Stépán
A.K. Bajaj, I.T. Georgiou and M. Corless: Dynamics of Singularly Perturbed Nonlinear Systems with Two Degrees-of-Freedom
G.H.M. van der Heijden, A.R. Champneys and J.M.T. Thompson: Homoclinic Bifurcation and Localized Torsional Buckling of Elastic Rods
G. Rega and F. Benedettini: Experimental and Theoretical Investigation of Nonlinear Dynamics in an Elastic System with Initial Curvature

Poster-Discussion Session A: Modelling and Dynamics of Engineering Systems
Chairman: W. Schiehlen
V.V. Beletsky and O.P. Salimova: Hill's Problem as a Dynamic Billiard
R. Mettin: Entrainment Control of Chaos near Unstable Periodic Orbits
F. Peterka and O. Széllos: Dynamics of the Opposed Tapp Hammer
D. Pogorelov: Some Developments in Computational Techniques in Modeling Advanced Mechanical Systems
M. Rades: Actuator and Sensor Location for Structural Identification and Control
E. Slivsvgaard and H. True: Dynamics of a Single-axle Steered Bogie
J. de Weeger and W. van de Water: Control of Impact Dynamics by Means of a Reduced Map

Session 6: Vibration Control I
Chairman: A.H. Nayfeh
A. Pirrotta and R.A. Ibrahim: Experimental Investigation of Random Vibration Control through Dry Friction
E. Kreuzer and O. Kast: Controlling Torsional Vibrations through Proper Orthogonal Decomposition
M.F. Heertjes, M.J.G. van de Molengraft, R.H.B. Fey, J.J. Kok and E.L.B. van de Vorst: Vibration Control of a Nonlinear Beam System

Session 7: Control of Chaos II
Chairman: C. Grebogi
S.R. Bishop and D. Xu: Control of the Parametrically Excited Pendulum
M. Ding: Controlling Chaos in a Temporally Irregular Environment and Its Application to Engineering Systems
G. Stépán, E. Enikov and G. Haller: Dynamics of Digitally Controlled Machines

Session 8: Adaptive Control
Chairman: J.J. Kok

Z. Papp and B.J.F. Driessen: Adaptive Fuzzy Control of Mechanical Systems with Friction
H. Nijmeijer: Adaptive/Robust Control of a Chaotic System

Session 9: Vibration Control II
Chairman: R.A. Ibrahim
S.S. Oucini and A.H. Nayfeh: Experimental Implementation of Saturation Control
K. Schlacher, H. Irschik and A. Kugi: Control of Nonlinear Beam Vibrations by Multiple Piezoelectrical Layers
H. Ulbrich, J. Bormann, K.-H. Stemver and U. Mutzberg: Active Decoupling of Dynamic Structure-Foundation Interactions

Session 10: Optimization and Control
Chairman: F.L. Chernousko
F. Pfeiffer: Grasping Optimization and Control
R. Krause, D. Bestle and J. Schwalm: Optimization of an Actively Steered People Mover
M. Steinbuch and M. Vervoordeldonk: Control Design for a Pick-and-Place Mechanism

Poster-Discussion Session B: Modelling and Control of Engineering Systems
Chairman: H. True
V. Berbuk: Dynamics and Optimal Control Problems for Biotechnical Systems "Man-Prosthesis"
R. Bogacz and T. Szole: On Simulation of Active Control of Structures under Travelling Inertial Loads
R. Caracciolo, E. Ceresole, A. Gasparretto and M. Giovagnoni: Accurate Modelling of a Controlled Pneumatic Actuator with Experimental Validation
F. Foglia: Motion Planning Strategies to Improve the Dynamic Behaviour of Controlled Mechanical Systems
P.K. Kiriazov: Robust Decentralized Control of Multibody Systems
K.Gr. Kostadinov and G.V. Bojadiev: Dynamic Modelling of Impedance Controlled Actuators for Positioning Robots
S.A. Mikhailov and P.C. Müller: Near-Time-Optimal Feedback Control of Mechanical Systems with Fast and Slow Motions
P.M.R. Wortelboer: Model-based Low-order Control Design for Mechanical Servo-systems

Session 11: Mechatronic Systems
Chairman: M Rades
P. Maßler, G. Kielau, O. Enge and H. Freudenberg: Dynamics and Control of Discrete Electromechanical Systems
method, the boundary element method and the edge function approach. Applications were presented for many different materials including metals, polymers, composites and rock. All papers were of a high standard and clearly indicated the progress that has been made by the research community in this area in recent years.

**Countries Represented and Number of Participants**

<table>
<thead>
<tr>
<th>Country</th>
<th>Participants</th>
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<td>Algeria</td>
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<tr>
<td>Total</td>
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</tbody>
</table>

The total included 17 student delegates. Financial support was provided to 14 delegates to assist them with their expenses.

**Proceedings of the Symposium**

The proceedings will be published as a special edition of the journal Computational Mechanics. This is likely to appear in early 1997 and the guest editors for this edition of the journal are P. O’Donoghue, B. Broberg and M. Gilchrist.

**Financial Support**

Financial support for the symposium was generously provided by the following organisations: International Union for Theoretical and Applied Mechanics, Royal Irish Academy, University College Dublin, Institution of Engineers of Ireland, University College Galway, University of Limerick, University College Cork, Dublin Institute for Advanced Studies, Edge Function Software, INCA, Digital, Aer Lingus, HKS, Aer Rianta, Strucom and Guinness.

**SESSION 1**

Co-Chairmen: P. M. Quinlan, P. E. O’Donoghue

J. R. Rice: Statistical Elastodynamics of Cracking Through Heterogeneous Solids

G. Bolzon, G. Maier, F. Tin Loi: On Multiplicity of Solutions in Quasi-Brittle Fracture Computations

K. P. Herrmann, T. Hauck, A. Noe: Numerical Modelling of Interface Cracking
in Thermodynamically Loaded Bimaterials
D. Taylor: Crack Modelling: A Novel Technique for the Prediction of Fatigue Failure in the Presence of Stress Concentrations
A. Tradegaard, F. Nilsson, S. Ostlund: Application of FEM Remeshing Techniques to Crack Problems

SESSION 2

Co-Chairmen: A. Needleman, K. B. Broberg

B. L. Karihaloo: Micromechanical Modelling of Strain Hardening and Tension Softening in Cementitious Composites
P. H. Geubelle: Spectral Method for 3D Dynamic Fracture in Elastic, Viscoelastic and Bimaterial Systems
J. H. Andreasen, B. L. Karihaloo: An Accurate Method for Solving Crack Problems with Discontinuous Crack-line Traction
K. Komori: Simulation of Ductile Fracture Behavior in Shearing
M. Rashed: A Computational Procedure for Simulation of Crack Advance in Arbitrary Two Dimensional Domains

SESSION 3

Co-Chairmen: M. M. Carroll, J. L. Chaboche

A. Needleman: Cohesive Surface Modeling of Dynamic Crack Growth
S. Hao, W. Brocks: The Gurson-Tvergaard-Needleman Model for Rate and Temperature Dependent Materials with Isotropic and Kinematic Hardening;
P. Cannom, K. Runesson: Modelling of Interfacial Viscoplasticity and Damage in a Polycrystalline Microstructure
V. Tvergaard: Studies of Void Growth in a Thin Ductile Layer Between Ceramics
T. L. O'Regan, D. F. Quinn, M. A. Howe, P. E. McHugh: Void Growth Simulations in Single Crystals
F. Ma, K. Kishimoto: A Non-Associated Flow Model for Porous Plastic Materials

SESSION 4

Co-Chairmen: J. E. Fitzgerald, V. Tvergaard

H. Nisitani, D.-H. Chen: Body Force Method and its Applications to Numerical and Theoretical Analyses in Fracture and Damage
A. Saimoto, H. Nisitani: Improvement of Body Force Method Analysis by Using a Newly Developed Boundary Element
P. M. Quinlan, M. J. O'Callaghan: The Edge Function Method (EFM) for Cracks, Holes and Stress Concentrations in Elastostatics
B. A. Axesson, B. L. Josefson, H. L. Bjarnehed, H. O. Andersson: Routine FE Determination of Stress Intensity Factors at a Curved Crack Front Using an Influence Function Technique
L. J. Crane, J. H. Miller, M. D. Gilchrist: Detection of Defects in Thin Plates by Ultrasound

SESSION 5

Co-Chairmen: J. R. Rice, J. N. Flavin

H. Riedel: Development and Applications of Damage Models for Ambient and High Temperatures
D. N. Dai, D. A. Hills, D. Nowell: Modelling of Growth of Three-Dimensional Cracks by a Continuous Distribution of Dislocation Loops
M. H. Quinlan: Separation of Variable Bases
L. Banks-Sills, D. Askenazi: Determination of the Effect of Curing Stresses in an Interface Fracture Specimen by means of the Weight Function Method
B. A. O. McCormack, D. Taylor, P. J. Prendergast: Predicting Crack Behaviour at Metal/PMMA Interfaces: A Theoretical and Experimental Investigation
P. Stable, P. Andersson, J. Gunnars: On Crack Path Stability in a Layered Material
M. Krawczuk, W. Ostachowicz, A. Zak: Dynamics of Cracked Composite Material Structures
S. V. Kuznetsov, A. V. Balueva: Cracks in Anisotropic Elastic Media
SESSION 6

Co-Chairmen:  S. R. Bodner, M. D. Gilchrist

D. Hayhurst: High-Temperature Continuum Damage Mechanics: Predictive Capability, Synergistic Damage Interactions and their Physical Basis
H. Altenbach, K. Naumenko: Creep Bending of Thin Walled Shells and Plates by Consideration of Large Deflections
F. W. Brust, R. Mohan: A Summary of Recent Studies of Creep Crack Growth Under History Dependent Loading
P. Onck, E. van der Giessen: Analysis of Intergranular Creep Crack Growth by Means of Grain-Elements
K. S. Chan, S. R. Bodner, D. E. Munson: Treatment of Anisotropic Damage Development within a Scalar Damage Formulation
L. L. Mishnaevsky: Damage Localization in Heterogenous Materials Under Dynamical Loading
T. Sadowski: Thermodynamic Approach to Constitutive Modelling of Semi-Brittle Ceramics
E. Sellers, J. Napier: A Comparative Investigation of Micro-Flaw Models for the Simulation of Brittle Fracture in Rock

SESSION 7

Co-Chairmen:  D. Hayhurst, M. Hayes

J. L. Chaboche: Damage Mechanics Modeling of Metal Matrix Composites
J. Lemaître: One Damage Law for Different Mechanisms
M. Johansson, K. Runesson: Generalized Viscoelasticity Coupled to Damage for Modelling Creep-Related Phenomena
A. Ivankovic, I. Demirdzic, S. Muzafferija: Finite Volume Modelling of Rapid Crack Propagation in Full-Scale and S4 Pipe Tests
K. Kaminishi: Numerical Simulation of Energy-Absorbing Capacity of Metal Sheet Under Penetration
P. E. O’Donoghue, D. J. Moore: Implementation of Fatigue Spectrum Loading Capabilities into a Finite Element Programme
C.-S. Chen, M. L. Valenzuela, A. R. Ingraffea: A Methodology for Fatigue Life and Residual Strength Prediction with Applications to Aircraft Fuselages

SESSION 8

Co-Chairmen:  H. Riedel, P. E. O’Donoghue

K. B. Broberg: The Cell Model of Materials

F. L. Carranza, B. Fang, R. B. Haber: An Adaptive Space-Time Finite Element Method for Oxidation-Driven Crack Growth
Y. Ouisset, F. Roudolff: Numerical Analysis of Delamination in Multilayered Composite Plates
M. Gilchrist: Mechanical Degradation of Composite Structural Components: FE Predictions vs. Experimental Observations
O. Allix, M. Gratton, M. Dommanget: An Initial Damage Mesomodel for the Fracture Prediction of 3D Carbon/Carbon Composites under Dynamic Loading
M. Ryvkin, B. Nuller: Solution of Quasi-Periodic Fracture Problems by Representative Cell Method
M. E. Walter, G. Ravichandran, M. Ortiz: Computational Modeling of Damage in Unidirectional Fibre Reinforced Ceramic Matrix Composites

POSTER SESSION

A. V. Balueva: Simulations of Crack Growth in a Layer under Gas Diffusion
R. Mohan, G. Povirk: On Stress Induced Void Growth in Thin Film Aluminum Interconnects
L. Gornet, C. Hochard, P. Ladeveze, L. Perret: Damage Computation for Laminated Composites
J. Rohde, S. Hoenle, S. Schmauder: Meso and Microscopic Modelling of Failure Behaviour of Graded Zones in Hard Metals
R. Paar, J. L. Valles, R. Danzer: Modelling of the Stress-Strain Behaviour of a CMC Using Combined Shear Lag Elements
J. Aplinman, B. Andersson: A Global Local Method for 3D Multi-Site Damage Analysis
A. Andrieux, M. Joussemet, E. Lorenz: A Class of Constitutive Relations with Internal Derivatives: Derivation and Homogenization
G. Debuyne: Formulation of a New Energy Fracture Parameter in Thermoplasticity
P. E. O’Donoghue, Z. Zhuang: Procedures to Simulate Crack Arrestors in Gas Pipelines
E-M Cracium: On the Stress and Strain States for an Infinite Plate with a Circular Hole
M. Chabaat: Crack Damage Interactions in Brittle Material

P.E. O’Donoghue
IUTAM Symposium on Variable Density Low Speed Turbulent Flows, 7-10 July 1996, Marseille, France

Scientific Committee
L. FULACHIER (France), Co-Chairman J.C.R. HUNT (UK)
J.L. LUMLEY (USA), Co-Chairman W. KOLLMANN (USA)
R.W. BILGER (Australia) B.E. LAUNDER (UK)
C. DOPAZO (Spain) H.K. MOFFATT (UK)
H.E. FIEDLER (Germany) A.N. SECUNDOV (Russia)

Short summary of scientific progress achieved

The Symposium - organized by Institut de Recherche sur les Phénomènes Hors Équilibre (IRPHE) - focused specifically on the structure of turbulent flows for which density is strongly varying. Mainly concerned were low-speed turbulent flows subjected to strong changes of density as a consequence of heat or mass transfer or of chemical reactions. Compressible turbulent flows - such as supersonic ones - were also considered in order to underline their similarities and their differences with respect to low-speed variable density flows. One of the aims of the Symposium was to stimulate collaboration between theoreticians, experimentalists and modellers, but also between university scientists and industrials. Another goal was to bring together researchers specialized in turbulence and those involved in combustion. The meeting proved to be an ideal forum for the exchange of ideas between the different workers in the field. However, it appears it would be desirable to develop a stronger interaction between scientists working on turbulence and those involved in combustion.

The main topics of the Symposium were developed within six sessions (see Scientific program). Each session included an Invited Lecture (1 hour with 15 minute discussion). In addition, during the three-day conference, a total of 28 oral presentations (25 minutes with 8 minute discussion) were delivered and 12 other papers were presented in two poster sessions (2 minute oral presentation and poster exhibition during the three days of the conference). Ample time for discussion was included after each talk and during the coffee breaks.

The main researches to be developed on Variable Density Turbulent Flows are:
- Direct Numerical Simulations - the main tool to study instabilities - and Large Eddy Simulations, in particular in the exit region of jets;
- Concerning modelling, particular attention must be paid in the case of strong density variations - as in combustion - where Favre averaging is currently used; in addition, in second order modelling, more information must be obtained for the scalar dissipation;
- Spectral and two-point measurements must be developed fo example by optical methods, as well as quantitative description of the velocity and scalar fields in order to study the influence of density variations on the small but also the large scales of turbulence;
- The Proper Orthogonal Decomposition approach must be extended to these flows, as recommended in the concluding remarks of the Symposium.

The Symposium was attended by 93 scientists from 14 countries; in addition, 28 scientists and students from IRPHE participated in the conference.

Countries represented and number of participants

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Proceedings of the Symposium

An extended abstract booklet was distributed at the Symposium. Most of the papers corresponding to the communications will be published by Kluwer Academic Publishers by mid-1997. These proceedings will be edited by L. Fulachier, J.L. Lumley and F. Anselmet.

Financial support

Financial support contributed to the success of the Symposium. The help from the following sponsors is gratefully acknowledged: International Union of Theoretical and Applied Mechanics (IUTAM), International Science Foundation (ISF), Commission of European Communities, Kluwer Academic Publishers, Région Provence-Alpes-Côte d'Azur, Département des Bouches du Rhône, Ville de Marseille, Association Universitaire de Mécanique, Centre National de la Recherche Scientifique, Centre National d'Etudes Spatiales, Commissariat à l'Energie Atomique (CEA/DRN/DER, Cadarache), Direction Générale de l'Armement (DGA/DERT), Université de Provence (Aix-Marseille I), Electricité de France (EDF/LNH, Chatou), Gaz de France (GDF/DETNN, La Plaine Saint Denis), Société Nationale d'Etudes et de Construction de Moteurs d'Avion, Dantec, Deltalab, Quantel and Spectra-Physics. In particular, this financial support has allowed us to offer travel and on-site expenses to scientists from various countries (Canada : 1 ; France : 1 ; Germany : 1 ; Japan : 1 ; Russia : 8 ; Spain : 1 ; UK : 1 ; USA : 5).
**SESSION 1: INSTABILITIES**

Chairman: H.K. Moffatt

P. Huere (Special Invited Lecture): Instabilities and bifurcations in variable density flows.


Chairman: H.E. Fiedler

W.M. Pitts and A.W. Johnson: Mixing behavior of absolutely unstable axisymmetric shear layers forming side jets.

Ph. Reynier and H. Ha Minh: Turbulence modeling in heterogeneous coaxial jets.

A.B. Ezersky, A.B. Zobnin, P.L. Soustov and V.V. Chernov: A wake behind a heated cylinder at small Mach numbers: bifurcations of the vortex street and potentialities of acoustic diagnostics.


**SESSION 2: DNS AND MODELLING**

Chairman: B.E. Launder

F. Chassaing (Special Invited Lecture): Some problems on single point modeling of low-speed, variable density fluid motions.


M. Germano: Averaging procedures for the large eddy simulation of variable density flows.

Chairman: R. Borghi

Oral presentations I

L. Joly and P. Chassaing: Turbulent kinetic energy in variable density jets and the modeling issue.

A.A. Paveliev: Three parameter model of variable density turbulent flows.

E.N. Ambartsumian, G.S. Glushko and I.A. Kryukov: Determination of turbulent viscosity and heat conductivity tensors for two-dimensional turbulent flows.


S. Zaleski, J. Li, R. Scardovelli and G. Zanetti: Direct simulation of multiphase flows with density variations.

**SESSION 3: MODELLING AND EXPERIMENTS I**

Chairman: C. Dopazo

V.A. Frost (Special Invited Lecture): Turbulent transfer modeling in turbulent flows with density variations and buoyancy forces.


V.A. Sabelnikov: Analytical solution of the equation for the probability density function of a scalar in decaying grid-generated turbulence with a uniform mean scalar gradient.

Chairman: V.A. Frost

V.A. Sabelnikov, S. Simoens and M. Ayrault: Pfd and highest concentration evolution in turbulent jets.

O. Iida and N. Kasagi: Turbulence structures in the horizontal channel flow under unstable density stratification.


T. Alboussiere, V. Uspekis, A. Kljujin and R. Moreau: An experimental investigation of quasi-2D turbulence with or without buoyancy effects.

Oral poster presentation II

J.P.H. Sanders, B. Sarb and I. Gokalp: Variable density effects in axisymmetric turbulent jets and diffusion flames.


B. Squalli et I. Koudougou: Identification de la structure turbulente d'un écoullement de panache thermique.

S.N. Aristov and K.G. Schwarz: Large-scale advective flows in rotating stratified fluid.

J.M. Herard: Second order modelling of incompressible turbulent buoyant flows: some comments on the maximum principle.

P. Le Gal: Penetrative convection in water near 4°C.

Session 4: Modelling and experiments II

Chairman: R.B. Miles
J.P. Chabard, O. Simonin, A. Caruso, C. Delalonde, S. Dalsecco and N. Mechitoua (Special Invited Lecture): Studying and modelling variable density turbulent flows for industrial applications
D. Stepowski and J.C. Sautet: Axial decay of unmixedness in round turbulent jets with variable density
M. Favre-Marinet and E.B. Camano: Mixing in coaxial jets with large density differences

Chairman: A.M.K.P. Taylor
T. Tsuji, M. Shimada and Y. Nagano: Turbulence structure and its modelling of a natural convection boundary layer
I. Eames and J.C.R. Hunt: Forces in non-Boussinesq flows with density gradients

Session 5: Experiments and measurement methods

Chairman: R. Moreau
R.B. Miles, W.R. Lemper, J. Forkey and N. Finkelstein (Special Invited Lecture): Optical diagnostics for flows with density variations
E. Ruffin, Y. Mouillemou and J. Chaimeaux: Large scale characterisation of the concentration field of supercritical jets of hydrogen and methane
K. Sardi, A.M.K.P. Taylor and J.H. Whitelaw: Measurements and predictions based on a simple mixing model of the scalar dissipation field of a counterflow system

Chairman: W.M. Pitts
C. Kirmse, B. Sammler and H.E. Fiedler: Unsteady measurement of static pressure, velocity and temperature in the vicinity of the nozzle in a vacuum-wind-tunnel
J. Lemay and A. Benaissa: Improvement of the response of a fine cold-wire for the measurement of high-frequency temperature fluctuations

Session 6: Compressible flows

Chairman: A.J. Smits
S.K. Lele (Special Invited Lecture): Variable density low speed flows: a compressible flow perspective
S. Barre, O. Chambres and J.P. Bonnet: Tridimensional balance of kinetic energy in supersonic mixing layers compared to subsonic mixing layer and subsonic jets with variable density

Chairman: S.K. Lele
J.F. Debieve, P. Dupont, A.J. Smits and J.P. Dussauge: Compressibility versus density variations and the structure of turbulence: a viewpoint from experiments
H. Bijl and P. Wesseling: A numerical method for computing flows for arbitrarily small and medium Mach numbers
S. Sarkar: Direct numerical simulation of uniformly sheared turbulent flow with density fluctuations
C. Cambon and A. Simone: A structural approach to the effects of compressibility in turbulent flows subjected to external compression or high shear

J.L. Lumley: Concluding remarks

L. Fulachier, J.L. Lumley and F. Anselmet

96-4


Scientific Committee

N. A. Fleck (UK, Chairman) R. M. McMeeking (USA)
I. F. Collins (New Zealand) M. Satake (Japan)
O. Coussy (France) A. Needleman (USA)
R. de Boer (Germany) S. B. Savage (Canada)
P. Germain (France)

Short summary of scientific progress achieved

The Symposium brought together the research communities of solid mechanics, materials science, geomechanics, chemical engineering and mathematics to review current knowledge of the flow and compaction of granular and porous media. The meeting emphasised the development and use of constitutive laws to model practical processes such as mixing, drainage and drying, compaction of metal and ceramic powders and soils, and instabilities associated with these processes. A common theme was to develop constitutive models from an understanding of the underlying physical mechanisms of deformation and fracture. It was particularly rewarding to find that the separate research communities came together during the meeting and agreed upon the main mechanisms of deformation and failure of particulate and porous solids.
Countries represented and number of participants

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Proceedings of the Symposium

Financial Support
Financial support for the Symposium was generously provided by the International Union of Theoretical and Applied Mechanics (IUTAM). The Symposium organizers appreciated the additional financial support of Kluwer Academic Publishers Inc., the U.S. Office of Naval Research, Schlumberger Cambridge Research Limited and the Cambridge Centre for Micromechanics. Support for specified participants was also provided by the Royal Society.

SCIENTIFIC PROGRAMME

Session 1:
Chairman: Professor Michael Ashby
R. de Boer: Compressible porous media - towards a general theory.
N. A. Fleck, B. Storákers and R. M. McMeeking: A stage 1 model for compaction of composites.
J. T. Jenkins: Inelastic behaviour of random arrays of identical spheres.
H. Riedel: Pressing and sintering - constitutive equations and finite element studies.

Session 2
Chairman: Professor Ian Collins
C. G. Sammis: Fractal fragmentation and frictional stability in granular materials.
P. V. Lade: Experimental observations and modelling of yield surfaces for granular materials.
D. Muir Wood and G. V. Kumar: Mechanical behaviour of mixtures of clay and coarse sand.

Session 3
Chairman: Professor Masao Satake
S. Krenk: A characteristic state plasticity model for granular materials.
M. Shier: On the constitutive potential for powder and porous bodies.
P. Sofronis and A. Casagrande: On the scaling laws for the consolidation of nanocrystalline powder compacts.

Session 4
Chairman: Dr. Norman Fleck
M. Kachanov and I. Tsukrov: Solids with pores of diverse shapes: effective elastic moduli and microfracturing patterns.
R. de Borst and A. Benallul: On gradient enhanced damage theories.
A. C. F. Cocks and Ma Jan: A constitutive model for the sintering of fine grained ceramics.
Y. Tobita: Importance of incremental nonlinearity in the deformation behaviour of granular materials.

Session 5
Chairman: Professor Zenon Mróz
G. Houlsby: Derivation of incremental stress-strain response for a plasticity model based on thermodynamic functions.
I. C. F. Collins: The use of Legendre transformations in developing the constitutive laws of geomaterials from thermodynamic principles.
D. Corriveau and S. B. Savage: Internal friction angles: characterization using biaxial test simulations.
J. M. Hill: Indentation of a rigid punch in a shear index dilatant granular material.
R. Clough and R. J. Fields: Yield surface for porous metal matrix composites.

Session 6
Chairman: Professor Bob McMeeking
B. Storákers: Local contact behaviour of viscoplastic particles.
J. Dvorkin: Theory of contact cementation
M. Satake: Three dimensional discrete mechanics of granular materials.

Session 7
Chairman: Professor Olivier Coussy
A. Anandarajah: Numerical analysis of clay particle assembly.
U. Tuzun and D. M. Heyes: Distinct element simulations and dynamic
microstructural imaging of slow shearing granular flows.
D. Harris: Modelling mathematically the flow of granular materials.
J. M. N. T. Gray: Granular avalanches on complex topography
G. Metcalfe: Tracking particle ensembles in tumbling mixers.

Session 8
Chairman: Professor Alan Cocks
H. B. Mülh haus and P. Hornby: Antisymmetric stresses in fast granular flows.
A. J. M. Spencer: Remarks on coaxiality in fully developed gravity flows of dry
granular materials.
J. J. Mecholsky, B. V. Sankar, Z. Chen, D. Clupper and M. Gunde pudi: A
mechanistic model for attrition of particles in flow systems.
E. Detournay and O. Cousse: Influence of the loading rate on the failure of
fluid-infiltrated geomaterials.
S. Grafthko and V. N. Nikolaevsky: Mechanics of sand production for acting
wells.

Session 9
Chairman: Professor Reint de Boer
and fibre damage models for consolidation of metal coated fibres.
K. T. Kim, Y. S. Kwon and H. T. Lee: Analysis for cold die compaction of
stainless steel powder.
P. Dangla and O. Cousse: Drainage and drying of deformable porous materials:
one dimensional case study.
S. A. Watson, B. J. Briscoe, S. L. Rough and M. J. Adams: The influence of
wall friction on the characteristics of pressed ceramic parts.

Session 10
Chairman: Professor René de Borst
M. Oda and H. Kazama: Microstructure of shear band and its relation to the
mechanisms of dilatancy and failure of granular soils.
M. Shearer: Formation of shear bands in models of granular materials.
D. Durban and O. Yagel: Simple shear of porous materials at large strains.
M. Kailasam and P. Ponte-Castaneda: The evolution of anisotropy in porous
materials and its implications for shear localization.
W. Ehlers: Shear band localization in fluid-saturated granular elastoplastic
porous media.

N. A. Fleck and A. C. F. Cocks

REPORT
on
IUTAM Summer School on Electrohydrodynamics,
22-26 June 1995, CISM Udine/Italy

Co-ordinators: The Summer School was coordinated by Professor Mate
Antonio Castellanos, Universidad de Sevilla, Sevilla, Spain.

In the course equilibria, instabilities and surface waves were studied in
electrofluid free surfaces with planar, cylindrical and spherical geometry. Then,
the stability and electroconvection of liquids subjected to unipolar injection
were treated at depth for planes and coaxial cylinders and charged plumes
generated by injection of ions from blades, needles and wires were examined.
EHD multiphase flows, that are of paramount importance in industrial
processes were analyzed, with emphasis on condensation, boiling and
fluidization. The course ended up with a discussion of some important
applications, i.e. the role of EHD motion in the electrical breakdown of liquids,
the functioning of electrostatic precipitators, the design of electrically enhanced
heat-changers, EHD pumps, EHD chemical reactors and electrospay and
atomisation of liquids.

The lectures were carefully prepared, well presented and followed by lively
discussion. It was an extra benefit, that following the course, the 3rd workshop
on "Electrohydrodynamics and Applications" were organized, that most of the
participants attended free of charge.

The lecturers and the participants had a common opinion that the course
was useful and successful.

Countries represented and number of participants (including lecturers)
The participation in the school was satisfactory: 5 lecturers and 25
scholars from 12 different countries, 12 of whom received full or partial
support (exemption from the fee, living expenses, accommodation).

France 5 Spain 6
Canada 3 USA 4
Russia 2 Italy 2
Great Britain 2 Germany 1
Japan 2 Bulgaria 1
Hungary 1 Turkey 1

TOTAL 30

Lecturers:
Atten Pierre, Director of Research CNRS
Université J Fourier Grenoble
Representation in other organizations

ICSU
Prof. W. Schiehlen acts as Representative of IUTAM in the General Committee of the International Council of Scientific Unions.

CODATA
Prof. L.B. Freund acts as Representative of IUTAM in the Committee on Data for Science and Technology.

COSPAR
Prof. H.K. Moffatt acts as Representative of IUTAM in the Committee on Space Research.

COSTED
Prof. R. Narasimha acts as Representative of IUTAM in the Committee on Science and Technology in Developing Countries.

IUPAP
Sir James Lighthill acts as Representative of IUTAM in the International Commission on Acoustics under IUPAP.

SCOPE
Prof. G.M. Lespinard acts as Representative of IUTAM in the Scientific Committee of the Environment.

SCOR
Prof. S.A. Thorpe acts as Representative of IUTAM in the Scientific Committee on Oceanic Research.

Donations in 1996

Donations given to IUTAM Symposia are recorded under the heading "Financial support" of the Reports of Symposia held in 1995. ICSU provided a grant of $13,000.00 for the support of the following activities:

1. IUTAM Symposium on Variable Density Low Speed Turbulent Flows
2. IUTAM Symposium on Transformation Problems in Composite and Active Materials
3. IUTAM Non-Linear Singularities in Deformation and Flow

International Union of Theoretical and Applied Mechanics

Treasurer's Report
(all amounts in US$)

Financial support
Financial support by a grant of US $7,000 is gratefully acknowledged from the International Union for Theoretical and Applied Mechanics and by a grant from the affiliated organisation CISM.

Sandor Kaliszky
Balance, 31 December 1995 .................................................. 273,521
Net revenues minus expenses for 1996 ................................ (17,833)
Balance, 31 December 1996 ................................................. 255,688

Statement of revenues collected and expenses paid during 1996:
Cash revenues collected
Subscription dues .............................................................. 72,372
Interest income ............................................................... 11,110
ICSU allocation ............................................................... 13,000
Total cash revenues ......................................................... 96,482
Expenses paid during 1996
Symposia ........................................................................ 52,171
Bureau prize (ICTAM) ......................................................... 1,000
IUTAM summer course ..................................................... 7,000
Other meetings ................................................................. 126
Travel, Bureau ................................................................. 6,833
Travel, Congress Committee Executive Committee ............ 7,461
Travel, others ................................................................. 19,321
Contribution to ICSU ........................................................ 2,258
Administration ................................................................. 769
Auditor's fee ................................................................. 2,324
Printing costs ................................................................. 7,524
Bank fees ................................................................. 730
Total expenses ............................................................... 107,517

Revenues minus expenses for 1996 in US$ .......................... (11,035)
Gain (loss) from exchange of currency ............................... (6,798)
Net revenues minus expenses for 1996 ............................... (17,833)

Statement of IUTAM Bank Accounts

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Payment of Annual Subscription Dues (as of 31 December 1996)

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Summary Record
of
the IUTAM Bureau Meeting
in Kyoto, Japan, on 25, 30 & 31 August 1996

To: Members of the General Assembly of IUTAM

From: Secretary-General

The Bureau of IUTAM met in the Kyoto International Conference Hall (KICH), Kyoto, Japan, on Sunday 25 August 1996 at 14.00 hours, on Friday 30 August 1996 at 12.30 hours and on Saturday 31 August 1996 at 9.00 hours. The next meeting will be held in Chicago, USA in 1997, (the venue of the 20th ICTAM in the year 2000) upon invitation by Professor H. Aref.

The members present
L. van Wijngaarden (President), P. Germain (Vice-President), B.A. Boley (Treasurer), F. Ziegler (Secretary-General), G.G. Chernyi, H.K. Moffatt, W. Schiehlen, T. Tatsumi.

Invited Guests
N. Olhoff (Secretary CC), E. Watanabe (Congress Secretary General), S. Crandall (ICA, during item 3.7)
The Annual Report 1995 was available during the meeting.

Agenda

Sunday 25 August 1996 at 14.00 hours.
1. Opening of the meeting by the President
   1.1 Minutes of the Bureau meeting in Vienna September 1995
(B-231, GA-152, Report 95 pp.75-106)

2. Matters concerning Adhering Organizations
   2.1 Application for membership by Kazakhstan
   2.2 Application for membership by Hong Kong
   2.3 Application for membership by Chile
   2.4 Response to UK freeze of fees
   2.5 Romania (resumed payment of dues and has a representative: N.D. Cristescu)

3. Matters concerning Affiliated Organizations
   3.1 International Center of Mechanical Sciences (CISM) (more use to be made of CISM for IUTAM Symposia in Europe)

3.2 Closer co-operation with affiliated organizations, Working Parties:
   - Dynamic Systems (AVSD) – W. Schiehlen, R.S. Sharp
   - Fracture Mechanics and Damage (ICF) – J.B. Leblond, T. Yokobori (Japan), D. Hayhurst (UK), D. Krajcinovic (USA) and J. Lemaitre (France)
   - Mechanics of Materials (ICM) – A. Bakker (Netherlands), S.R. Bodner, F. Ellyin (Canada), T. Inoue, Y.-W. Mai (Australia) and M. Jono (Japan)
   - Electromagnetic Processing (HYDROMAG) – S. Asai (Japan), N. El-Kaddah (USA), H.K. Moffatt, R. Moreau, R.E. Rosensweig (USA)
   - Computational Mechanics (ICCM) – E.R. de Arantes e Oliveira, J.T. Oden

3.3 ICF: L.B. Leblond replaced J. Hult as the IUTAM representative in ICF from 31/3/1996

3.4 CACOFD: G. Shrivastava replaced H. Ramkissoon as the CACOFD representative in IUTAM

3.5 IABEM: F. Ziegler replaced C. Polizotto as the IABEM representative in IUTAM

3.6 Review of the IUTAM policy towards inactive affiliated organizations (in particular ICHMT)

3.7 Joint applications from (A) International Commission on Acoustics (A sub-committee of IUPAP JCA), (B) International Institute of Noise Control Engineering (I-INCE)

4. Elections at the General Assembly 1996
   4.1 Report by the President on the activities of the Electoral Committee for election of the Bureau
   4.2 Proposal for election of members-at-large of the General Assembly
   4.3 Appointments to the Congress Committee
   4.4 Composition of Symposia Panels

5. Financial matters,
   5.1 Report by the Treasurer
   5.2 Recommendation for annual dues
   5.3 Allocation to IUTAM Symposia (see Report p.90)
   5.4 Assistant Treasurers (see Report 1995, p. 72)

6. Matters concerning ICSU
6.1 International Decade of Natural Disaster Reduction (IDNDR), Opening and Closing Lectures at the 19th ICTAM
6.2 ICUSC Strategic Meeting in Science and Technology for Earth Management, held in Paris, 26–27 April 1996, attended by P. Germain
6.3 CODATA: L.B. Freund replaced D. Drucker as the representative of IUTAM

7. IUTAM-Symposia
7.1 Survey on IUTAM-Symposia held since September 1995 by the Secretary-General (N-20 and N-21)
7.2 Recent problems with Proceedings encountered by Kluwer - Rules and Guidelines for Chairmen
7.3 USNCTAM-letter from P. Hodge questioning the role of IUTAM Symposia series
7.4 Final report, emanating from a joint meeting of the Panels and recommendations of the Bureau for IUTAM-Symposia 1998/99
7.5 Guidelines for IUTAM-Symposia Chair
7.6 Co-sponsorship of meetings by IUTAM (refer to B-239)

8. International Summer Schools
8.1 Electrohydrodynamics, 22-26 July 1996, CISM, Udine, Italy (approved Sept. 1995)
8.3 Proposals for International Summer School on Mechanics in 1998 and 1999

9. IUTAM and the Year 2000
9.1 Proposal by P. Germain
9.2 Proposal by W. Schiehlen
9.3 Proposal by H. Aref

10. Initial discussion on a Working Group concentrating on the teaching of mechanics within IUTAM

11. Any other business

Friday 30 August 1996 at 12.30 to 14.00 hours, Grill, KICH

12. Decision on the Bureau Prize

Saturday 31 August 1996 at 9.00 hours, Room 560

13. Implementation of decisions taken by the General Assembly
   13.1 Selection of the members of the Scientific Committees of IUTAM-Symposia 1998/99
14. Date and venue of the next Bureau meeting, 1997
15. Any other business

Minutes of the Bureau Meeting

Item 1 – Opening of the meeting by the President
The President, L. van Wijngaarden, welcomed the members of the Bureau and the invited guests and opened the meeting at 14.00 hours on Sunday 25 August. That first session was devoted to the preparation of the General Assembly.

1.1 Minutes of the Bureau meeting in Vienna September 1995 (B-231, GA-152, Report 95 pp.75-106)
   The Minutes and its updates were approved without changes.

Item 2 – Matters concerning adhering organizations
2.1 Application for membership by Kazakhstan
   The Kazakhstan National Committee of Theoretical and Applied Mechanics has applied for membership with IUTAM as an Adhering Organization in Category I. The Bureau discussed the application and took a positive stand.
2.2 Application for membership by Hong Kong
   The National Committee of Theoretical and Applied Mechanics of Hong Kong has applied for membership with IUTAM as an Adhering Organization in Category I. With a letter of recommendation of the Chinese society available, the Bureau discussed the application and took a positive stand.
2.3 Application for membership by Chile
   The National Committee of Theoretical and Applied Mechanics of Chile has applied for membership with IUTAM as an Adhering Organization in Category I. The Bureau discussed the application and took a positive stand.
2.4 Response to UK freeze of fees
   A letter of response will be written on behalf of the Bureau by the Secretary-General after the GA has decided on the annual dues.
2.5 Romania (resumed payment of dues and has a representative: N.D. Cristescu)
   Acknowledged by the Bureau.

Item 3 – Matters concerning affiliated organizations
3.1 International Center of Mechanical Sciences (CISM) (more use to be
made of CISM for IUTAM Symposia in Europe.
A leaflet was available. See also proposals for summer schools in 1998/99.

3.2 Closer co-operation with affiliated organizations, Working Parties:
A report will be given to the General Assembly and the following Working Parties will be proposed together with their members (the Secretary General was asked to prepare view graphs):
WP2-Fracture Mechanics and Damage (ICF) – J.B. Leblond (IUTAM), W. Schiehlen (ICUTAM), R.S. Sharp (HYSAS), Masato Abe, K. Hedrick and H. True
WP3-Fracture Mechanics and Damage (ICF) – J.B. Leblond (IUTAM), T. Yokobori (ICF), D. Hayhurst (UK), D. Krajinovic (USA) and J. Lemaître (France)
WP4-Mechanics of Materials (ICM) – S.R. Bodner (IUTAM), T. Inoue (ICM), A. Bakker (Netherlands), F. Ellyin (Canada), M. Jono (Japan) and Y.-W. Mai (Australia)
WP5-Electromagnetic Processing (HYDROMAG) – H.K. Moffatt (IUTAM), R. Moreau (HYDROMAG), S. Asai (Japan), N. El-Kaddah (USA), E.R. Rosensweig (USA)
WP6-Computational Mechanics (IACM) – E.R. de Arantes e Oliveira (IUTAM), T.J. Oden (IACM), H. Mang (Austria), T. Belytschko (USA), P. Ladévézé

3.3 ICF: L.B. Leblond replaced J. Hult as the IUTAM representative in ICF from 31/3/1996. Accepted by the Bureau 3.4 CACOFD: G. Shrivastava replaced H. Ramkisson as the CACOFD representative in IUTAM. Acknowledged by the Bureau.

3.5 IABEM: F. Ziegler replaced C. Polizotto as the IABEM representative in IUTAM. Acknowledged by the Bureau.

3.6 Review of the IUTAM policy towards inactive affiliated organizations (in particular ICHMT)
All affiliated organizations should from now on routinely be reviewed with respect to their scientific activity and their willingness to report to IUTAM the related affairs.
Since no reports of activity were received from ICHMT for years, the Secretary General is ordered to write a letter indicating the termination of membership if no report is received within a year.

3.7 Joint applications from (A) International Commission on Acoustics (A sub-committee of IUPAP: ICA), (B) International Institute of Noise Control Engineering (I-INCE)
On short notice before the Bureau meeting, applications were received by the Secretary General. Surprisingly for the Reporter, a short statement was presented by Professor S. Crandall, IUTAM’s new representative to ICA, to the Bureau, on these matters, together with the application of ICA. (ICA application was dealt with at the Bureau meeting in Vienna, 1995). See the minutes of the General Assembly about the outcome of the discussions on the applications of those three acoustic societies, first in the Bureau, with the decision to bring it to the attention of the General Assembly, and the final decisions taken by the decisive body of IUTAM.

Item 4 – Elections at the General Assembly 1996
4.1 Report by the President on the activities of the Electoral Committee for election of the Bureau
The chairman reported some 60 letters being received from members of the General Assembly. The electoral committee could propose single names for the positions of officers, P, S, T and for the members X and Y. The positions W and Z were balanced, and thus carried two names: The nominations to the General Assembly are:

P. W. Schiehlen (Germany)
S. M.A. Hayes (Ireland)
T. L.B. Freund (USA)
W. K.V. Frolov (Russia) and J. Engelbrecht (Estonia)
X. T. Tatsumi (Japan)
Y. H.K. Moffatt (UK)
Z. Ren Wang (China) and R. Moreau (France)

No other proposals were received in the IUTAM office.

4.2 Proposal for election of members-at-large of the General Assembly
Reelection of all elected members of the General Assembly is recommended. In addition, Professor P. Germain (France) is nominated for election as a member-at-large.

4.3 Appointments to the Congress Committee
Following the recommendations of the Congress Committee, the Bureau supports the re appointment for a second term (1996-2000), (i) Profs. H. Aref (USA, 20th IUTAM), S. Bodner (Israel, member XCC), J. Engelbrecht (Estonia), B. Lundberg (Sweden, EUROMECH), G.E.A. Meier (Germany), T.J. Pedley (UK), M. Sayir (Switzerland), T. Tatsumi (Japan) and the apriori appointments of (ii).

(ii) Prof. P. Lugner (Austria, representative of IAVSD), Dr. J.R.A. Pearson (UK, representative of ICR), Prof. R.I. Tanner (Australia, for a two year period, 1996-1998; replacing Prof. B.L. Karihaloo) and Prof. N. Olhoff (Denmark, Secretary of CC).
Finally, from a slate of 13 candidates (supported by the Bureau) nine are to be appointed by the General Assembly:
Slate: Profs. D. Bogdy (USA), D. van Campen (Netherlands), L.B.
Freund (USA), G.M.L. Gladwell (Canada), L.G. Leal (USA), H.K. Moffatt (UK), P.A. Monkewitz (Switzerland), R. Moreau (France), Z. Mróz (Poland), R.I. Nigmatulin (Russia), P. Suquet (France), L. van Wijngaarden (Netherlands, Fen-gan Zhuang (China)

4.4 Composition of Symposia Panels

The Bureau suggested continuation. The members of the Solid Mechanics Panel have all been re-elected for the period 1996-2000 following an address of Prof. J. Salençon to the General Assembly. The Fluid Mechanics Panel has been changed in the Saturday Session of the Bureau: Prof. H.K. Moffatt and Prof. K. Gersten resigned after having served two terms. The new members are (the General Assembly delegated the appointments to the Bureau for its 3rd session on Saturday, 31 August 1996),


Item 5 - Financial matters

5.1 Report by the Treasurer

The Treasurer, Professor B.A. Boley, submitted the following report to the Bureau and to the General Assembly.

I am pleased to report to the General Assembly that the financial state of our Union is good.

I reported that was the case also at our last meeting two years ago. This may surprise those of you who heard me give an impassioned plea, at that time for the need to exercise extreme caution in our planning, lest an alarmingly rapid depletion of our resources were to take place. But our planning has indeed been careful in the intervening period; for example, the level of support for each Symposium has been decreased from US$ 7,500 to US$ 5,000, and increases of around 5% in our Annual Dues were established for 1996 and 1997.

I am also pleased to report that our members have been diligently paying their dues, and that for the first time in quite a while we list no member country with many years of dues still unpaid.

The following summary listing of assets and deficits over the last few years may interest you:

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Year's Loss | 6,480 | 35,869 | 46,385 | 27,602

It is difficult however to reach firm long-term conclusions from such figures. For example, one cannot draw too much comfort from the 1995 Loss decrease, since it is in large part due to the weakness of the US Dollar during that period - a circumstance over which we claim little control.

It is my opinion therefore that - while caution is without doubt always the best approach - we should wait until we can ascertain with some accuracy the effectiveness of the measures already taken, before embarking upon a new assessment of what further steps, if any, might be necessary.

Along these lines, then, I recommend to the General Assembly that relatively modest increases in the Annual Dues be established at this time, namely of the order of 2.5%, in order to account for the apparently inevitable inflationary trends. I thus propose that the Annual per unit Dues be raised (from the 1997 level of US$ 565) to US$ 580 for 1998 and US$ 594 for 1999. For members who prefer to pay equal amounts in each of these two years, I propose that the per unit yearly Dues be set at US$ 587 (compared with US$ 551 for 1996 and 1997).

I wish to close my Report with a note of thanks to all colleagues within IUTAM, and to the many members of the mechanics community with whom I have had to deal in the capacity of Treasurer, for their unfailing spirit of cooperation and good will.

5.2 Recommendation of annual dues

Any increase in annual dues in the past was based on the average OECD-index. Before making final recommendations to the General Assembly, the current OECD-index should be made public. Prof. Boley was asked to report this index to the General Assembly. At this time a slight increase is proposed:

The proposed increase amounts to 2.5% which turned out to be far below this OECD average index.

- 580 US$ in 1998,
- 594 US$ in 1999,

or 587 US$ for 1998 and 1999 for those members who prefer to pay equal amounts in each of these two years.

Increased activity of IUTAM, especially the Working Parties and several steps to be taken to decrease the annual spending have been discussed.

5.3 Allocations to IUTAM Symposia (see the 1995 Report p. 90)

No changes of the 1995 decisions have been made.

5.4 Assistant Treasurers (see Report 1995, p. 72)

Prof. van Campen is reappointed for the period 1996-2000. For the sake of a continuous office, Prof. B.A. Boley was elected Assistant
6.2 Prof. Schiehlen reported that ICSU does not follow this proposal mentioned above. No additional reports were made on items 6.1 and 6.3: Prof. Schiehlen attended the ICSU meetings to be held in the 39th week 1996 in Washington, DC to possibly find out about a proper IUTAM representative in global projects related to IDNDR.

Item 7 – IUTAM-Symphosia
7.1 Survey on IUTAM-Symphosia held since September 1995 by the Secretary-General (N-20 and N-21)

All scheduled IUTAM Symposia were held: (In all, 20 IUTAM Symposia have been held in the period of this report to the GA. Full accounts of the ten symposia held in 1994 and the ten symposia held in 1995 are given in my printed annual Reports for these years.) In 1996, the year of the 19th ICTAM, the following four symposia have been held as scheduled:


A problem was recorded with Prof. G. Cognet, Chairman of the IUTAM Symposium on Liquid Particle Interaction in Suspension Flows, held in Grenoble, 18–22 April 1994, who collected the camera ready manuscripts for the proceedings, however, never did the editing, and finally no proceedings have been published.

7.2 Recent problems with Proceedings encountered by Kluwer - Rules and Guidelines for Chairmen

The case of the forthcoming IUTAM Symposium on Material Instabilities in Solids (9-13 June 1997, Delft, The Netherlands) caused the problem. Note: Proceedings will be published by Wiley against the Bureau's recommendations following a decision by the Symposium Chairmen (Profs. de Borst and van der Giessen).

In a reflection, the contract with Kluwer should be sharpened in the near future.
However, in any case, the chairman is obliged to use the brand name Proceedings of the IUTAM Symposium on ...as pointed out in the Rules and Guidelines. Further, a copy of these Rules should be signed and returned to the IUTAM-office beginning with the assignments 1998/99. A copy, as sent to the chairman of the 1998/99 Symposium is enclosed.

7.3 USNCTAM-letter from P. Hodge questioning the role of IUTAM Symposia series

The Bureau has properly responded through a letter by the Secretary General, and entrusts the ratings of the proposals to the Symposia Panels. Core fields of Mechanics may require "series" of symposia to report the progress in the field. See also the alpha rated proposal for Creep in Structures, 2000.

7.4 Final report, emanating from a joint meeting of the Panels and recommendations of the Bureau for IUTAM-Symposia 1998/99

The Bureau recommendations are incorporated in the circular GA-155 under item 15 and therefore not repeated here. The number of Symposia for 1998/99 is strictly to be kept to 18. Guaranteed grants from IUTAM are reduced to US$ 5,000. Altogether 22 proposals were received and screened by the Panels. A proposal for the year 2000 was also rated alpha, but is subject to a decision by the next General Assembly, to be held in Stuttgart 1998.

7.5 Guidelines for IUTAM-Symposia Chairmen

Slight improvements have been decided on and are incorporated in the Rules and Guidelines by the Secretary General.

7.6 Co-sponsorship of meetings by IUTAM (refer to B-239)

(i) With reference also to B-237 the application of co-sponsorship through IUTAM for the Int. Conference on Control of Oscillations and Chaos to be held in St. Petersburg (Russia) on 27-29 August 1997 and chaired by Prof. E.L. Chernousko was approved by the Bureau. A grant of US$ 1,000 was provided to partially reimburse travel expenses.

(ii) Prof. W. Schiehlen is named the representative of IUTAM in the Scientific Committee. Applications for the grant which must be distributed at the site during the tenure of the conference are to be made to the IUTAM-Treasurer or (after 1 November 1996) to the IUTAM-Assistant Treasurer Prof. B.A. Boley. Prof. N.A. Anfimov, chairman of the local organizing committee of the Third International Conference on Experimental Fluid Mechanics (ICEFM), to be held in Moscow, Russia on 12-16 June 1997 applied for co-sponsorship of this international conference part of a series of well-received former ones. The Bureau decided to cosponsor this important Symposium and to provide a grant of US$ 1,000 to partially reimburse travel expenses. The co-sponsorship should be shown in the announcements, program and proceedings at a prominent place.

G. G. Chernyi is named the IUTAM representative in the Scientific Committee. Applications for the grant which must be distributed at the site during the tenure of the conference are to be made to the IUTAM-Treasurer or (after 1 November 1996) to the IUTAM-Assistant Treasurer Prof. B.A. Boley.

Item 8 – International Summer Schools

8.1 Electrohydrodynamics, 22-26 July 1996, CISM, Udine, Italy (approved by the Bureau Sept. 1995). The 7th in a row of Int. summer schools was well attended and successfully held.


8.3 Proposals for International Summer School on Mechanics in 1998 and 1999

The proposal for a 9th IUTAM Summer School in 1998 on Advanced Turbulent Flow Computations, originally submitted by Prof. E. Krause (Aachen, Germany) and Prof. R. Peyret to the Scientific Council of CISM on 24 May 1996 and forwarded to IUTAM on 26 July 1996 was rated alpha by the symposia panel and is recommended for approval to the General Assembly. The second proposal of a 10th IUTAM Summer School on Liquid-Metal MHD, submitted by P.A. Davidson (Cambridge, UK) and A. Thess (Dresden, Germany) to be held at CISM, Udine, Italy in the year 1999 is also recommended to the General Assembly for approval.

Item 9 – IUTAM and the Year 2000

9.1 Proposal by P. Germain
9.2 Proposal by W. Schiehlen
9.3 Proposal by H. Aref, contained in his application-booklet 20th IUTAM in Chicago

The proposal of an IUTAM Symposium on Creep in Structures, related to 10 years of progress in the field, alpha rated by the symposia panel, should be kept in mind and put to a vote at the General Assembly in Stuttgart 1998.

Discussion of item 9 was postponed to the session on Saturday and finally became the core item of a working dinner hosted by Prof. T. Tatsumi and E. Watanabe on Friday and continued at a working lunch at KICCH on Saturday. Final decisions are left to the Bureau elect.: The following suggestions were made, no details are given here

(i) Approach all affiliated organizations
(ii) Look for a Scientific Writer who then prepares a book based upon interviews: possibly engineering societies should be addressed
(illustrative example: 75 years of IUTAM). This time a more delicate matter. No single person has the overview of the vast field of Mechanics.

(iii) Ask affiliated societies what they do and what they want to contribute to IUTAM in the year 2000.

**Item 10 – Initial discussion on a Working Group concentrating on the teaching of mechanics within IUTAM**

Left to the Bureau elect. Be prepared for the Bureau meeting in Chicago 1997.

**Item 11 – Any other business**

Nothing to report

**Friday 30 August 1996 at 12.30 to 14.00 hours, KICCH**

Minutes continued

**Item 12 – Decision on the Bureau Prize**

A list of possible candidates was available based on the Abstracts and prepared by the International Papers Committee. All candidates have been commented on by taking into account their actual performance at the 19th ICTAM. Additional candidates were named. After extensive discussions the Bureau decided to give the best paper awards in Solid Mechanics to Mr. Johannes Vollmann (Inst. of Mechanics, ETH Zürich, CH-8092 Zürich, Switzerland) for his contribution (in cooperation with J. Dual) to session NB1 on Impact and Wave Propagation, Wave Propagation in Cylindrical Structures Containing Viscoelastic Components, and in Fluid Mechanics to Dr. Peter J. Thomas, (Dept. of Engrg. University of Warwick, Coventry CV4 7AL, UK) for his contribution (in cooperation with F.E. Linden) to session IH on Geophysical Fluid Dynamics 1, An Experimental Study of Gravity Currents in a Rotating Frame of Reference.

The Prizes were handed out during the well-attended closing ceremony of the 19th ICTAM.

**Saturday 31 August 1996 at 9.00 hours, Room 560**

Minutes continued

**Item 13 – Implementation of decisions taken by the General Assembly**

13.1 Selection of the members of the Scientific Committees of IUTAM-Symposia 1998/99

The General Assembly agreed on 18 IUTAM Symposia to be held in the years 1998/99. The Bureau assigned the members of the Scientific Committees according to expertise in the fields of the Symposia and based on their geographical distribution. The members proposed by the chairmen were considered as far as possible. However, the number was set between 8-10. Also the ex officio members were selected, taking into account the Bureau members elect. The listing is part of the circular GA-155 and not repeated here; see also the Newsletter N-22.

**Item 14 – Date and venue of the next Bureau meeting, 1997**

On invitation by Prof. H. Aref, the Bureau decided during its last session to hold its next meetings on 31 May and 1 June 1997 in Chicago. Later however, some members (also of XCC) reported conflicts with these dates, therefore the following new dates are proposed: 7-8 June 1997. Also the Executive Committee of the Congress Committee will be invited to meet at this date in Chicago.

**Item 16 - Any other business**

Nothing to report.

Then, the President closed the meeting on Saturday noon that was followed by a working lunch of continued discussion of IUTAM and the year 2000.

*Franz Ziegler, Secretary-General*

**APPENDIX**

**ICTAM Kyoto 1996**

**General Lectures**

**Opening Lecture**

T. Kobori (Japan): Structural Control for Large Earthquakes

**Closing Lecture**

J. Lighthill (UK): Typhoons, Hurricanes and Fluid Mechanics

**Sectional Lectures**

G.-D. Cheng (P.R. China): On some Interesting Developments in Structural Optimization (Associated with Mini-symposium MS2)

D.G. Crighton (UK): Aeroacoustics of Vorticity (Associated with Mini-symposium MF3)

M.J. Crochet (Belgium): Non-Newtonian Flow: New Challenges (Associated with Mini-symposium MF2)

P. Huerre (France): Free Shear Flow Instabilities

D. Krajcinovic (USA): Fundamental Aspects of Damage Mechanics
P.F. Linden (UK): Turbulence in the Environment

G. Milton (USA): Composites: A Myriad of Microstructure Independent Relations (Associated with Mini-symposium MS1)

R. Narasimha (India): Down-to-Earth Temperatures: The Mechanics of the Thermal Environment

S. Nemat-Nasser (USA): Plasticity: Inelastic Flow of Heterogeneous Solids at Finite Strains and Rotations

M.P. Paidoussis (Canada): Fluid-Structure Interaction Between Axial Flows and Slender Structures

H. Petryk (Poland): Instability of Plastic Deformation Processes

F. Pfeiffer (Germany): Multibody Dynamics with Multiple Unilateral Contacts

A. Pouquet (France): Kolmogorov-like Behaviour and Inertial-range Vortex Dynamics in Compressible Flows (Associated with Mini-symposium MF1)

B.A. Schrefler (Italy): Mechanics of Saturated-Unsaturated Porous Materials and Quantitative Solutions

P.K. Wright (USA): The Mechanics of Manufacturing Processes (Associated with Mini-symposium MS3)

Mini-Symposia

MF1. Vorticity Dynamics and Turbulence
Chairman: R.M. Kerr (USA); Co-Chairman: S. Kida (Japan)
Initial lectures:
R.M. Kerr (USA): Euler Singularities and Turbulence
R. Moser (USA): Vortices in Turbulent Mixing Layers
O. Métain (France): Vortices in Stratified Turbulence
G.J. van Heijst (The Netherlands): Vortices in Geophysical Turbulence

MF2. Non-Newtonian Fluid Flow
Chairman: K. Walters (UK); Co-Chairman: R.A. Brown (USA)
Initial lectures:

D.V. Boger (Australia): The Influence of Elasticity in the Flow of Viscoelastic Fluids
L.G. Leal (USA): Computational and Experimental Studies of Polymeric Liquids in Mixed and Extensional Flows

MF3. Aero- and Hydroacoustics
Chairman: J.E. Fowles Williams (UK); Co-Chairman: A. Prosperetti (USA)
Initial lectures:
A.P. Dowling (UK): Acoustics of Unstable Flows
S.K. Lele (USA): Computational Aeroacoustics
M.J. Buckingham (USA): The Acoustics of Ocean Waves

MS1. Mechanics of Heterogeneous and Composite Solids
Chairman: G.A. Maugin (France); Co-Chairman: V. Tamuzs (Latvia)
Initial lectures:
M. Epstein (Canada) and G.A. Maugin (France): Notions of Material Uniformity and Inhomogeneity
G.J. Dvorak (USA) and Y. Benveniste (Israel): On Micromechanics of Inelastic and Piezoelectric Composites
V. Tamuzs (Latvia): Fracture and Damage of Inhomogeneous Solids

MS2. Structural Optimization (Organized jointly with ISSMO)
Chairman: M.P. Bendsoe (Denmark); Co-Chairman: R.T. Haftka (USA)
Initial lectures:
R.T. Haftka (USA): Optimization and Experiments
M.P. Bendsoe (Denmark): Structural Optimization of and with Advanced Materials
L. Gaul (Germany): Minimization of Sound Transfer by Structural Optimization

MS3. Solid Mechanics in Manufacturing
Chairman: D.B. Bogy (USA); Co-Chairman: T. Inoue (Japan)
Initial lectures:
D.J. Bammann (USA): Modeling Large Deformations in Manufacturing Processes
E. Nakamachi (Japan): Optimum Design of Metal Forming Based on Finite Element Analysis and Nonlinear Programming
S. Sjöström (Sweden): Quench Stress and Deformation; Mathematical Modeling and Numerical Simulation

Prenominated Sessions
Fluid Mechanics
1. Biological Fluid Mechanics
Chairman: D. Barthès-Biesel (France)
Co-Chairmen: T.J. Pedley (UK) and S. Weinbaum (USA)

2. Boundary Layers
Chairman: F.T. Smith (UK)
Co-Chairmen: M. Kiya (Japan) and O.S. Ryzhov (Russia)

3. Combustion Problems
Chairman: J. Buckmaster (USA)
Co-Chairman: F.A. Williams (USA)

4. Compressible Flow
Chairman: K. Takayama (Japan)
Co-Chairman: A. Kluwick (Austria)

5. Computational Approaches to Turbulence and Hydrodynamic Stability
(Organized jointly with IACM)
Chairman: J. Periaux (France) and A.J. Baker (USA)

6. Diffusion Problems
Chairman: J. Koplik (USA)
Co-Chairman: S. Banerjee (USA)

7. Experimental Methods in Fluid Mechanics
Chairman: T. Maxworthy (USA)
Co-Chairmen: V.V. Kozlov (Russia) and W. Merzkirch (Germany)

8. Flow Instability and Chaos
Chairman: T. Kawahara (Japan) and M.R.E. Proctor (UK)
Co-Chairman: G. Iooss (France)

9. Free Surface/Interface Problems
Chairman: D.D. Joseph (USA)
Co-Chairmen: V. Kedrinskii (Russia) and D. Rockwell (USA)

10. Geophysical Fluid Dynamics
Chairman: R. Griffiths (Australia)
Co-Chairmen: J.S. Turner (Australia) and O.M. Phillips (USA)

11. Magnetohydrodynamics (Organized jointly with HYDROMAG)
Chairman: R. Moreau (France)
Co-Chairmen: A.M. Soward (UK) and S. Kamiyama (Japan)

12. Multi-Phase Flows
Chairman: G.E.A. Meier (Germany)
Co-Chairmen: J.F. Brady (USA) and M. Roco (USA)

13. Reacting Flows
Chairman: P. Clavin (France) and H. Oertel (Germany)
Co-Chairman: M. Matalon (USA)

14. Thermodynamics
Chairman: W. Muschik (Germany)

15. Topological Fluid Mechanics
Chairman: H.K. Moffatt (UK)

16. Vortex Dynamics
Chairman: G.J. van Heijst (The Netherlands)

Solid Mechanics
17. Active and Passive Structural Control
Chairman: P. Hagedorn (Germany)
Co-Chairmen: T. Fujita (Japan) and T.T. Soong (USA)

18. Adaptive Hierarchical Modeling in Computational Mechanics (Organized jointly with IACM)
Chairman: E. Stein (Germany) and J.T. Oden (USA)

19. Biomechanics
Chairman: S.C. Cowin (USA)
Co-Chairman: T. Hara (Japan) and R.McN. Alexander (UK)

20. Chaos in Dynamics
Chairman: F.C. Moon (USA)
Co-Chairman: Y. Ueda (Japan)

21. Contact and Friction Problems (Organized jointly with IAVSD)
Chairman: J.J. Kalker (The Netherlands)
Co-Chairmen: P.D. Panagiotopoulos (Greece) and P. Wriggers (Germany)

22. Damage Mechanics
Chairman: J.-L. Chaboche (France)
Co-Chairman: S. Murakami (Japan)

23. Dynamic Plasticity of Structures (Crash Mechanics)
Chairman: S.R. Reid (UK)
24. Elasticity
Chairman: M.A. Hayes (Ireland)
Co-Chairman: G.M.L. Gladwell (Canada)

25. Experimental Methods in Solid Mechanics
Chairman: S. Kobayashi (Japan)
Co-Chairman: R.J. Clifton (USA)

26. Fracture and Crack Mechanics
Chairman: B.L. Karihaloo (Australia)
Co-Chairman: J.B. Leblond (France)

27. Impact and Wave Propagation
Chairman: M.B. Sayir (Switzerland)
Co-Chairman: Y.-H. Pao (Taiwan, R.O.C.)

28. Material Instabilities
Chairman: A. Needleman (USA)
Co-Chairman: Y. Tomita (Japan) and V. Tvergaard (Denmark)

29. Multi-Body Dynamics
Chairman: W. Schiehlen (Germany)
Co-Chairman: J. Angeles (Canada) and M. Geradin (Belgium)

30. Plasticity
Chairman: B. Storåkers (Sweden)
Co-Chairman: E. Steck (Germany)

31. Plates and Shells (Organized jointly with IACM)
Chairman: H. Mang (Austria)

32. Rock- and Geomechanics
Chairman: Z. Mróz (Poland)
Co-Chairman: N. Cristescu (USA) and R. Wang (P.R. China)

33. Scaling Laws for Mechanics of Fracture
Chairman: H. Horii (Japan)
Co-Chairman: A. Carpinteri (Italy)

34. Stability of Structures
Chairman: R.C. Tennyson (Canada)
Co-Chairman: M. Mikkola (Finland) and M. Potier-Ferry (France)

35. Structural Vibrations
Chairman: H. Yamaguchi (Japan)
Co-Chairmen: W.B. Krüttig (Germany) and D.H. van Campen (The Netherlands)

36. Viscoelasticity and Creep
Chairman: A.R.S. Ponte (UK)
Co-Chairman: S.R. Bodner (Israel)

Solid-Fluid Mechanics
37. Earthquake Engineering
Chairman: A.D. Kureghan (USA)
Co-Chairman: K. Toki (Japan)

38. Environmental Fluid and Solid Mechanics
Chairman: J.C.R. Hunt (UK)
Co-Chairman: K. Hutter (Germany)

39. Fluid-Structure Interaction Problems
Chairman: P.T. Pedersen (Denmark)
Co-Chairman: M. Matsumoto (Japan)

40. Sport Mechanics
Chairman: S. Uejihashi (Japan)
Co-Chairman: G. Grimvall (Sweden)
Minutes of the Meetings of the Congress Committee held in Kyoto on 25 August (19:30 to 21:30) and 29 August 1996 (13:30 to 15:30)

Present:

(* = Members of Executive Committee).

Present by invitation: E. Watanabe (Secretary General, ICTAM Kyoto) and W. Guikowski (for presentation of case for Warsaw for 20th ICTAM).

Apologies:

A. Meeting on 25 August 1996

Item 1: Minutes of Meeting of Congress Committee (CC) held in Amsterdam,
26 August 1994 (Previously circulated)
These minutes were approved.

Item 2: Minutes of Meetings of Executive Committee (XC) of CC held in Vienna, 10 and 11 September 1995 (Previously circulated)
These minutes were approved.

Item 3: Report of Meeting of International Papers Committee (IPC) held in Kyoto 29 March - 1 April 1996 (Previously circulated)
This report was also approved. The total number of papers submitted to ICTAM Kyoto amounted to 1,642, i.e. more than the submissions to the last several Congresses. It was agreed to thank the members of the IPC, Professors D.G. Crighton, L. Gary Leal, Z. Hashin, S. Murakami and A. Needleman, for their immense work of evaluating all these papers and for preparing an excellent program.
In addition to the recommendations received by the IPC from the Chairpersons of the Mini-Symposia and Preominated Sessions, the IPC also was greatly assisted in its work by the paper preselection procedures of the nine major countries of the Union, Canada, France, Germany, Japan, P.R. China, Poland, Russia, UK and USA. It was agreed to thank the chairpersons of the Mini-Symposia and Preominated Sessions as well as the National Adhering Organizations of the aforementioned countries for their valuable cooperation.

Item 4: Report of Local Executive Committee of ICTAM Kyoto
Professor Watanabe and Professor Tatsumi reported on preparations for the Congress and briefly presented the following items contained in the Congress bags: Final Program, Abstracts, List of Participants, and a Booklet on Technical Exhibitions. An Anniversary Booklet "IUTAM 1946-1996 - Fifty Years of Impulse to Mechanics" written by Dr. Fons Alkemade by invitation by Professor van Wijngaarden, was also included in the Congress bags.
The plan and time table for the Opening and the Closing Ceremonies were presented in detail and approved.

Professor Watanabe finally informed on the registration statistics as of 25 July which showed a total of 851 registered active participants of which 31 pct. were Japanese. Professor Watanabe expected that the final number of registered active participants would exceed 900.

[Please refer page 80 for final statistics of ICTAM Kyoto.]

Item 5: Report by the President on "Working Parties"
President van Wijngaarden informed that the introduction of the concept of Working Parties springs from the strong wish of the Bureau and the General Assembly to increase the involvement of the affiliated organizations in IUTAM's scientific activities. Thus, up to now each of six affiliated organizations of IUTAM have been invited to suggest a topic of interest to the General Assembly which will be focused on by a Working Party (WP).
Each WP consists of three to five members including the IUTAM representative in the affiliated organization and the representative of the affiliated organization in the General Assembly of IUTAM. The President referred to page 91 of the IUTAM Report 1995 where the tasks of the WPs are listed as follows:

- To make recommendations to the General Assembly regarding timely subjects for IUTAM symposia.
- To establish contact with the relevant affiliated organization and with other international bodies involved in the area and to determine to what extent further active collaboration with these bodies may be desirable (e.g. through joint symposia).
- To consider the extent to which IUTAM is providing leadership in the area concerned.
- To identify the important growth areas of the field.
- To report to the General Assembly at least once in each four year period with perhaps one interim report.

President van Wijngaarden reported that the following WP's and members for the four year period 1996-2000 had been proposed to the General Assembly:
These WP's and members were unanimously approved by vote at the meeting of the General Assembly on 28 August 1996.


**WP3** - Fracture Mechanics and Damage (ICF) - J.B. Leblond (IUTAM), T. Yokobori (ICF), D. Hayhurst, D. Krajcinovic, J. Lemaître.


**WP6** - Computational Mechanics (IACM) - E.R. de Arantes e Oliveira (IUTAM), J.T. Oden (IACM), H. Mang, T. Belyshko, P. Ladevéze.

**Item 6:**
New members of the Congress Committee
A new procedure for appointment of new members as set out on pages 91-92 of the IUTAM 1995 Report was followed. The membership up to 1st November 1996 is set out on page 19 of the Report.

The Committee agreed firstly to recommend to the General Assembly that the following 8 members of the Congress Committee were reappointed for a second term, 1996-2000:

- Prof. H. Aref (USA),
- S. Bodner (Israel),
- J. Engelbrecht (Estonia),
- B. Lundberg (Sweden),
- G.E.A. Meier (Germany),
- T.J. Pedley (UK),
- M. Sayir (Switzerland), and
- T. Tatsumi (Japan).

The terms of the following 12 members of the Congress Committee expire in 1996: Profs. Boley, Chernyi, Germain, Hashin, Hutchinson, Leibovich, Moffatt, Mroz, Olhoff, Tabarrok, van Wijngaarden and Zemin Zheng. In addition, Prof. Karihaloo, who is no longer in Australia, but appointed professor at Aalborg University, Denmark, had offered to relinquish his membership (valid up to 1998), if that would help ensure continued Australian representation on the Congress Committee.

The Committee agreed to recommend to the General Assembly that decisions on these 13 potential vacancies were made as follows:

appointment (before ballot) of the following 4 persons:
- Prof. P. Lugner (Austria) as a representative of IAVSD, Prof. J.R.A. Pearson (UK) as a representative of ICR, Prof. N. Olhoff (Denmark) as Secretary of the Congress Committee, and Prof. P.J. Tanner (Australia) in place of Prof. Karihaloo up to 1998.

appointment of the remaining 9 members from the following slate of 13 candidates:
- Prof. D. Bogy (USA),
- D. van Campen (The Netherlands),
- L.B. Freund (USA),
- G.M.L. Gladwell (Canada),
- L. Gary Leal (USA),
- H.K. Moffatt (UK),
- P.A. Monkewitz (Switzerland),
- R. Moreau (France),
- Z. Mroz (Poland),
- R.I. Nigmatulin (Russia),
- P. Suquet (France),
- L. van Wijngaarden (The Netherlands),
- T. Yue Zhuang (P.R. China).

**Item 7:**
Discussion regarding membership of the Executive Committee
It was decided to postpone this discussion until the General Assembly had appointed the new members of the Congress Committee.

**Item 8:**
Venue for 20th Congress in year 2000
The four proposals to host the 20th Congress in August, 2000, were presented as follows:

- Chicago proposal by Prof. H. Aref
- Göttingen proposal by Prof. G.E.A. Meier
- Leeds proposal by Prof. T.J. Pedley
- Warsaw proposal by Prof. W. Gutkowski
After the presentations the proposals were discussed at length, with particular attention paid to the proposed budgets, the likely number of participants, possibilities of external financial support, hotel versus university environment, and the general strength of the local community in theoretical and applied mechanics.

**Item 9:** Any other business
No further business was reported.

The meeting ended at 22:15 hours.

**B. Meeting on 29 August 1996**

**Item 10:** Venue for 20th Congress in year 2000
Regarding vote for the venue for the 20th Congress, Profs. Hutchinson, Hoff and Ku, who were unable to attend the CC meeting in Kyoto, had sent letters in advance to the Secretary constituting Prof. Aref as proxy for Prof. Hutchinson, and Prof. Acrivos as proxy for Profs. Hoff and Ku. The constitution of proxies was challenged by some members of the Committee, as this concept does not appear in those articles of the IUTAM's Statutes that concern the Congress Committee, and there seems to have been no precedence for using proxies for voting in the Congress Committee. However, after some deliberations, the Committee agreed to accept the aforementioned proxies provided that two members of the Committee were constituted as proxies for Profs. Nakra and Zheng, who had been also unable to attend the meeting. It was agreed to be reasonable to give these proxies to Profs. Karihaloo and Wang.

After a brief, elegant lecture by Prof. H.K. Moffatt on the voting procedure normally used when more than two alternatives exist, and after further discussion of the four proposals to host the 20th Congress, the choice was put to a vote. The result was already obtained after the first round since Chicago received more than half of the (36) votes:

<table>
<thead>
<tr>
<th>City</th>
<th>Votes</th>
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<tbody>
<tr>
<td>Chicago</td>
<td>19</td>
</tr>
<tr>
<td>Göttingen</td>
<td>5</td>
</tr>
<tr>
<td>Leeds</td>
<td>3</td>
</tr>
<tr>
<td>Warsaw</td>
<td>9</td>
</tr>
</tbody>
</table>

The 20th Congress will therefore be held in Chicago in August, 2000.

[In consultation with the Local Organizers, the precise dates have later been determined as August 27 - September 2, 2000.]

**Item 11:** Appointment of new CC members by the General Assembly
The Secretary reported that the General Assembly, at its meeting on 28 August, had followed the recommendation made by the Congress Committee (see Minute 6). Hence, for the period 1996-2000, the General Assembly

(i) reappointed:
Profs. H. Aref (USA), S. Bodner (Israel), J. Engelbrecht (Estonia), B. Lundberg (Sweden), G.E.A. Meier (Germany), T.J. Pedley (UK), M. Sayir (Switzerland), and T. Tatsumi (Japan),

(ii) appointed (before ballot):
Prof. P. Lugner (Austria), rep. of IAVSD; Prof. J.R.A. Pearson (UK), rep. of ICR; Prof. N. Olhoff (Denmark), Secretary of the Congress Committee; and Prof. R.I. Tanner (Australia) [up to 1998],

(iii) appointed (by secret ballot) from the slate of 13 candidates (see Minute 6) the following 9 members:
Profs. D. Bogy (USA), L.B. Freund (USA), G.M.L. Gladwell (Canada), H.K. Moffatt (UK), R. Moreau (France), R.I. Nigmatulin (Russia), P. Suquet (France), L. van Wijngaarden (The Netherlands) and Fen-gan Zhuang (P.R. China).

The appointments take effect by 1st November 1996. President van Wijngaarden recorded his thanks to the following for their service to the Congress Committee: Profs. B.A. Boley (USA), G.G. Chernyi (Russia), P. Germain (France), Z. Hashin (Israel), J.W. Hutchinson (USA), B.L. Karihaloo (Denmark, formerly Australia), S. Leibovich (USA), Z. Mróz (Poland), B. Tabarrok (Canada), and Zemin Zheng (P.R. China).

The new membership of the Committee is set out in an attachment to these Minutes.

**Item 12:** Executive Committee
Following a recommendation from the Executive Committee, the Congress Committee approved that the new Executive Committee be appointed as follows:

W. Schiehlen (President-elect)
N. Olhoff (Secretary)
A. Acrivos
H. Aref (co-opted, 20th ICTAM)
S. Bodner
R. Moreau
T.J. Pedley

President van Wijngaarden expressed his warm thanks to Profs. S. Kaliszky and H.K. Moffatt for their devoted service to the Executive Committee, the latter for earlier having served for eight years as Secretary with great distinction.

**Item 13:** Any other business

By invitation from Professor W. Schiehlen, the new President of IUTAM, the next meeting of the Congress Committee will be held 29 and 30 August 1998 in Stuttgart, Germany in conjunction with meetings of the General Assembly and the Bureau of IUTAM.

Notes on the Meeting of the Executive Committee of the Congress Committee held in Kyoto on 31 August 1996 (13:30 to 15:30)

All members of the Executive Committee were present. Professors T. Tatsumi and E. Watanabe attended on behalf of the Local Executive Committee, and Prof H. Aref also attended, the decision having been taken to hold the 20th Congress in Chicago, USA. Professor P. Germain attended the meeting by invitation in order to participate in the discussion of Item 7.

1. The President, Prof. L. van Wijngaarden, extended cordial thanks to Profesrs T. Tatsumi and E. Watanabe for a most efficient local organization of the Congress and for exceptional hospitality.

2. Prof. Watanabe provided a summary of the statistics of ICTAM Kyoto which is attached as an Appendix. All the 38 invited lectures had been presented. 83 per cent of the contributed papers accepted for lecture sessions had actually been presented, and 65 per cent of the contributed papers accepted for seminar presentation sessions had been presented. Corresponding figures for ICTAM Haifa in 1992 were 86 per cent and 49 per cent, respectively.

Thus, although some improvement could be noted relative to the previous Congress in 1992, also at ICTAM Kyoto there had been an uncomfortably large number of withdrawals and "no-shows". These do not only reflect the economical difficulties in the territory of the former Soviet Union, in Eastern Europe, and in some South and East Asian countries, but also witness the difficulty many scientists in the West are having in securing funding for attendance at the Congress, particularly if their papers are accepted for a seminar presentation session.

It was noted however that a total of 665 contributed papers had been presented; the corresponding figure for the previous Congress in Haifa 1992 was 390.

3. Prof. Watanabe informed that ICTAM Kyoto had been attended by a total of 936 active participants (and 94 accompanying persons) from 46 countries. 28 per cent of the active participants had been from Japan. At the previous Congress in Haifa in 1992, there had only been 525 active participants.

It was agreed that the accommodation of a large number of contributed papers on the Congress program (made possible through 15 minute lecture presentations and many parallel sessions for lecture and seminar presentations), had been the main instrument for increasing the Congress attendance relative to Haifa. One has to realize that a large ratio between the number of participants and the number of papers presented at the Congress can no longer be seen; this ratio was 1.4 at Kyoto 1996 and at Haifa 1992, while 1.9 at Grenoble 1988 and at Lynghby 1984.

It was also agreed that the record number of papers submitted to ICTAM Kyoto, which included sufficiently many papers of high scientific quality to support the extension of the Congress program, could be largely attributed to the efforts of soliciting good papers for the Congress made by the chairpersons of the six mini-symposia and the forty pre-nominated sessions.

4. Prof. Watanabe informed that the total amount used for grants was expected to add up to nearly USD 100,000. Almost half of this amount had been used for grants for about 40 young scientists recommended by the IPC, but in total up to 100 persons had received partial financial support, including some of the invited sectional lecturers and chairmen of pre-nominated sessions who would otherwise have been unable to come.

Prof Watanabe mentioned that the Congress had received substantial support from Japanese side; the Science Council of Japan had sponsored the Congress by more than USD 100,000, and the Local Organizing Committee had raised more than USD 350,000 in the form of donations from Japanese funds and companies. All in all, the total amount of support from Japan had exceeded the amount from payment of registration fees, and had covered more than half of the total budget for the Congress.

5. It was agreed that the present structure of the Congress is satisfactory. It was suggested however that, in view of the special circumstances for ICTAM Chicago in year 2000, it might be interesting
to replace the Opening Lecture by a panel of, e.g., two solids and two fluids scientists that would discuss the status and the future of Mechanics at the threshold to the new millennium. The Closing Lecture should be maintained. It was also suggested to introduce some more mutual competition between the Sectional Lectures, and to avoid to arrange these lectures in parallel with contributed papers.

6. It was found that the time had been kept very well for the lecture presentations at ICTAM Kyoto, and that the use of transparencies (rather than slides) may be now considered a norm. The seminar presentation sessions had been "a little noisy" since they had been all held in the large exhibition hall of KICH. It was agreed that 12 seminar presentations in each group seem to be optimum, with 10 parallel sessions each of two days.

7. With correspondence pertaining to a particular case of conflict as a background, the Committee discussed whether chairmen of mini-symposia and pre-nominated sessions should be endowed with more power relative to the International Papers Committee (IPC) on decisions regarding acceptance/rejection of solicited contributed papers. The policy and the procedure that was followed in this regard for ICTAM Kyoto is set out in Minute 4 of the meeting of the Executive Committee held in Vienna in September 1995.

The Secretary informed that for the all in all six mini-symposia and forty pre-nominated sessions, only in two cases there had occurred a major conflict between the recommendations of the chairman of the symposia/sessions and the decisions of the IPC regarding the papers submitted. The Secretary pointed out that this fraction of cases with conflict was very low, and found that the particular criticism raised against the IPC was less founded.

After some discussion, the Committee agreed that the IUTAM policy should be retained in general, i.e., that the final decision concerning acceptability of submitted papers should rest with the IPC. However, Prof. H.K. Moffatt suggested that it might be a good idea to give the chairmen of mini-symposia full authority to accept a certain number of papers at future Congresses.

8. The Secretary reported that for the current ICTAM, no less than 620 papers out of the total submission of 1,642 had been sent to the Congress Office in Kyoto without special reference to any of the mini-symposia or the new pre-nominated sessions, although the topics of the large majority of the papers fitted very well in these categories. During the IPC meeting in Kyoto, members of the IPC had suggested that in the future such papers should also be sent to the attention of the relevant chairmen, and be evaluated by them prior to the IPC meeting.

The following change in the initiation of the paper handling procedure had thus been suggested to the Secretary. By the deadline for receipt of contributed papers, the Congress Office should just fax or e-mail a listing of the titles of all the papers to the IPC, and ask the IPC to recommend to which chairmen those papers should be sent, that had not been submitted with reference to a particular mini-symposium or pre-nominated session. As a price for this, the IPC would receive with a little delay the batch of abstracts and summaries of papers ordered by adherence to mini-symposia and pre-nominated sessions, but that was not considered to be a problem.

9. It was agreed to invite proposals and ideas from all IUTAM bodies in the early Spring of 1997 for the preparatory decisions regarding ICTAM Chicago to be made at the next meeting of the Executive Committee, and to inform the Congress Committee about these and to invite comments before the Preliminary Announcement of the Congress will be printed.

10. The next meeting of the Executive Committee of the Congress Committee has just been scheduled for 8-11 August 1997, in Urbana-Champaign and Chicago, USA, in conjunction with the next meeting of the Bureau of IUTAM.

**Congress Statistics**

Given below are details of the geographical distribution of the number of papers submitted (S), the number accepted for lecture presentation (A-L), poster presentation (A-SP). Also given is the actual number of lectures (L) and posters (SP) presented. The distribution of the 38 invited lecturers (IL) is indicated.

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Niels Ollhoff, 22nd December 1996.

**REPORT on COSPAR**

The 31st COSPAR Scientific Assembly was held at the University of Birmingham UK, 14th-21st July 1996. It is interesting to note that "for the first time in many years COSPAR held its Assembly on a university campus instead of in a congress centre. The vast majority of participants found the university setting very pleasant and appropriate to COSPAR". A full report of the Scientific Assembly is contained in the COSPAR Information Bulletin number 137, December 1996. A large number of symposia were held during the Assembly, including the following which may be of particular interest to IUTAM: applications of satellite data to weather forecasting, climate prediction, and climate model validation; laboratory planetology; coupling and energetics in the stratosphere-mesosphere-thermosphere-ionosphere system; advances in optical remote sensing of the upper atmosphere; the polar cap thermosphere-ionosphere and its role in solar-terrestrial physics; planetary atmospheres and ionospheres, and reference atmospheres; planetary ionospheres and magnetospheres; reconnection in the solar corona and magnetospheric substorms; the sun and its atmosphere; mechanisms of graviperception in plants; gravitational effects in fluid and materials science.

Future COSPAR Scientific Assemblies will be held in Nagoya Japan, 12th-19th July 1998; in Warsaw Poland in 2000; and in USA (in conjunction with the Second World Space Congress) in 2002.

Special mention should perhaps be made of the revolutionary developments in solar science associated with SOHO (Solar and Heliospheric Observatory) the satellite of the Solar and Heliospheric Mission launched on 2nd December 1995. According to Roger Bonnet, Director of Science of ESA, "what is breath-taking is SOHO's ability to explore the sun all the way from its nuclear core to the Earth's vicinity and beyond. We can expect a completely new picture of how agitation inside the sun, transmitted through the solar atmosphere, directly affects us on the Earth."

H.K. Moffatt
REPORT 1996

International Centre for Mechanical Sciences (CISM)

1. Courses and Seminars
   The regular programme of courses and seminars, planned for the Centre for the year 1996 by the Scientific Council, took place in the two Scientific Sessions, the Griffith Session (June-July 1996) and the Betti Session (September-October 1996). The topics, always at an advanced level, included different fields of mechanics and related computer sciences, both at a basic and applied level. One course was sponsored by IUTAM, one by UNESCO and some by CNR, (National Research Council of Italy).

   The Griffith Session
   - Discrete Structural Optimization
   - Topology Optimization in Structural Mechanics
   - Modelling and Simulation of Human and Walking Robot Locomotion
   - Large Plastic Deformation of Crystalline Aggregates
   - 7th IUTAM Summer School on Electrohydrodynamics

   The Betti Session
   - Continuum Micromechanics
   - Approximate Solution of Hard Combinatorial Problems
   - Algorithmic Foundations of Geographic Information Systems
   - Scaling Laws and Fractality in Continuum Mechanics
   - Coupled Instabilities in Metal Structures: Theoretical and Design Aspects

2. Various International Events
   Besides the above courses, the following other international meetings were organized by CISM in 1996:
   - 11th CISM-IFToMM Symposium on Theory and Practice of Robots and Manipulators (July 1-4, 1996).
   - AMST'96 - 4th International Conference on “Advanced Manufacturing Systems and Technology (September 2-3, 1996)
   - ISSEK'96 - 2nd International Workshop on “Learning, Networks and Statistics” (September 12-14, 1996).

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 1996
   J.P. Bonnet “Eddy Structures Identification”

   M. Fremond - S. Miyazaki “Shape Memory Alloys”
   V. Petrini - M. Save “Protection of the Architectural Heritage Against Earthquakes”
   L. Mussio - G. Forlani - F. Crosilla “Data Acquisition and Analysis for Multimedia GIS”
   G.E.A. Meier - G.H. Schnerr “Control of Flow Instabilities and Unsteady Flows”
   U. Schaffinger “The Flow of Particles in Suspensions”
   F. Zanolli “Nonlinear Analysis and Boundary Value Problems for Ordinary Differential Equations”
   E. Kuljancic “Advanced Manufacturing Systems and Technology”


4. Scholarships
   A limited number of scholarships, including free lodging and board or exemption from registration fees, 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. Travel expenses as well as board and lodging of participants from developing countries have been covered by a UNESCO contribution.

5. International Participation
   In 1996 67 lecturers from 21 countries delivered lectures in the Griffith Session and the Betti Session. The two Sessions were attended by 359 participants from 42 countries.

G. Bianchi

REPORT

The International Committee on Rheology (ICR)

The XIIth International Congress on Rheology was held in Quebec City, Canada, from August 18 to 23, 1996. The Congress was hosted by the Canadian Group on Rheology, and the Chairman of the organizing committee was Professor Daniel De Kee of the Universite de Sherbrooke. The technical program consisted of 2 plenary lectures, 7 keynote lectures, 289 oral presentations and 162 poster presentations.
Altogether 671 persons from 32 countries participated in the Congress.
Proceedings of the Congress, consisting of extended abstracts, were published
by the Chemical Engineering Department of Laval University (ISBN 2-
9805109-0-4), edited by Ait-Kadi et al.

The International Committee on Rheology met during the Congress.
The Committee comprises the Chairman (Prof. J. Mewis), the Secretary,
International Delegates of 23 member national societies of rheology, associate
members, and liaison with other organizations. The primary item on the agenda
was the selection of the site for the XIIIth Congress in the year 2000. In a close
vote by the Delegates, Cambridge U.K. was selected over Kyongju, Korea. The
Congress is scheduled to be held August 20 to 25, 2000. Other business at the
meeting included announcements of the founding of the Hellenic Society of
Rheology and of the formation of the European Society of Rheology (an
umbrella organization), the organization of an ICR subcommittee to study the
structure of the ICR, and the succession of Prof. De Kee as Chairman of the
ICR.

David F. James

REPORT
on
EUROMECH - European Mechanics Society

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 Chairman.
Proceedings are not normally published.

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
Oscillations Conference and the EUROMECH Mechanics of Materials Conference. The responsibility for each series of
Conferences is delegated to a Standing Conference Committee. The
organizational work is carried out by Local Organizing Committees.

During 1996 thirteen EUROMECH Colloquia and three EUROMECH
Conferences were organized:
interactions in biomechanics
EUROMECH 345, 1-3 April 1996, Liverpool, England:
The future of structural optimisation
Fretting Fatigue, corrosion and wear
EUROMECH 347, 13-15 May 1996, Paris, France:
Stability and bifurcation of solids
EUROMECH 348, 22-26 May 1996, Tallinn, Estonia:
Nonlinear dynamics of heterogeneous and microstructured solids
EUROMECH 349, 10-12 September 1996, Göttingen, Germany:
Simulation of structure-fluid interaction in aeronautics
EUROMECH 350, 3-7 June 1996, Bordeaux, France:
Image analysis, porous materials and physical properties
EUROMECH 351, 5-7 August 1996, Vadstena, Sweden:
Systems with Coulomb friction
EUROMECH 352, 9-12 July 1996, Keele, England:
Mean flow effects in acoustics
EUROMECH 353, 1-3 April 1996, Karlsruhe, Germany:
Dynamics of localized disturbances in engineering flows
EUROMECH 354, 18-21 September 1996, Chania (Crete), Greece:
Stress waves in solids for materials characterization
EUROMECH 355, 11-13 September 1996, Palaiseau, France:
Interfacial instabilities
EUROMECH 356, 3-5 October 1996, Munich, Germany Transform methods in
solid mechanics
ETC-6, 2-5 July 1996, Lausanne, Switzerland:
6th EUROMECH Turbulence Conference
ENOC-2, 9-13 September 1996, Prague, Czech Republic:
2nd EUROMECH Nonlinear Oscillations Conference
EMMC-1, 9-11 September 1996, Fontainebleau, France:
1st EUROMECH-MECAMAT Mechanics of Materials Conference.

B. Lundberg

REPORT
on
The International Association for Vehicle System Dynamics (IAVSD)

On behalf of IAVSD, Professor J.J. Kaiker organised a session on Contact Mechanics at the 19th ICTAM in Kyoto in August 1996. Applications of Contact Mechanics of central concern to the Association include steel wheel to steel rail interactions, involving the development of guidance and longitudinal manoeuvring forces, wear processes and vibration problems and pneumatic tyre to (rigid) road interactions.

Apart from the ICTAM event, the main business of IAVSD in 1996 has been the organisation of its 1997 Symposium, to be held at the Technical University of Budapest, August 25-29. Joint Presidents of the Symposium are Professors I. Zebory and P. Michelberger. The Scientific Committee comprises R.J. Anderson (Canada), J. Aurell (Sweden), J. Bokor (Hungary), J. Elkins (USA), R. Frohling (South Africa), R. Fujikawa (Japan), J.K. Hedrick (USA), K. Knothe (Germany), W. Kurz (Germany), P. Lugner (Austria), G. Mastinu (Italy), M. Naga (Japan), H.B. Paceeka (The Netherlands), J-P Pascual (France), L. Rus (Czech Republic), Z-Y. Shen (China), H. Wallentowitz (Germany), A.H. Winkens (UK) and local organisation is being overseen by Professor L. Palkovics.

Around 200 participants are expected from 25 countries to attend the Symposium in a time-tested format. An important part of this format is a set of invited review papers, one of which starts each day’s proceedings. A new feature is a special offer of support for Symposium attendance to research students, to be judged on a competitive basis.

Road and Rail vehicle technical visits will be part of the Symposium.

R.S. Sharp

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

From January 1st 1996 the ISIMM Executive Committee is so composed:
President: Prof. G. Capriz, Italy. vice-president: Prof. R.J. Knops, UK
Secretary/Treasurer: Prof. C. Trimarco, Italy.

Directors: Prof. B.D. Coleman, USA Prof. G. Iooss, France,
Prof. A. Jeffrey, UK Prof. K. Kirchgassner, Germany,
Prof. F. Podio-Guidugli, Italy Prof. M. Slemrod, USA,
Prof. C. Tatar, USA Prof. J. Toland, UK, Prof. W.L. Wendland, Germany,
Prof. R.K. Zorzi, Poland.

The Symposium on Trends in Applications of Mathematics to Mechanics (STAMM ’96) was held in Warsaw, Poland (September 1 – 7, 1996). Chairman:
Prof. G.R. Barenblatt (Cambridge), Vice-Chairman: Prof. H. Zorzi. No proceedings of STAMM ’96 will be published.

STAMM will be organised by Prof. Iooss in Nice in 1998.

The following meetings are scheduled for 1997 and 1998:
- Current Ideas in Mechanics and Related Fields (CIMRF) will be held in Krakow, Poland, (August 24 - 29, 1997);
- Continuum Models and Discrete Systems (CMDS9) will be held in Istanbul, Turkey (June - July 1998) under the chairmanship of Prof. Inan.

Further information will appear on ISIMM www home page, whose complete address is the following:
http://www.pisa.ccn.isimm.

C. Trimarco

REPORT
on
The International Congress on Fracture (ICF)

Founded by Professor Takeo Yokobori in 1965, the International Congress on Fracture (ICF) is today the premier international body for promotion of worldwide cooperation amongst scientists and engineers concerned with the mechanics and mechanisms of fracture, fatigue and strength of solids. This Congress formally started operating in April 1969, with the registered office in Japan.

Among the aims of the Congress, are to promote integration of many disciplines in such research and to provide the means whereby results of such efforts may be publicly communicated. For this purpose, the Congress shall, both solely and in cooperation with other bodies, hold the regular International Conference on Fracture at least once every four years.

The Eighth Congress on Fracture (ICF8), was held in Kiev, Ukraine, June 6-12, 1993 (Conference Chairman: Prof. V.V. Panasyuk). The Ninth Conference on Fracture (ICF 9), will be held in Sydney, Australia, April 1-5, 1997 (Conference Co-chairmen: Prof B.L. Karihaloo and Y.W. Mai).

T. Yokobori
REPORT
on
The International Association for Computational Mechanics (IACM)

The IACM held a meeting of its Executive Committee on January 12th in Austin, Texas on the occasion of the meeting celebrating the 60th birthday of Prof. J.T. Oden. It was reported by the secretary that the number of Organisations affiliated to IACM rises to 23 representing some 35 countries worldwide.

The creation of a series of IACM symposia was decided at the meeting. Some of these symposia will be held in cooperation with IUTAM following the tradition established in recent years and some are planned for 1997. IACM will also support the organization of courses and workshops.

The first issues of the new "IACM Expressions" bulletin were presented. Plans to extend both the scope and distribution of the bulletin were discussed.

A number of meetings organised by the IACM affiliates have taken place during 1996. Among these we list the meeting of the UK Association for Computational Mechanics (ACME) held in Glasgow on 8-10 January 1996. The meeting of the Spanish Association on Numerical Methods in Engineering (SEMN) held in Zaragoza, Spain, on 3-6 June 1996, the Greek Association for Computational Mechanics (GRACM) met in Chania (Creta) on 26-28 June 1996, and the Argentinean Association for Computational Mechanics (AMCA) held its annual meeting in Tucuman, Argentina, on 10-13 September 1996. The US Association for Computational Mechanics (USACM) will hold its annual meeting in San Francisco on 6-8 August 1997.

The IV IACM World Congress on Computational Mechanics will take place in the city of Buenos Aires on 29 June-2 July 1998. This is the major conference event organized by IACM. Previous IACM congresses took place in Austin (1986); Stuttgart (1990) and Tokyo (1994).

E. Okafe

REPORT
ON
COSTED

Following the International Congress at Kyoto moves have been initiated for a more vigorous participation of IUTAM in activities in developing countries. A further report will be made as soon as there is an agreement amongst the bodies involved about the measures to be taken.

Roddam Narasimha

REPORT
on
Asian Fluid Mechanics Committee

The Seventh Asian Congress of Fluid Mechanics is being held from 8 to 12 December 1997 at Madras (now called Chennai), India. The Congress welcomes papers from all parts of the world. The address of the Secretariat is

7ACFM Secretariat
Dr E G Tulapurkar
Professor and Head
Department of Aerospace Engineering
Indian Institute of Technology
Madras 600 036, INDIA
Phone (091) (44) 235 1365 Extn. 3001/3006
Fax: (091) (44) 235 0509/235 2545
e-mail: eg@aero.iitm.ernet.in

Final date for receiving abstracts is 15 March 1997.

Roddam Narasimha

REPORT
on
The Caribbean Congress of Fluid Dynamics (CACOFD)

President
Dr. H. Ramkisson (Trinidad)

Vice-Presidents
Dr. C. Depradine (Barbados)
Prof. F. Malpica Perez (Venezuela)
Prof. C. Trevino (Mexico)

Secretary
Dr. W. Mellowes (Trinidad)

Treasurer
Dr. W. Mellowes (Trinidad)

Representative
Dr. H. Ramkisson (Trinidad)

Dr. G. Shrivastava tendered his resignation as Secretary due to additional Career commitments. Dr. Mellowes has agreed to act as secretary until the Executive Meeting in January 1997.

Preparations are now in full swing for the joint CACOFD/IUTAM International Symposium on "Lubricated Transport of Viscous Materials", scheduled for Tobago from January 7-10, 1997. There is every indication that it will be an interesting and successful meeting.

H. Ramkisson
The IABEM executive committee members are Prof. H. Antes (Germany), Prof. S. N. Atluri (USA), Prof. D. E. Beskos (Greece), Prof. T. A. Cruse (USA), Prof. S. Kobayashi (Japan), Prof. G. Maier (Italy), Prof. L. Morino (Italy), Prof. N. Tosaka (Japan), Prof. F. J. Rizzo (USA), and Prof. W. Wendland (Germany). Prof. Maier is the IABEM liaison to the International Association for Computational Mechanics, Prof. Ziegler (Austria) is the IABEM member of the IUTAM General Assembly, and Prof. T. Burczynski (Poland) is the IABEM representative to the Polish Association for Computational Mechanics. Prof. J. Berger (USA) is the IABEM Secretary. The president of the IABEM is Prof. T. Cruse while Prof. Beskos is the vice-president.

A joint symposium cosponsored with the American Society of Mechanical Engineers was held in June of 1996 at Johns Hopkins University. Prof. J. Rencis (USA) was the organizer for this Symposium. Twenty papers were presented at this Symposium. The papers are to appear in a special edition of Computers & Structures following reviews and acceptance of the manuscripts.

The IABEM will hold a workshop entitled "Fundamental Solutions in Boundary Elements: Formulation and Integration" on 18-20 June 1997 in Sevilla Spain. The workshop is being organized by Professor Francisco G. Benitez of the Escuela Superior de Ingenieros de Sevilla. The papers from the workshop will be reprinted.

The next full meeting of the Association is planned for 1998. The meeting will be held in conjunction with technical symposia on various BEM topics. The full agenda is being organized by M. Bonnet and D. Aubry and will be held at the Ecole Polytechnique, Palaiseau, France in June 1998.

There is a joint IUTAM/IACM/IABEM Symposium on Advanced Mathematical and Computational Mechanics Aspects of the Boundary Element Method (99-1) to be held at the Cracow University of Technology, Poland. Its organizer, Professor T. Burczynski (Poland), is making final details of the meeting but the current date is June 1999. There is discussion of an IABEM Symposium to be held in Italy in the year 2000.

Further details and updates on IABEM meetings are available on the worldwide web at the URL http://www.iabem.ines.us/iabem.net/iabem.html; this site also provides access to other BEM activities around the world.

T. A. Cruse
Assessment of ICSU
The 25th General Assembly of ICSU commends the ICSU Assessment Panel for the depth and vision of its analysis and recommendations and thanks the Chair, R.W. Schmitt, and the Members for all their efforts in making their Report available in time for the General Assembly; Requests that the Executive Board formulate a strategy for responding to the recommendations of the Assessment Panel Report, with representative involvement of the entire ICSU family through the establishment of ad hoc bodies or other means; And further requests the Executive Board to present its suggested actions for approval by an Extraordinary General Assembly to be convened preferably at the time of the 37th Meeting of the General Committee and not later than within two years.

Freedom in the Conduct of Science
The 25th General Assembly of ICSU reaffirming its commitment to ICSU's principle of the universality of science as embodied in its Statute 5; Expresses its grateful appreciation to the Royal Swedish Academy of Sciences for generously hosting and supporting the Secretariat of the Standing Committee on Freedom in the Conduct of Science (SCFCS) for so many years; Further expresses its deepest gratitude to O.G. Tandberg for his devoted service as Executive Secretary of the SCFCS since 1975; And extends its thanks to the Swiss Academy of Sciences for its kind offer to host the Secretariat in the future; and to F. Schindler for agreeing to serve as Executive Secretary of the SCFCS.

Electronic Publishing
The 25th General Assembly of ICSU thanks ICSU Press and UNESCO for having organized an Expert Conference on Electronic Publishing in Science in February 1996; Notes the Recommendations in the report of the Conference and invites the ICSU Press to undertake appropriate follow-up activities, to continue to monitor progress in this field, in particular with regard to developing countries, and to report to the Executive Board.

Science in Developing Countries
The 25th General Assembly of ICSU notes with satisfaction the several current activities of ICSU which are directed toward the involvement of scientists in developing countries; Supports the view of the Assessment Panel that "ICSU should consolidate and enhance its activities for promoting science in developing countries" recognizing the opportunities afforded by new information technology and telecommunication systems; And reaffirms that science in the service of developing countries will continue to be a major priority in the activities of the ICSU family into the next century.

Access to Data and Information
The 25th General Assembly of ICSU noting that there may be constraints

on the free flow of scientific data and information, imposed on grounds of national security, confidentiality, commercial value, copyright, or historical disciplinary practice; Recommends as a general policy the fundamental principle of full and open exchange of data and information for scientific and educational purposes.

Agriculture and Food Security
The 25th General Assembly of ICSU having agreed to establish a Committee on Sciences for Food Security requests the Executive Board to establish the initial Committee, encourages the partnership with other bodies as appropriate; And thanks the consultative group chaired by H.K. Jain and the participants in the follow-up work under the leadership of W. Blum for their efforts in this regard.

History of ICSU
The 25th General Assembly of ICSU expresses its grateful thanks to F. Greenaway, for his excellent work in writing a history of ICSU.

Women in Science, Engineering, and Technology
The 25th General Assembly of ICSU concerned that women are seriously under-represented in science, engineering and technology; Resolves that all ICSU members will work to remove the barriers encountered by women and to ensure that they have the same opportunities as men.

Other events
The objectives of the Symposium on Science and Human Goals in the 21st Century were to demonstrate the inherently international character of science and its contributions to knowledge and to practical solutions to problems facing humanity in the 21st century. The three sessions were devoted to:

- Science, curiosity, wonder and survival with contributions from physics, astronomy, biology, chemistry and mathematics.

- Science, an endless resource in a period of finite resources: The American experience.

- Resources of science for the future. Meeting the water, energy and food needs of the world.

The Working Group on the Physical, Chemical and Mathematical Sciences met during the General Assembly. The contributions included the Solution of Fermat's Problem and a Global Vision of Chaotic Systems.

W. Schiehlen
CODATA is an interdisciplinary Scientific Committee of the International Council of Scientific Unions (ICSU) which seeks to improve the quality, reliability, management and accessibility of data of importance to all fields of science and technology.

The Committee is concerned with all types of quantitative data resulting from experimental measurements or observations in the physical, biological, geological and astronomical sciences. Particular emphasis is given to data management problems common to different scientific disciplines and to data used outside the field in which they were generated. The general objectives are (i) improvement of the quality and accessibility of data, as well as the methods by which data are acquired, managed, and analyzed, (ii) facilitation of international cooperation among those collecting, organizing, and using data, and (iii) promotion of an increased awareness in the scientific and technical community of the importance of these activities.

In its efforts to meet its overall objectives, CODATA has elected to emphasize the following elements in the next decade:

- electronic dissemination of data via the Internet or other network
- studies of the generic characteristics of abstract data structures
- collaboration with ICSU unions on developing discipline-specific databases of broad interest
- studies of barriers to access to scientific data, with initial emphasis on political, legal and economic issues that hinder access to environmental data
- expansion of efforts aimed at helping the scientific community take advantage of modern information technology.

In the spirit of these objectives, CODATA held its 15th International Conference in Tsukuba, Japan on 29 September through 3 October 1996. The theme of this conference was Scientific Data in the Age of Networking: Their Use for Global Prosperity and Better Human Life.

L.B. Freund

HYDROMAG, created in August 1995, 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 fields, 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.

The following executive members have been elected by the council of HYDROMAG: Prof. R. Moreau (President), Prof. S. Asai (Vice President), Prof. H. Branover (Vice President), Dr. S. Charles (Vice President), Dr. P. A. Davidson (Treasurer), Dr. A. Thess (General Secretary). Prof. H.K. Moffatt is acting as the IUTAM representative in HYDROMAG.

In 1996 HYDROMAG has installed the WWW-site http://www.tu-dresden.de/mwism/hydromag/home.html containing comprehensive information about its goals, membership, conferences, workshops as well as employment opportunities. Moreover, the electronic "HYDROMAG newsletter" has been launched, which is distributed to all members and mirrored on HYDROMAG's WWW-pages.

The 8th Beer-Sheva International Seminar on MHD Flows and Turbulence was held from February 25 to 29, 1996 in Jerusalem (Israel) under the auspices of HYDROMAG. Future conferences, workshops and a summer school on MHD, organized jointly with IUTAM at CISM in Udine (Italy) in 1999, are in the planning stages. The next full meeting of HYDROMAG is planned for 1997 during the first HYDROMAG conference, held September 22 to 26, 1997 in Aussois (France).

WWW: http://www.tu-dresden.de/mwirl/thess/home.html

A. Thess

REPORT on
The International Commission on Acoustics

The International Commission on Acoustics (ICA) is the umbrella organization for acoustical societies throughout the world. Its main activities
are the organization of the International Congresses of Acoustics, which have been held every three years since 1953, the sponsorship of specialized international symposia, and the preparation of the international meetings calendar "Acoustical News--International" published in the Journal of the Acoustical Society of America.

The ICA was established in 1951 as a regular Commission of the International Union of Physics and Applied Physics (IUPAP) and has remained so ever since. The principal business at the annual meeting of the Commissioners of ICA in Antwerp, Belgium, March 31, 1996, was the completion of a new set of By-Laws for a reorganized ICA which will be more independent of IUPAP. The General Assembly of the reorganized ICA will be made up of representatives from the individual national acoustical societies and will elect the Board members who implement the actions of the General Assembly.

The new By-Laws were formally accepted by IUPAP at its 22nd General Assembly meeting in Uppsala, Sweden, on September 20, 1996, and it is expected that the General Assembly of the reorganized ICA will meet for the first time during the 16th International Congress of Acoustics which will be held in Seattle, Washington, June 20-26, 1998. The reorganized ICA will be affiliated with IUPAP and will probably seek affiliation with other international scientific umbrella organizations.

Stephen H. Crandall

REPORT

The Scientific Committee on Oceanic Research (SCOR)

1. SCOR held its 23rd General Meeting at the Southampton Oceanography Centre, Southampton, UK, on 16-20 September 1996. SCOR's main scientific activity in the past has been to support Working Groups on specialist areas. It will now also give sponsorship to 'Affiliated Programs' which are of long-term nature.

2. SCOR Working Groups of particular interest to IUTAM:

2.1 Current Working Groups

WG 89 Sea Level and Erosion of the World's Coasts.

Report is now ready for publication.

WG 96 Acoustic Monitoring of the World Ocean.

Final meeting held March 1996. This group will now become an international steering committee for the ATOC (Acoustic Thermometry of Ocean Climate) programme, as a SCOR sponsored 'Affiliated Program.'

WG 101 Influence of Sea State on the Atmospheric Drag Coefficient.

A monograph 'Drag over the Ocean' is being prepared for publication by Cambridge University Press.

WG 103 The Role of Wave Breaking on Upper Ocean Dynamics.

An interaction report has been prepared. The Group plans a further meeting in 1997.

WG 106 Release Sea Level and Muddy Coasts of the World.

The WG has held two meetings and a book on muddy coasts is planned.

WG 107 Improved Global Bathymetry.

The first meeting planned for November 1996.

WG 108 Double Diffusion.

Planned first meeting in Liège in May 1997.

2.2 Proposals for new Working Groups.

The following are proposed:-

Intercomparison and Validation of Ocean-Atmosphere Energy Flux Fields

Coupling Wind, Waves and Currents in Coastal Models.

S.A. Thorpe

Summary Record

of

The General Assembly of IUTAM

in Kyoto, Japan, 27 and 28 August 1996

The General Assembly of IUTAM convened in Room A of the Kyoto International Conference Hall (KICH), Kyoto, Japan. The first session on 27 August started at 18.30 hours, the second session was called to order on 28 August at 14.00 hours.

The Persons Present:

a) Representatives of adhering organizations

Argentina:--; Australia: N. Phan-Thien, R.I. Tanner; Austria: A. Khwicz; Belgium: M. Gerard, proxy; Brazil: E.N. Mamiya; Bulgaria:--; Canada: F.P.J. Rimrott, B. Tabarrok, proxy; China, Beijing: Y-S. He, K.C. Hwang, R. Wang, proxy; China, Taipei: H.H. Chiu, --; Croatia:--; Czech Republic: R. Dvorák; Denmark: N. Olhoff, P.T. Pedersen; Egypt: M.A. Ismael; Estonia: J. Engelbrecht; Finland: M.J. Mikkola, proxy; France: G. Iooss, R. Moreau, J. Sallençon, --; Germany: U. Gabbert, E. Krause, G. Kuhn, proxy (for Item 23, 2nd session the proxy for S. Wagner was transferred from W. Schiehlen to G. Kuhn); Greece: A.N. Kounadis; Hungary: S. Kaliszky; India: R. Bhargava, R. Narasimha, proxy; Ireland: proxy; Israel: S.R. Bodner, proxy; Italy: C. Cercignani, P. Podio-Guidugli (for 2nd session a proxy was given to C. Cercignani), F. Vatta, proxy;

b) Elected members
B.A. Boley (USA), D.C. Drucker (proxy), N.J. Hoff (proxy), J. Hult (proxy), I. Imai (Japan), A.Yu. Ishlinsky (proxy), Y.H. Ku (proxy), J. Lighthill (UK), F. Nierodson (Denmark), L.I. Sedov (proxy)

c) Bureau members not being representatives of adhering organizations or not being elected members, respectively
P. Germain (France), H.K. Moffatt (UK), W. Schiehlen (Germany), L. van Wijnhagen (The Netherlands), F. Ziegler (Austria)

d) Affiliated organizations
CISM: proxy; ICMT: proxy; IAVSD: proxy; EUROMECH: B. Lundberg (Sweden); ISIMM: M.A. Hayes (Ireland); ICF: proxy; ICM: proxy; AFMC: R. Namasima (India); IACM: J.T. Oden (USA); CACOFT: L.I. Sedov (Russia); IABE: F. Ziegler (Austria); ISSMO: M. Rozvany (Germany); HYDROMAG: R. Morean (France)

e) Invited observers
P. Tong (Hong Kong), M.J. Crocker (IAV, USA), S. Crandall (ICA, USA), H. Mang (IACM, Austria), G. Yagawa (Japan), T. Kambe (Japan), H. Ohashi (Japan), M. Ito (Japan), E. Watanabe (Congress Secretary-General, Japan)

Guidugli represented by C. Cercignani for 2nd session only
Japan: H. Nakagawa represented by Y. Yamamoto
Poland: H. Zorski represented by W. Gukowski
Switzerland: M. Sayir represented by S.R. Bodner, 2nd session only
UK: J.R. Willis represented by W.G. Price, 2nd session, after 18:00 hours only

b) Elected members
N.J. Hoff and D.C. Drucker (USA) represented by P.G. Hodge Jr., J. Hult (Sweden) represented by B. Lundberg, A.Yu. Ishlinsky and L.I. Sedov (Russia) represented by G.K. Mikhailov, Y.H. Ku (USA) represented by B. Boley

c) Affiliated organizations
CISM: G. Bianchi represented by C. Cercignani
ICR: J.R.A. Pearson represented by H.K. Moffatt

AGENDA

First Session
Tuesday 27 August 1996 at 18.30 hours

1. Opening of the meeting by the President
2. Report of the Secretary-General
3. Report by the Treasurer on financial matters
4. Preliminary discussion on annual dues
4.1 Allocation to IUTAM Symposia (see Report 1995, p.90)
5. Report on relations with ICSU
6. Report of the Secretary on the Congress Committee of IUTAM
7. Adhering Organizations
7.1 Application for membership by Kazakhstan
7.2 Application for membership by Hong Kong
7.3 Application for membership by Chile
7.4 Australia upgraded to category II commencing 1/1/1996 (approved at Bureau meeting, Vienna)
7.5 Ukraine membership finally approved commencing 1/1/1996 (Bureau meeting in Vienna)
7.6 Response to UK freeze of fees (see Report 1995, p.78)
7.7 Romania (resumed payment of dues and has a representative: N.D. Cristescu)

8. Affiliated Organizations
8.1 Closer co-operation with affiliated organizations, discussion of Working Parties (see item 20)
16.1 IUTAM in developing countries, Prof. R. Narasimha

**Second Session**

Wednesday 28 August 1996 at 14.00 hours, Room A, KIC

17. Continued discussion and final decision regarding future IUTAM Symposiums
18. Continued discussion and final decision on International Summer Schools on Mechanics
19. Continued discussion and final decision regarding annual dues
20. Appointment of members of the Working Parties
21. Appointment of members of the Congress Committee
22. Election of members-at-large of the General Assembly
23. Election of officers and all members of the Bureau
24. Election of members of Symposia Panels
25. Date and venue of the next General Assembly, 1998
26. Any other business

26.1 Decisions taken with respect to item number 16.1.

**Proceedings of the General Assembly, First Session**

**Item 1. Opening of the meeting by the President**

The President, Professor Leen van Wijngaarden, opened the meeting and greeted all members and observers welcome. The President pointed out that the General Assembly will not make any decisions today, Tuesday 27 August.


The Minutes of the General Assembly 1994 were accepted.

**Item 2. Report of the Secretary-General**

The Secretary-General, Professor Franz Ziegler, submitted the following report to the General Assembly on the activities of IUTAM since the last General Assembly in Amsterdam, The Netherlands, held on 27 and 28 August 1994.

Mr. President, Dear Colleagues,

Two years have passed since our last General Assembly in Amsterdam, The Netherlands. During that time I have had the sad duty of recording the deaths of three distinguished colleagues and friends who have served our Union in the past. May I ask you all to stand in honor of our deceased, while I read their names:

We commemorate Professor Tongji Lin of China, who passed away on July 29, 1993 at the age of 75. From 1982–1990 he was a member of the General Assembly representing China. From 1979–1990 he served as the first Vice...
Editor-in-Chief and later as the Editor-in-Chief of Acta Mechanica Sinica. He
guided the design and the establishment of China's first blowdown supersonic
wind tunnel, which tremendously enhanced the development of Chinese
experimental aerodynamics. From 1983–1991 he was the Vice President of
IUTAM's affiliated organization AFMC.

We commemorate Professor Paul M. Naghdi of the USA, who died on July
9, 1994. He was a member of the General Assembly during the period
1978–1984 representing the USA. The Journal of Applied Mechanics Vol. 61,
1994 published an Obituary on pages 509-510. Professor Naghdi will always
be remembered for his many noteworthy contributions to solid mechanics.
More importantly, he will be remembered with respect and affection by friends
and colleagues.

We commemorate Professor T. Brooke Benjamin, Sedleian Professor of
Natural Philosophy at Oxford University, UK, who died in April 1995. He was
a member of the General Assembly from 1982–1987, representing the UK. He
also represented IUTAM from 1984–1991 in the Scientific Committee on
Oceanic Research (SCOR) and in addition, served in the Electoral Committee
in 1982. He was held in high esteem by friends and colleagues alike, and he
will be remembered for his tremendously important and lasting contributions
to mechanics, in particular to fluid mechanics.

Our sympathy and our grateful thoughts for their excellent work for our Union
go out to their families and to their nations.

I) National Adhering Organizations

The National Committee of Ukraine on Theoretical and Applied Mechanics
has had its application for Category II membership finally approved. The
representatives, Professor A.N. Guz' and Professor V.V. Pilipenko have been
duly elected to the General Assembly. This has been effective from the 1st of

The Australian National Committee on Theoretical and Applied Mechanics
has had its membership upgraded from Category I to Category II. Approved by
the Bureau, this upgrading has been in effect from the 1st of January 1996.

UK – The Royal Society recently had a review of its subscription expenditure
to the Unions of ICSU, which resulted in an agreement to pay the amounts of
fees already decided on for 1996 and 1997, but thereafter to instruct its
degrees to vote against any increase in the subscription until the reserves of
IUTAM are reduced. The Royal Society retains its right to move to a lower
category of membership if a fee increase decided at the General Assembly is
deemed unacceptable.

The following applications for membership have been received and will be
discussed under Item 7:

(1) Kazakhstan: The application of the Kazakhstan National Committee on
Theoretical and Applied Mechanics for membership of IUTAM was received
on 11 March 1996. The National Committee is a member of the National
Academy of Sciences of the Republic of Kazakhstan in compliance with the
rules of IUTAM. Hence, a positive vote is recommended on item 7.1.

(2) Hong Kong: The formal application of the Hong Kong Society of
Theoretical and Applied Mechanics for membership of IUTAM was received
on 29 April 1996, with the Statutes enclosed. It was accompanied by a
supporting letter from China. Thus, we take a positive stand and recommend a
positive vote on item 7.2.

(3) Chile: The Chile National Committee on Theoretical and Applied
Mechanics has applied for membership of IUTAM. The National Committee is
a delegation of the Academy of Sciences of Chile, the latter being a member of
ICSU and recently has hosted the ICSU-General Assembly. Fully in
compliance with the rules of IUTAM their Statutes have been received and we
recommend a positive vote on item 7.3.

We sincerely thank our colleagues and friends who retired before 31 December
1995 from our General Assembly, for their devoted work:

Prof. G. Drougge of Sweden, Prof. Z. Hashin of Israel, Prof. E. Inan of
Turkey, Prof. M.A. Ranta of Finland, Prof. C. Polizotto, representing IABEM
in IUTAM and Dr. H. Ramkisson, the representative of CACOFD in IUTAM.

We welcome our colleagues appointed before 31 December 1995 and look
forward to a long and fruitful co-operation for the benefit and progress of our
Union:

Prof. A.N. Guz' and Prof. V.V. Pilipenko of the Ukraine, Prof. A. Boström of
Sweden, Prof. N.D. Cristescu of Romania, Prof. M. Määttänen of Finland, Prof.
T. Miloh of Israel, Prof. E. Suhubi of Turkey, Dr. G. Shrivastava representing
the affiliated organization CACOFD and Prof. F. Vatta of Italy who fills the
vacant seat in the Italian representation.

In addition, so far in 1996 the following changes to the members of the General
Assembly have taken place:

Prof. B.L. Karihalo moved to Denmark and has retired from the General
Assembly to be replaced by two new representatives for Australia, Prof. N.
Phan-Thien and Prof. R.I. Tanner. Prof. J.M. Quintana Gonzalez has been
replaced as the Spanish representative by Prof. G. Moreno Labata, Prof. C.
Polizotto has retired as the IABEM representative within IUTAM, to be
replaced by Prof. F. Ziegler and Prof. G. Rozvany is the representative within
IUTAM of the newly affiliated organisation ISSMO.

II) Affiliated Organizations

The International Centre for Mechanical Sciences (CISM), continued to
organize a number of courses and seminars. It is hoped that in the future, more
use can be made of the exceptional administrative organization at CISM, for the holding of IUTAM Symposia. This year, the seventh in a row of IUTAM International Summerschools with the title “Electrohydrodynamics”, was held at CISM from 22–26 July 1996. The co-ordinator was Professor A. Castellanos of Spain. The Summerschool which was proposed by CISM and approved by the Bureau during its meeting in Vienna, September 1995, was well attended. The International Committee on Rheology (ICR) held the XIth International Congress of Rheology from the 18–23 of this month (August) in Quebec City, Canada. The presentations covered a wide range of topics in rheology and there were around 275 oral presentations and 230 poster presentations. Following an invitation from the Bureau, a Working Party has been set up in cooperation with ICR on “Mechanics of Non-Newtonian Fluids”, see items 8.1 and 20.

The International Association of Vehicle System Dynamics (IAVSD) held the 14th IAVSD Symposium on the Dynamics of Vehicles on Roads and Tracks at the University of Michigan, USA, from 21–25 August 1995. Further details can be found in Professor Sharp’s report which is printed in the 1995 Annual Report. The 15th Symposium will be held under the Chairmanship of Professor Istvan Zobory at the Technical University of Budapest, August 1997. The journal, “Vehicle System Dynamics” has been very successful. From 8 issues in 1994, this number has increased to 12 issues in 1996 to accommodate the number of excellent papers offered for publication. In addition, a Working Party on “Dynamical Systems” is being formed in cooperation with IAVSD, on invitation by the Bureau, see again items 8.1 and 20.

EUROMECH - The European Mechanics Society successfully held the 2nd European Fluid Mechanics Conference in Warsaw, Poland, in September 1994 and the 2nd European Solid Mechanics Conference was held in Genoa, Italy also in September 1994. In 1994, 14 Colloquia were held and in 1995 this number increased to 15. Lists of the Colloquia as reported by Secretary-General Bengt Lundberg, have been included in my printed annual Reports 1994/95. The 3rd EuroMech Solid Mechanics Conference will be held in Stockholm, Sweden, from 18–22 August 1997. The 3rd EuroMech Fluid Mechanics Conference will be held in Göttingen, Germany, from 15–18 September 1997. EuroMech distinguishes between the two main groups in Mechanics, i.e. Fluids and Solids, and keeps the Conferences separate.

The International Society for the Interaction of Mechanics and Mathematics (ISIMM) will hold the next Symposium on Trends in the Applications of Mathematics to Mechanics (STAMM ‘96), in Warsaw, Poland from 2–7 of September 1996. The venue for STAMM ‘98 will be Nice, France. Following recent elections, the President of ISIMM is now Prof. G. Capriz (Italy), the Vice-President is Prof. R.J. Knops (UK), and the Secretary and Treasurer is Prof. C. Trimarco (Italy).

The International Congress on Fracture (ICF) is an organisation devoted to promoting congresses concerned with the mechanics and mechanisms of fracture, fatigue and strength of solid. ICF aims to provide the means whereby the results of such research can be publicly communicated. To this end, ICF holds the International Conference on Fracture at least once every four years. The Ninth Conference on Fracture will be held in Sydney, Australia from April 1–5, 1997. A Working Party on “Fracture Mechanics and Damage” is also being formed in cooperation with ICF, following Bureau recommendations, see again items 8.1 and 20.

The International Conference on Mechanical Behavior of Materials (ICM) held the 7th International Conference on Mechanical Behavior of Materials in The Hague, The Netherlands from 28 May–2 June 1995. The Conference was a great success with over 400 delegates from 40 countries, 8 plenary lectures, 265 oral presentations and 99 poster sessions. Professor T. Inoue who is one of three vice-presidents of ICM having finished his term as the President, will be succeeded as the ICM representative in IUTAM after ICMB, to be held in Victoria, Canada in 1999, by the newly elected President, Professor A. Bakker of Delft University of Technology, The Netherlands. By invitation from the Bureau, in cooperation with ICM, a Working Party on “Mechanics of Materials” is set up, see again items 8.1 and 20.

The Asian Congress of Fluid Mechanics (AFMC) held the Sixth Asian Congress of Fluid Mechanics from the 22-26 May, 1995 at Nanyang Technological University, Singapore, jointly organized with the National University of Singapore. The Congress attracted more than 400 papers by authors from 30 different countries across five continents. Plenary lectures and 15 Sectional lectures were also given. The Proceedings of the Congress have been published in two volumes by the Centre for Continuing Education, Nanyang Technological University. The Seventh Asian Congress of Fluid Mechanics will be held in the second half of 1997 in India.

The International Association for Computational Mechanics (IACM) held a meeting of its Executive Committee in Venice, October, 1995. This meeting coincided with the 9th International Conference on Finite Elements in Fluids. IACM Special Interest Conferences were officially created during this meeting. The International Conference on Computational Plasticity (COMPLAS), falls under this heading and COMPLAS V will be held in Barcelona, Spain in March 1997. A revised version of the IACM Bulletin was also issued for the first time this Spring. It is published under the new name, “IACM Expressions”. The IVth IACM World Congress on Computational Mechanics is scheduled to be held in Buenos Aires, 29 June–2 July, 1998. Following Bureau recommendations, IACM has been invited to cooperate in forming a Working
Party on "Computational Mechanics", see again items 8.1 and 20.

The Caribbean Congress of Fluid Dynamics (CACOFD) held its General Meeting in February, 1995. At this meeting, Dr. H. Ramkisson stepped down after serving the maximum six years as President. The new President is Professor F. Malpica of Venezuela. Dr. Ramkisson also retired as the CACOFD representative in IUTAM. His place will now be filled by Dr. G. Shrivastava of Trinidad, the present Secretary of CACOFD.

CACOFD successfully held its Third Conference during February 1995 at the University of Simon Bolivar, Caracas, Venezuela. Over 110 scientists participated with more than 50 papers presented.

In 1997, CACOFD is co-sponsoring an International IUTAM Symposium on "Lubricated Transport of Viscous Materials". This will be held in Tohago, 7-10 January, 1997, see also the announcement in the Newsletter N-21. The International Association for Boundary Element Methods (IABEM), held its Annual Meeting and Symposium on Boundary Element Methods Advances on the Big Island of Hawaii, July 30 to August 3, 1995. The meeting featured over 80 papers with authors coming from over 20 countries. IUTAM was represented by F. Ziegler, Vienna, Austria.

Also held, was the IABEM Symposium on Boundary Integral Methods for Nonlinear Problems, 28 May to 3 June, 1995, Siena, Italy, co-sponsored by IUTAM. A second Siena meeting on BEM in Acoustics was held in May 1996 under the chairmanship of Professor L. Morino. The next full meeting of the Association is planned for 1998 and will be held at the Ecole Polytechnique, near Paris, France.

IABEM has initiated a move to utilize the World Wide Web and E-mail as a means for more effective communication within the organization and as a base for sharing research information from research groups around the world.

The International Society for Structural Optimization (ISSMO) was finally accepted as an affiliated organization to IUTAM at the Bureau meeting held in Vienna, 10-11 September, 1995. The GA in Amsterdam had approved affiliation providing that a favourable report was received from Prof. Olhoff of ISSMO's first official meeting, held during the "5th Symposium on Multidisciplinary Analysis and Optimization", Panama City, Florida, September 1994. ISSMO will be represented in IUTAM by Professor G. Rozvany, the General Secretary, and IUTAM will be represented by Professor N. Olhoff within ISSMO.

Additional information regarding our affiliated organizations can be found in my printed annual Report 1995.

Item 8.1 of the General Assembly agenda covers the closer co-operation with affiliated organizations and the formation of Working Parties, as recommended by the Bureau, within the following six organizations: ICR, IAVSD, ICF, ICM, HYDROMAG and IACM.

Applications for affiliation with IUTAM have been received within the reporting period from the following organizations:
- International Institute of Acoustics and Vibration (IIAV)
- International Association for Hydromagnetic Phenomena and Applications (HYDROMAG, formerly the International Association for Liquid Metal Magnetohydrodynamics and Electromagnetic Processing of Materials).

Following Bureau recommendations, HYDROMAG has been invited to form a Working Party on "Electromagnetic Processing", see again items 8.1 and 20. The applications have been thoroughly discussed during the Bureau meeting, Vienna, 1995 and the Bureau took a positive stand on both of them. However, just before our GA-meeting, two more applications have been received, one by ICA and one from I-INCE (Int. Inst. of Noise Control Engineering). They will be discussed under items 8.5, where recommendations will be made how to handle the applications of three Acoustic Bodies, and 8.6, where your positive vote is requested.

Professor S. Crandall, whom we welcome here, will give us a short report on the activity of ICA as related to IUTAM. In this connection, let me make the remark on the latest replacement of the former delegate Professor James Lighthill which took place without proper notification of the IUTAM office.

III) Meetings of the Bureau

First Meeting
The Bureau met in Vienna, Austria, on 10 and 11 September 1995. A summary record was mailed to all members of the General Assembly under the circular numbered GA-152. An updated record is included in my printed Report 1995, pp 75–106.

As already mentioned, the Bureau approved the application for membership in category II, from Ukraine. This was effective from January 1st 1995. In addition, the upgrading of the Australian membership from category I to II, was approved as from the 1st of January 1996. Please, confirm these decisions by acclamation.

Professor L.B. Freund (USA) accepted the invitation to represent IUTAM in CODATA. He replaced Professor D. Drucker who wished to retire. However, a very critical letter was received in the meantime concerning matters of CODATA as non relevant to IUTAM.
Professor Jan Hult (Sweden) retired as the representative of IUTAM to ICF. Professor L.B. Leblond was nominated to replace him and has since been accepted by ICF as the new IUTAM representative.

The report of Working Group 1 on financial matters, which consisted of the Bureau members B.A. Boley, W. Schiehlen, T. Tatsunami and F. Ziegler, was discussed (see page 90 of the 1995 Annual Report). The results of this discussion will be presented under item 4.1.

Working Group 2 (Bureau members: G. Chernyi, P. Germain, K. Moffatt and L. van Wijngaarden) was set up to increase the involvement of the affiliated organizations. Two suggestions came out of this study. Firstly, the formation of Working Parties (item 8.1) and secondly, a new appointment procedure to the Congress Committee which will give priority, where possible, to representatives of the affiliated organizations (see Report 1995, pp. 90-91, and item 21 of the agenda).

Based on preparatory work of Profs. G. Chernyi, W. Schiehlen, T. Tatsunami and F. Ziegler concerning the publication of the Proceedings of IUTAM Symposia, the Bureau accepted the contract with Kluwer Academic Publisher. As from the 1st of January 1996, Kluwer becomes the "preferred" publisher of IUTAM Symposia Proceedings. In this respect, the brand name "IUTAM Symposium on..." must appear on the title of Proceedings (the full text of the contract is given on pages 138 to 141 of the 1995 Report). The Rules and Guidelines for IUTAM Symposia Chairmen have been appropriately updated.

Second Meeting
The Bureau met two days ago (Sunday) here in Kyoto. The meeting was mainly devoted to the preparation of our General Assembly now in session.

Third Meeting
The Bureau will meet on Friday of this week to decide on the recipients of the Bureau prize for outstanding presentations by younger scientists in both Solid and Fluid Mechanics. The winners will each receive a cheque for US $500.

Fourth Meeting
The Bureau will have its final meeting on Saturday of this week in order to implement decisions taken by the General Assembly. On that occasion the Bureau will appoint the date and venue of its next annual meeting to be held in 1997. This will be reported to all of you in the minutes of the Bureau meeting.

At this stage of my Report, I would like to express the thanks of our organization to the Congress Committee and its Secretary, Professor Oholoff, to the Congress President, Professor Tatsunami, and the Congress Secretary-
decision by the Symposium Chairman (Profs. de Borst and van der Giessen).
IUTAM Symposium on Statistical Energy Analysis (SEA) (8–11 July 1997, Southampton, UK)
IUTAM Symposium on Rheology and Computation (20–25 July 1997, Sydney, Australia), ICUS co-sponsored
IUTAM Symposium on New Applications of Nonlinear and Chaotic Dynamics in Mechanics (27 July–1 August 1997, Ithaca, NY, USA)
IUTAM Symposium on Computational Methods for Unbounded Domains (3–7 August 1997, Boulder, USA)
IUTAM Symposium on Micro and Macrostructural Aspects of Thermoplastic (25–29 August 1997, Bochum, Germany)
IUTAM Symposium on Dynamics of Slender Vortices (31 August–3 September 1997, Aachen, Germany)
IUTAM Symposium on Rheology of Bodies with Defects (2–6 September 1997, Beijing, China)

One further Symposium originally scheduled for 1997, has been postponed to 1998 upon recommendation by the Chairman, Professor G.M. Homsy. The title has remained unchanged until now: IUTAM Symposium on Viscoelastic Fluid Mechanics (1998, Stanford, USA)

VI) Publications of IUTAM

In the period 1994/95/96 the Proceedings of 20 IUTAM Symposia have been published. All details as to editors and publishers are given in the printed annual Report 1995. Of these, 6 were published by Kluwer. I must also report here, that the contract with Kluwer can only work out smoothly in the future if the Chairmen of IUTAM Symposia do not take dumping price offers from other publishers. Of course, competition is hard and the actual price is always subject to negotiations.

The Annual Reports of IUTAM are available from the Secretariat of IUTAM. They have been distributed to all members of the General Assembly and also to a large number of persons and organizations showing interest in the activities of our Union. We have made attempts to have these Reports available at our IUTAM–Symposia as well. Currently 600 copies of the Report are produced annually.

The IUTAM Archive has been established with the International Centre for Mechanical Sciences (CISM). The IUTAM files from the years 1976–1984 are deposited with the IUTAM Archive. The Bureau of IUTAM also recommends to collect photos from IUTAM meetings to be stored with the Archive in Udine, Italy.

Under Items 11 and 23, we are obliged to elect the officers of our Bureau. I would like to take this opportunity to congratulate the Electoral Committee for the proposals they made, which I mailed to you all during May 1996. I also wish to thank all of you who may have considered my re-election as the Secretary-General which I unfortunately had to decline for personal reasons.

Mr. President, dear colleagues in the Bureau, dear colleagues and friends in the General Assembly, before I conclude my report I would like to thank you all for your advice, for your co-operation and for your help on which I could rely during my full term of four years in office. I enjoyed working with you, to serve our Union and to promote mechanics as a science. It has been a great privilege to play such an important role in our Union and I have to express my deeply felt gratitude to all of you. IUTAM will hopefully continue to offer a strong basis for future developments of mechanics, as a science, as the firm basis of technology, in its application to the environment and for natural disaster reduction and for the invention of new engineering tools. As you have experienced with the opening lecture of our Congress and you will recognize with its closing lecture, IUTAM is engaged and contributes to the UN-decade IDNDR. Personally, as the new representative of IABEM within the General Assembly, I will continue to work with you all for the further development of the aims of IUTAM.

Franz Ziegler

The report of the Secretary General was unanimously adopted.

Item 3. Report by the Treasurer on financial matters

The Treasurer, Professor B.A. Boley, submitted the following report to the General Assembly.

Mr. President, Dear Colleagues:

I am pleased to report to the General Assembly that the financial state of our Union is good.

I reported that was the case also at our last meeting two years ago. This may surprise those of you who heard me give an impassioned plea, at that time for the need to exercise extreme caution in our planning, lest an alarmingly rapid depletion of our resources were to take place. But our planning has indeed been careful in the intervening period: for example, the level of support for each Symposium has been decreased from US$ 7,500 to US$ 5,000, and increases of around 5% in our Annual Dues were established for 1996 and 1997.

I am also pleased to report that our members have been diligently paying their dues, and that for the first time in quite a while we list no member country with many years of dues still unpaid.

The following summary listing of assets and deficits over the last few years may interest you:
It is difficult however to reach firm long-term conclusions from such figures. For example, one cannot draw too much comfort from the 1995 Loss decrease, since it is in large part due to the weakness of the US Dollar during that period - a circumstance over which we claim little control.

It is my opinion therefore that - while caution is without doubt always the best approach - we should wait until we can ascertain with some accuracy the effectiveness of the measures already taken, before embarking upon a new assessment of what further steps, if any, might be necessary.

Along these lines, then, I recommend to the General Assembly that relatively modest increases in the Annual Dues be established at this time, namely of the order of 2.5%, in order to account for the apparently inevitable inflationary trends. I thus propose that the Annual per Unit Dues be raised (from the 1997 level of US$ 565) to US$ 580 for 1998 and US$ 594 for 1999. For members who prefer to pay equal amounts in each of these two years, I propose that the per unit yearly Dues be set at US$ 587 (compared with US$ 551 for 1996 and 1997).

I wish to close my Report with a note of thanks to all colleagues within IUTAM, and to the many members of the Mechanics community with whom I have had to deal in the capacity of Treasurer, for their unfailing spirit of cooperation and good will.

Bruno A. Boley

The report of the Treasurer was unanimously adopted.

Item 4. Preliminary discussion on annual dues

Any increase in annual dues was based on the average OECD-index. The UK delegate Prof. Price proposed that IUTAM should refrain from any increase of the annual dues, however this was opposed by several members. As a member of the Bureau, Prof. Moffatt detailed future developments of IUTAM and steps taken to reduce costs. However, increased activities like the establishment of Working Parties etc. do not allow a permanent freeze of the dues. Before making final decisions in the second session, the current OECD-index should be made public. Prof. Boley was asked to report this index to the General Assembly. See item 19.

4.1 Allocation to IUTAM Symposia (see Report 1995, p.90)

The reference reads: "The matters were extensively discussed and the Bureau decided to keep the number of symposia unchanged, at a maximum of nine per year and to guarantee a reduced IUTAM grant of US $5,000, with the possible exception of the three symposia co-sponsored by ICSU funds where grants may be higher. In addition, it was decided to raise the maximum conference fee to US $350 including the Proceedings volume."

The proposal of the Bureau was accepted by the General Assembly.

Item 5. Report on relations with ICSU

Item 5 and item 10 have been combined.

10. Matters concerning ICSU

10.1 Report by Prof. W. Schiehlen

The representative of IUTAM on the General Committee of ICSU, Professor W. Schiehlen, submitted the following report to the General Assembly.

Mr. President, dear Colleagues,

In my report on the relations with ICSU, printed on pages 131 - 133 of our annual report 1995, the following items are mentioned:

1. ICSU co-sponsorship of the International Human Dimensions Program on Global Environmental Change (IHDP) together with the International Social Science Council (ISSC).
2. Integration of Arctic Science into the activities of ICSU.
3. Science in the Year 2000. There are plans to call the Unions' attention to the importance of science by marking the turn of the century with special events.
4. The informatics community will establish a Union of Computing Science and Informatics.
5. Science and Technology for Earth Management (STEM) including energy, control of greenhouse gases and nuclear waste disposal.
6. The ICSU Statement on Freedom in the Conduct of Science has been amended.
7. ICSU recommends to establish a Standing Committee for Scientific Responsibility and Ethics in Science.
8. Assessment of ICSU. The Assessment Panel began its independent evaluation of the mission, the organizational structure, and the operational modes of ICSU.

In the meantime the following actions were taken by IUTAM on ICSU matters.

1. Prof. Hassan Aref was nominated to represent IUTAM on the ICSU activities in Informatics.
2. Information on the 20th ICTAM in the Year 2000 was given to ICSU as one of the outstanding events.
3. A proposal for the forthcoming election of ICSU officers was prepared.
4. Comments on ICSU's mandate were provided to the Assessment Panel.
5. Recommendations regarding the ICSU Grants Program were made.

6. Prof. Paul Germain, Vice President of our Union, attended a strategic meeting on Science and Technology for Earth Management (STEM).

The next meeting of the General Committee of ICSU will take place in Washington, D.C., USA, during the last week of September 1996 in connection with the General Assembly of ICSU. In addition, ICSU organizes a Symposium on Science and Human Goals in the 21st Century to demonstrate the inherently international character of science and its contributions to knowledge and to practical solutions to problems facing humanity.

I am pleased to represent IUTAM at these meetings. If you have any questions or recommendations, please let me know.

I thank you for your attention.

Werner Schiehlen

ICSU provided grants for three IUTAM-Symposia in 1996 and co sponsors two IUTAM-Symposia in the year 1997 as well as an IUTAM Summer School as listed below. These grants are gratefully acknowledged.


IUTAM is a member of ICSU of adhering category 3 and the dues for 1996 have been set to US$ 2,154. The dues for 1997 will be increased by 4.83% over the 1996 dues.

10.2 CODATA: L.B. Freund replaced D. Drucker as the representative of IUTAM from 1/1/96.
A critical review is a subject matter of the next Bureau meeting, Chicago 1997.

10.3 Matters related to IDNDR
Sir James Lighthill resigned as the representative of IUTAM. However IUTAM contributed through the 19th ICTAM to IDNDR, especially by the opening lecture given by T. Kobori (Japan) on “Structural Control for Large Earthquakes”, chaired by F. Ziegler (Austria) and by the closing lecture given by Sir James Lighthill (UK) on “Typhoons, Hurricanes and Fluid Mechanics”, chaired by L. van Wijngaarden (The Netherlands).

Item 6. Report of the Secretary on the Congress Committee of IUTAM
The Secretary of the Congress Committee, Professor Niels Olhoff, submitted the following report.

Mr. President, Dear Colleagues,

1. I think you will agree with me that the Congress Committee made an excellent decision in choosing Kyoto, and Japan, as the venue for the 19th Congress. By this decision, IUTAM not only recognized the outstanding scientific Japanese achievements in Mechanics during recent decades, but by holding its Congress in East Asia for the first time, IUTAM also lived up to its responsibility of being the truly International Union of Theoretical and Applied Mechanics.

Our thoughtful and kind hosts in Kyoto and Japan have fully lived up to the expectations and trust shown by IUTAM, by providing an exceptional framework and a perfect and most efficient local organization of the Congress, in addition to an exceptional hospitality.

2. We should all acknowledge at this point that in order to make up for additional travel costs for the participants, and in order to provide the basis for the perfect organization and the warm hospitality offered to us, our hosts have raised considerable amounts of financial support for the Congress. Thus, the Science Council of Japan has sponsored the Congress by more than US$ 100,000, and our hosts in Kyoto have raised more than US$ 350,000 as donations from Japanese funds and companies.

Altogether, the total amount of support from the Japanese side clearly exceeds the amount from payment of registration fees, and covers more than half of the total budget for the Congress. It should be acknowledged as well that nearly US$ 50,000 have been given as support grants for younger participants from countries with limited resources. The 19th Congress has benefited greatly as a result of these exceptional successes by our hosts, and we all are deeply indebted to them for their efforts on our behalf.
3. We have now ended the second day of the Congress, and so you must be well aware already of the outstanding organization by the local organizing Committee and of the excellent scientific program that has been prepared under the guidance of the Congress Committee. The main elements of the program are the same as those established for the Congress at Lyngby in 1984, at Grenoble in 1988 and at Haifa in 1992, namely Opening and Closing General Lectures, 15 Sectional Lectures and a large number of Contributed Papers contained in parallel Lecture Sessions and in parallel Seminar Presentation Sessions. All these activities have up to now been very well attended, been running very smoothly, and there has been a very lively interaction among the participants. At this stage, it is still too early to draw any conclusions, but there seems to be good reasons to believe that only a natural disaster can jeopardize the success of the Congress.

4. Although the pattern of the program for the 19th Congress is the same as that of the previous three Congresses, the Congress Committee has been concerned about the trend of decreasing attendance over the last several Congresses. In order to address these concerns, the Congress Committee has implemented some new ideas and concepts in its planning for the current Congress in order to promote broader participation, in particular by scientists from outside the host country. Thus, for the 19th Congress the Committee agreed

- to increase the number of Mini-symposia from three to six, and
- to select about 40 Pre-nominated Sessions on typical topics of Mechanics which are not covered by the Mini-Symposia.

Unlike those of the Mini-symposia, the topics of the Pre-nominated Sessions were listed in the Announcements of the Congress along with the names of the Chairpersons for the Sessions. The Committee anticipated that just the listing in the Announcements of the topics of all the Pre-nominated Sessions would have the useful effect of featuring Mechanics in a much broader and detailed sense than the Announcements of previous Congresses, and that this would be beneficial in attracting the attention of, in particular, young researchers and newcomers in Mechanics.

As for the Mini-Symposia, the Chairpersons for the Pre-nominated Sessions were also pre-appointed from among Internationally renowned scientists in the fields. All these Chairpersons were asked to promote their Symposia and Sessions by stimulating scientists within their respective fields to submit contributed papers for possible presentation at the Congress, and they were invited to give recommendations to the International Papers Committee regarding the suitability of the papers submitted, and to organize the accepted papers in suitable sub-sessions.

The decision of the Congress Committee to increase the number of Mini-Symposia and to introduce Pre-nominated Sessions with pre-appointed Chairpersons with tasks as just described, has gone very well in hand with the general wish in IUTAM to actively involve a larger number of members of the General Assembly and of the Congress Committee in IUTAM's scientific activities. In addition to promote a broader participation in the Congress, the decision has also been an instrument to attract a larger number of the top scientists in Mechanics, and thereby not only to attempt to maintain but even enhance the high scientific quality of the IUTAM Congresses.

On behalf of the Congress Committee, I would like to thank the Chairpersons of all the Mini-Symposia and the Pre-nominated Sessions for their excellent work towards success of the 19th Congress in terms of both quantity and quality.

5. I am very pleased to inform you that with respect to quantity, preliminary statistics indicate that the current Congress will be attended by approximately 950 active participants (and about 100 accompanying persons) from more than 45 countries. Approximately 330 of the active participants seem to come from Japan, so the number of active participants from outside the host country will be about 620. Both this number and the total number of active participants are well above the corresponding numbers from the last several Congresses. This state of affairs is very satisfactory and may be attributed to the decisions by the Congress Committee discussed earlier.

6. On behalf of the Congress Committee, I would also like to thank the members of the International Papers Committee (IPC), Professors D.G. Crichton, L.G. Leal, Z. Hashin, S. Murakami and A. Needleman, for their work in selecting papers for presentation at the Congress. This task involved intensive work during February and March this year, and particularly during the 4-day meeting of the IPC here in Kyoto at the end of March. The total number of papers submitted to the current Congress amounted to 1,642 which is clearly larger than the submissions to the last several Congresses. The division by field was

   Solid Mechanics: 57%
   Fluid Mechanics: 40%
   Solid-Fluid Mechanics: 3%

i.e., there was a more balanced distribution between papers submitted in Solid and Fluid Mechanics, for which the ratio of submissions to the previous three Congresses has been approximately two to one.
addition to the recommendations given by the Chairpersons of the Mini-
Symposia and the Pre-nominated Sessions, the IPC also was greatly
assisted in its work by the paper preselection procedures of the nine
major countries of the Union, namely Canada, France, Germany, Japan,
P.R. China, Poland, Russia, UK and USA, and I would like to thank the
National Adhering Organizations of these countries for their valuable
cooperation.

7. Within recent years, the Congress Committee has implemented
decisions in strong support of the General Assembly’s and the Bureau’s
wishes to further IUTAM’s role as the leading International umbrella
organization for Theoretical and Applied Mechanics through a
strengthening of IUTAM’s relations and collaboration with its Affiliated
Organizations.

Thus, at the meetings in Amsterdam in 1994, the following
representatives of Affiliated Organizations were appointed members of
the Congress Committee: Prof. T. Inoue (rep. of ICM) and Prof. J.
Tinsley Oden (rep. of IACM). Prof. M. Hayes already represented
ISIMM in the Committee. On behalf of the Congress Committee, I shall
very shortly propose that the General Assembly appoints representatives
of two other Affiliated Organizations as new members of the Congress
Committee: Prof. P. Lugner (rep. of IAVSD) and Prof. J.R.A. Pearson
(rep. of ICR).

I am also very pleased to report that the strong wish of IUTAM to
organize Mini-Symposia and/or Pre-nominated Sessions in
collaboration with the Affiliated Organizations at the IUTAM
Congresses has been already implemented in a quite significant manner
by the Congress Committee. Hence, already here at the Congress in
Kyoto, the following events have been organized jointly with Affiliated
Organizations:

- the Mini-Symposium “Structural Optimization” with ISSMO, and
- the Pre-nominated Sessions
  “Adaptive Hierarchical Modeling in Computational Mechanics” with
  IACM,
  “Computational Approaches to Turbulence and Hydrodynamic
  Stability” with IACM,
  “Plates and Shells” with IACM,
  “Contact and Friction Problems” with IAVSD, and
  “Magnetohydrodynamics” with HYDROMAG.

Here I have anticipated that the General Assembly will acclaim the
IUTAM affiliation of ISSMO (Int. Society for Structural and

Multidisciplinary Optimization) and approve the application of
HYDROMAG (Int. Association for Hydromagnetic Phenomena and
Applications) to be considered under Item 8 of the present Meeting.

9. The Congress Committee received in May very strong updates of the
erlier invitations/proposals from Chicago, Göttingen, Leeds and
Warsaw to host the 20th Congress in year 2000. The proposals were
presented by the potential hosts, and were compared and discussed in
great detail at the Meeting of the Congress Committee held Sunday
evening (25 August). The proposals will be finally discussed at the
Meeting of the Congress Committee to be held Thursday afternoon (29
August), where the final decision regarding the venue of the 20th
Congress will be taken. The Committee will welcome any viewpoints
from the General Assembly before this Meeting.

10. Mr. President, permit me finally to address the question of new
membership of the Congress Committee. A new procedure for
appointment of new members as set out on pages 91-92 of the IUTAM
1995 Report is to be followed, and the present membership is set out on
page 19. The terms of the following 12 members of the Congress
Committee expire in 1996: Profs. Boley, Charnyi, German, Hashin,
Hutchinson, Leibovich, Moffatt, Mróz, Olhoff, Tabarrok, van
Wijngaarden and Zemin Cheng. In addition, Prof. Karihaloo, who is no
longer in Australia, but appointed professor in Denmark, has offered to
relinquish his membership (valid up to 1998), if that would help ensure
continued Australian representation on the Congress Committee. At its
Meeting on Sunday evening, the Congress Committee agreed to
recommend to the General Assembly that decisions on these 13
potential vacancies be made as follows:

- A priori appointment (before voting) of the following 4 persons:
  Prof. P. Lugner (Austria) as a representative of IAVSD, Prof. J.R.A.
  Pearson (UK) as a representative of ICR, Prof. N. Olhoff (Denmark)
  as Secretary of the Congress Committee for the next 4-year period,
  and Prof. R.I. Tanner (Australia) in place of Prof. Karihaloo up to
  1998.

- Appointment of the remaining 9 members from the following slate of
  13 candidates: Profs. D. Bogey (USA), D. van Campen (The
  Netherlands), L.B. Freund (USA), L. Gary Leal (USA), R.I.
  Nigmatulin (Russia), R. Moreau (France), H.K. Moffatt (UK), P.A.
  Monkewitz (Switzerland), Z. Mróz (Poland), G.M.L. Gladwell
  (Canada), P. Suquet (France), L. van Wijngaarden (The
  Netherlands) and Fen-gan Zhuang (China).

Niels Olhoff

The report by the Secretary of the Congress Committee was unanimously
adopted. The list for the election of new members of the Congress Committee
was discussed. Result of the elections is noted under item 21. The President thanked Prof. N. Olhoff for his precise report.

Item 7. Adhering Organizations

7.1 Application for membership by Kazakhstan
The Kazakhstan National Committee of Theoretical and Applied Mechanics has applied for membership with IUTAM as an Adhering Organization in Category I. As a follow-up of the recommendation of the Bureau, the General Assembly has approved membership by acclamation. The entrance in the Report 96 is proposed as follows:
Kazakhstan (1996)
The Kazakhstan National Committee on Theoretical and Applied Mechanics, National Academy of Sciences of the Republic of Kazakhstan, Abai Avenue, 31, 480091 Almaty, Kazakhstan
Chairman: Prof. U.A. Joldasbekov
Secretary: A.A. Baimukhanetov
Representative: N.N.

7.2 Application for membership by Hong Kong
The National Committee of Theoretical and Applied Mechanics of Hong Kong has applied for membership with IUTAM as an Adhering Organization in Category I. With a letter of recommendation of the Chinese society mentioned and Prof. P. Tong (Hong Kong) present as an invited observer and upon recommendation of the Bureau, the General Assembly has approved membership by acclamation. The entrance in the Report 96 is proposed as follows:
Hong Kong (1996)
The Hong Kong Society of Theoretical and Applied Mechanics (HKSTAM), Department of Mathematics, H.K. University of Science & Technology, Clear Water Bay, Kowloon, Hong Kong
President: Prof. Din-Yu Hsieh
Vice-President: Prof. A.T. Chwang
Secretary: Prof. T.X. Yu
Representative: Prof. Pin Tong

7.3 Application for membership by Chile
The National Committee of Theoretical and Applied Mechanics of Chile has applied for membership with IUTAM as an Adhering Organization in Category I. As a follow-up of the recommendation of the Bureau, the General Assembly has approved membership by acclamation. The entrance in the Report 96 is proposed as follows:
Chile (1996)
The Chile National Committee on Theoretical and Applied Mechanics, Academia Chilena de Ciencias, Almirante Mont 454, Santiago, Chile

President: Prof. E. Tirapegui
Representative: Prof. F. Lund

7.4 Australia upgraded to category II commencing 1/1/1996 (approved at Bureau meeting, Vienna), approved by the General Assembly.
7.5 Ukraine membership finally approved commencing 1/1/1996 (Bureau meeting in Vienna), acclaimed by the General Assembly.
7.6 Response to UK freeze of fees (see Report 1995, p.78). General Assembly ordered the Bureau to file a letter clarifying the situation.
7.7 Romania (resumed payment of dues and has a representative: N.D. Cristescu), acclaimed by the General Assembly.

Item 8. Affiliated Organizations

8.1 Closer co-operation with affiliated organizations, discussion of Working Parties (see item 20)
With reference to p.90 of the annual Report 1995, the President proposed the establishment of 6 Working Parties in relation to the affiliated organizations ICR, IAVSD, ICF, ICM, IACM and HYDROMAG. Titles and members have been made visible by viewgraphs and put to a decisive vote under item 20 in the second session.

8.2 CISM (more use to be made of CISM for IUTAM Symposia in Europe)
A leaflet was made available at the General Assembly. See also items 14 and 18 for future IUTAM summer schools.

8.3 IUTAM /IACM Joint Congress (result of discussion at Bureau meeting, Vienna)
Reference was made to pp. 80 and 111 of the annual Report 1995. For a working party with IAMC see item 20.

8.4 ISSMO Affiliation was approved at the Bureau meeting, Vienna, commencing 1/1/1996.
G. Rozvany will represent ISSMO in IUTAM and N. Olhoff will represent IUTAM in ISSMO. Acclaimed by the General Assembly.

8.5 Application for membership from the International Institute of Acoustics and Vibration (IIAV)
On p. 85 of the annual Report 1995 the following paragraph is printed as the outcome of the Bureau-meeting in Vienna 1995 where that single application was at hands:
"(8) Application for membership of the International Institute of Acoustics and Vibration (IIAV) No objections were raised concerning this application although worries were voiced concerning internal problems between different groups in acoustics. Following a letter of recommendation that was received from Sir James Lighthill (the President of IIAV), announcing a forthcoming application and asking
for a positive stand, such a formal application including the Statutes has been received, signed by the Executive Director, Dr M.J. Crocker, Auburn, USA. In addition a three volume Proceedings of the Third International Congress on Air- and Structure-Borne Sound and Vibration, June 13-15, Montreal, Canada, edited by M.J. Crocker, was available and illustrated the high scientific level of that part of acoustics related to the fields represented in IUTAM. Professor Ziegler supported the application and the Bureau took a positive stand and proposes affiliation to the forthcoming General Assembly.”

Under item 3.7, the Bureau in its first meeting in Kyoto 1996 was confronted with two more, recently received, applications for affiliated membership by ICA (a sub committee of IUPAP) and I-INCE, the International Commission on Acoustics. Prof. S. Crandall, the new IUTAM representative to ICA, presented a short statement and a report to the Bureau.

The General Assembly agreed to discuss the applications of all three acoustic bodies in the first session and to make the final decision in the course of the second session.

First Session:
Professor Stephen Crandall, representing IUTAM in ICA, and thus present in the GA meeting as an invited observer reports on recent developments in ICA. In particular he mentions the wish of ICA to evolve towards an independent organization (at present ICA is a subcommittee of IUPAP). Prof. Crandall tells that in this connection and also in the light of the recent application of IIAV for affiliation with IUTAM also ICA seeks affiliation with IUTAM. He stresses the strong connections of ICA with Mechanics. The President thanks Prof. Crandall for his Report. In the GA meeting in Amsterdam (1994) Sir James Lighthill has announced the application of the IIAV for affiliation to IUTAM. Such an application has been received indeed and has been discussed in the Bureau Meeting in Vienna (1995), see the 1995 Report, page 85. The Bureau then took a positive stand, although (quoting the minutes “worries were voiced concerning internal problems between different groups in acoustics”)—just very recently, in fact a few weeks ago, applications for affiliation to IUTAM have been received from two other organizations active in the field of acoustics. These are the International Institute of Noise Control Engineering (I-INCE) and the International Commission on Acoustics (ICA), already mentioned by Professor Crandall. The documents pertaining to the latter two applications came so late that it was not possible to include these in the files of members of the GA of IUTAM for the present meeting. Sir James Lighthill emphasizes the close connection between IIAV and Mechanics and advises the GA to affiliate IIAV now, thereby reminding

the Bureau and the GA of the positive stand of the Bureau at Vienna (see above). The President acknowledges the point of view taken by the Bureau in Vienna, but adds immediately to this that the recent applications for affiliation by I-INCE and ICA have changed this in so far that further reflection on the whole issue of acoustics is needed. Taking also into account that members of the GA have, as yet, not been able to study the applications of I-INCE and ICA, the President proposes to postpone a decision on any of the three applications until the next meeting of the GA in 1998. Sir James Lighthill strongly opposes such a postponement, as far as IIAV is concerned. Professor M.J. Crocker present in the GA meeting as an invited observer on behalf of IIAV expresses briefly the aims and means of IIAV and expresses the hope that the GA of IUTAM will affiliate IIAV without further delay.

Second Session (Wednesday 28 August):
Various opinions are expressed regarding the applications for affiliation by IIAV, ICA and I-INCE. Prof. Niorstsen and Prof. Hodge propose to postpone a decision to the meeting of the GA in 1998. Prof. Mikhailov proposes to affiliate all three organizations in the present meeting. Sir James Lighthill has another suggestion: Let the GA delegate a decision regarding the affiliation of all three, viz. IIAV, I-INCE and ICA, to the Bureau, a decision to be taken as soon as possible, but in any case well before the General Assembly of IIAV takes place in December 1997.

Taking into account all these advises the President proposes the following to the GA: With a view to what has already been said regarding IIAV in previous meetings of Bureau and GA, the applications of IIAV on one hand and I-INCE and ICA on the other can not be dealt with in the same way. The applications of the latter two, I-INCE and ICA, being made only very recently, ask a longer time than that of IIAV. The President advises the GA to take as decision in this matter:

“The GA welcomes the application for affiliation of ICA and I-INCE, but since its members have not been able to study the relevant documents a decision will be postponed to the meeting of the GA in 1998. With regard to the application for affiliation by the IIAV, the GA delegates to the Bureau to take a decision, at its earliest convenience.”

By raising of hands, a majority of the GA shows itself to support this view and hence the GA decided accordingly.

On the request of Professor Crandall, the President repeated the part concerning ICA and I-INCE, viz. a postponement of the decision to the meeting of the GA in Stuttgart 1998.

Application for membership from the International Association for Hydromagnetic Phenomena and Applications (HYDROMAG). Formerly known as LMMHD & EP.

The General Assembly followed the proposal of the Bureau, see p. 85 of
the annual Report 1995, and accepted the application of HYDROMAG to become an affiliated organization. The entrance in the Report 96 is proposed as follows:

**HYDROMAG (1996)**

International Association for Hydromagnetic Phenomena and Applications, Prof. S. Asai, Dept. of Materials Sciences, University of Nagoya, Furo-chō, Chikusa-ku, Nagoya 464-0, Japan
President: Prof. R. Moreau
Vice Presidents: Prof. S. Asai, Prof. H. Branover, Prof. Charles
Secretary General: Prof. S. Asai
Representative: Prof. R. Moreau
Representative of IUTAM in HYDROMAG: Prof. H.K. Moffatt
For a working party in connection with HYDROMAG see item 20.

8.7 ICF: L.B. Leblond replaced J. Hult as the IUTAM representative in ICF from 31/3/1996
For a working party in connection with ICF see item 20

8.8 CACOFD: G. Shrivastava replaced H. Ramkissoon as the CACOFD representative in IUTAM

8.9 IABEM: F. Ziegler replaced C. Polizotto as the IABEM representative in IUTAM

**Item 9. Inter-Union Committees and Commissions**

9.1 International Decade for Natural Disaster Reduction (IDNDR)
IUTAM contributed at the 19th ICTAM by choosing relevant thematic for the opening and closing lectures.

9.2 International Commission On Acoustics (A sub-committee of IUPAP, ICA) Brief report by Prof. Stephen Crandall, the new IUTAM-Representative to ICA see item 5.

**Item 10. Matters concerning ICSU**

10.1 Report by Prof. W. Schiehlein, see item 5

10.2 CODATA: L.B. Freund replaced D. Drucker as the representative of IUTAM from 1/1/1996, see item 5

10.3 Matters related to IDNDR, see items 5 and 9.1.

**Item 11. Proposal of the Electoral Committee regarding election of the Bureau of IUTAM**

In the circular letter GA-154 sent to all members of the General Assembly on 17 May 1996, one paragraph reads,

"Bureau Elections: I include a confidential copy of the Electoral Committee's "Nominations for Candidates for Election to the Bureau" according to the IUTAM Statutes, Item 3, p.154 of the IUTAM 1995 Report (item 11 of the Agenda)."

The Chairman of the Electoral Committee, Professor L. van Wijngaarden, reported on the work of the Committee (consisting apart from himself of the GA members Professors P.G. Hodge (USA), I. Inui (Japan), F.I. Niordson (Denmark) and H. Zorski (Poland)) and presented the nominations according to the letter of 9 May 1996, with copies enclosed in the circular GA-154. He acknowledged some 60 nominating letters he has received from members of the General Assembly. The nominations made among others on basis of these proposals but also taking into account spreading over the globe and over fields of endeavor are as follows (also made visible to the General Assembly by a viewgraph)

F. W. Schiehlein (Germany)
S. M.A. Hayes (Ireland)
T. L.B. Freund (USA)
W. K.V. Frolov (Russia) and J. Engelsbrecht (Estonia)
X. T. Tatsumi (Japan)
Y. H.K. Moffatt (UK)
Z. Ren Wang (China) and R. Moreau (France)

The Secretary-General F. Ziegler has received these nominations by the Electoral Committee in time and no further nominations were made. Since no proposals of additional candidates of the positions P, S, T, W, X, Y, Z were made by members of the General Assembly during this first session, the Chairman pointed out that the nominations for each of the positions will be put to a separate vote in the second session of the General Assembly under item 23.

**Item 12. Publication of Proceedings of IUTAM Symposia**

The agreement by and between IUTAM and Kluwer Academic Publisher which became effective 1 January 1996 is printed on pp. 138-141 of the annual Report 1995. The General Assembly stands behind the obligatory publication of Proceedings of IUTAM Symposia. (See also the Report by the Secretary General F. Ziegler, item 2).

**Item 13. Preliminary discussion on the election of Members-at-Large of the General Assembly**

All proposals have been received in time by the Bureau. However, due to lack of time, the proposals were not orderly circulated within the first session of the General Assembly. The Bureau apologizes to the General Assembly. See item 22 for the final decisions taken.

**Item 14. Preliminary discussion on future International Summerschools on Mechanics**


Following the procedure proposed by Professor Tabarrok and adopted at the General Assembly in Haifa, the proposal was submitted to the
Symposia Panels for a rating. It received an a-rating. See item 18.

A second proposal was received in the course of the first session of the
Bureau in Kyoto and is recommended for approval by the General
Assembly. It is related to the HYDROMAG. See item 18

Item 15. Preliminary discussion on future IUTAM Symposia (22 proposals for
A total of 22 proposals were received for 1998/99 and one for the year 2000
and scanned by the two Symposia Panels. All proposals and the preliminary
reports of the Panels have been sent to the members of the General Assembly.
During a joint meeting of the two panels in Kyoto on 25 August 1996 the
proposals had been grouped into three categories according to the system used
since 1978. The Panel Chairmen reported as follows:

EVALUATION of the PROPOSED IUTAM SOLID MECHANICS
SYMPOSIAS by the SOLID MECHANICS PANEL, report by the Chairman
Prof. J. Salencon:

<table>
<thead>
<tr>
<th>SYMP NUMBER</th>
<th>TITLE</th>
<th>LOCATION</th>
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<tbody>
<tr>
<td>98-1</td>
<td>Nonlinearity and Stochastic Structural</td>
<td>Madras,</td>
<td>beta</td>
</tr>
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<td></td>
<td>Dynamics</td>
<td>INDIA</td>
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<td>98-2</td>
<td>Nonlinear Waves in Solids</td>
<td>Moscow,</td>
<td>beta</td>
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<td>RUSSIA</td>
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<td>98-3</td>
<td>Recent Trends in High Speed Rotor</td>
<td>Madras,</td>
<td>beta</td>
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<td>Dynamics</td>
<td>INDIA</td>
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<tr>
<td>98-4</td>
<td>Recent Developments in Nonlinear</td>
<td>Hanoi,</td>
<td>gamma</td>
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<td></td>
<td>Oscillations of Mechanical Systems</td>
<td>VIETNAM</td>
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<tr>
<td>98-6</td>
<td>Segregation in Granular Flows,</td>
<td>Albuquerque,</td>
<td>alpha</td>
</tr>
<tr>
<td></td>
<td>see also F-Mechanics</td>
<td>USA</td>
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<tr>
<td>98-7</td>
<td>Unilateral Multibody Dynamics</td>
<td>Munich,</td>
<td>alpha</td>
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<td></td>
<td></td>
<td>GERMANY</td>
<td></td>
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<tr>
<td>98-10</td>
<td>Theoretical and Numerical Methods in</td>
<td>Stuttgart,</td>
<td>alpha</td>
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<tr>
<td></td>
<td>Continuum Mechanics of Porous Media</td>
<td>GERMANY</td>
<td></td>
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<tr>
<td>98-11</td>
<td>Advanced Optical Methods and Applications</td>
<td>Poitiers,</td>
<td>alpha</td>
</tr>
<tr>
<td></td>
<td>in Solid Mechanics</td>
<td>FRANCE</td>
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<tr>
<td>98-12</td>
<td>Synthesis in Bio Solid Mechanics</td>
<td>Lyngby,</td>
<td>alpha</td>
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<td>DENMARK</td>
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<td>98-13</td>
<td>Deployable Structures: Theory and</td>
<td>Cambridge,</td>
<td>alpha</td>
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<tr>
<td></td>
<td>Applications</td>
<td>UK</td>
<td></td>
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<tr>
<td>98-15</td>
<td>Synthesis of Nonlinear Dynamic Systems,</td>
<td>Riga,</td>
<td>beta</td>
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<td></td>
<td>IFToMM supported</td>
<td>LATVIA</td>
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<tr>
<td>98-17</td>
<td>Functional Series in Nonlinear Dynamics</td>
<td>Sheffield,</td>
<td>gamma</td>
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<td></td>
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<td>UK</td>
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EVALUATION of the PROPOSED IUTAM FLUID MECHANICS
SYMPOSIAS by the FLUID MECHANICS PANEL, report by the Chairman
Prof. A. Acirivos:

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<tr>
<th>SYMP NUMBER</th>
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<tr>
<td>98-5</td>
<td>Nonlinear Wave Behaviour in Multi-Phase</td>
<td>Notre Dame,</td>
<td>alpha</td>
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<td></td>
<td>Flow</td>
<td>Indiana, USA</td>
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<td>98-6</td>
<td>Segregation in Granular Flows</td>
<td>Albuquerque,</td>
<td>alpha</td>
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<td></td>
<td></td>
<td>USA</td>
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<tr>
<td>98-7</td>
<td>Geophysical Turbulence</td>
<td>Boulder,</td>
<td>alpha</td>
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<td>Colorado, USA</td>
<td>alpha</td>
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<tr>
<td>98-8</td>
<td>Laminar-Turbulent Transition</td>
<td>Arizona,</td>
<td>alpha</td>
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<td>USA</td>
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<tr>
<td>98-14</td>
<td>Three Dimensional Aspects of Air-Sea</td>
<td>Nice,</td>
<td>beta</td>
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<td></td>
<td>Interaction</td>
<td>France</td>
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<td>98-16</td>
<td>Turbulence in Compressible Flows</td>
<td>Poitiers,</td>
<td>beta</td>
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<td>France</td>
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<tr>
<td>98-18</td>
<td>Mechanics of Passive and Active Flow</td>
<td>Göttingen,</td>
<td>alpha</td>
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<td></td>
<td>Control</td>
<td>Germany</td>
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<tr>
<td>99-2</td>
<td>Geometry and Statistics of Turbulence</td>
<td>Tokyo,</td>
<td>alpha</td>
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<td></td>
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<td>Japan</td>
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<tr>
<td>Summer '98</td>
<td>Advanced Turbulent Flow</td>
<td>CISM, Udine,</td>
<td>alpha</td>
</tr>
<tr>
<td>School '98</td>
<td>Computations</td>
<td>Italy</td>
<td></td>
</tr>
<tr>
<td>Summer '99</td>
<td>Liquid-Metal MHD, proposal</td>
<td>CISM, Udine,</td>
<td>alpha</td>
</tr>
<tr>
<td>School '99</td>
<td>added at session, late proposal</td>
<td>Italy</td>
<td></td>
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</tbody>
</table>

Alpha rating indicates that they are highly recommended, beta rating indicates
that they need further discussion and gamma rating indicates that they should
not be accepted.

During the preliminary discussions the proposal 98-4 was preserved for a
final decision under item 17 and thus moved to grade beta. The proposal 98-17
was agreed upon to be deleted.

The President, Professor L. van Wijngaarden pointed out that up to 18 symposia may be accepted for the years 1998/99. He expressed the appreciation of the General Assembly for scanning of the proposals by the two Panels and their Chairman. It was agreed that the final decision on future IUTAM Symposia rated alpha and beta (including 98-4) would be made in the second session under item 17.

**Item 16. Any other business**

16.1 IUTAM in developing countries, Prof. R. Narasimha.

Address postponed to second session.

Discussions and decisions on several Items were postponed to the meeting on Wednesday. However, the order of the Agenda is kept in these minutes for convenience.

The meeting then adjourned at 22.40 hours. The meeting reconvened on Wednesday 28 August 1996.

### Second Session

**Wednesday 28 August 1996 at 14.00 hours, Room A, KIC**

17. Continued discussion and final decision regarding future IUTAM Symposia

18. Continued discussion and final decision on International Summer Schools on Mechanics

19. Continued discussion and final decision regarding annual dues

20. Appointment of members of the Working Parties

21. Appointment of members of the Congress Committee

22. Election of members-at-large of the General Assembly

23. Election of officers and all members of the Bureau

24. Election of members of Symposia Panels

25. Date and venue of the next General Assembly, 1998

26. Any other business

26.1 Decisions taken with respect to item number 16.1.

The order of the items has been rescheduled as follows: 17, 18, 19, 8.5, 21, 22, 20, – Short Break –, 23, 24, 25, 16.1, 26 The decisions regarding IIAV, ICA and I-INCE have been described already in the report on the First Session.

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**Proceedings of the General Assembly, Second Session**

**Item 17. Continued discussion and final decision regarding future IUTAM Symposia**

From the 22 proposals for the years 1998/99, the following 18 were accepted by secret ballot by the General Assembly following an extensive discussion and taking into account the carefully prepared rating by the Symposia Panels: The Bureau in its third meeting in Kyoto on Saturday 31 August 1996 decided on the Scientific Committees. For sake of convenience the decisions are reported at once. Numbering is tentative and will be changed according to the chronological order later when the dates (firstly proposed by the chairman and secondly approved by the Bureau) are assigned. See also the Newsletter N-22. Address corrections are requested at the IUTAM office in Vienna, or, after 1 November 1996, at Dublin.

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<tr>
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<tr>
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<td>Nonlinearity and Stochastic Structural Dynamics</td>
<td>Madras, INDIA</td>
</tr>
<tr>
<td>98-4</td>
<td>Recent Developments in Nonlinear Oscillations of Mechanical Systems</td>
<td>Hanoi, VIETNAM</td>
</tr>
<tr>
<td>98-5</td>
<td>Nonlinear Wave Behaviour in Multi-Phase Flow</td>
<td>Notre Dame, Indiana, USA</td>
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<td>98-6</td>
<td>Segregation in Granular Flows</td>
<td>Albuquerque, USA</td>
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<td>Geophysical Turbulence</td>
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<td>Laminar-Turbulent Transition</td>
<td>Arizona, USA</td>
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<tr>
<td>98-9</td>
<td>Unilateral Multibody Dynamics</td>
<td>Munich, GERMANY</td>
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<tr>
<td>98-10</td>
<td>Theoretical and Numerical Methods in Continuum Mechanics of Porous Media</td>
<td>Stuttgart, GERMANY</td>
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<td>Advanced Optical Methods and Applications in Solid Mechanics</td>
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<tr>
<td>98-15</td>
<td>Synthesis of Nonlinear Dynamic Systems, IFToMM supported</td>
<td>Riga, LATVIA</td>
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</tbody>
</table>
As indicated, the General Assembly, by an overwhelming vote, saved the symposia numbered 98-1, 98-4, 98-13, 98-15, 99-1, 98-8 and 99-2. The Bureau, during its third session in Kyoto, assigned the following members of the Scientific Committees. However, please note that the listing is still preliminary since the members have not been contacted yet.

98-1 (99-xx) IUTAM Symposium on Nonlinearity and Stochastic Structural Dynamics
Place: Madras, India
Date: 1998, preferend date in 1999

Chairmen:
Professor S. Narayanan
Dept. of Applied Mechanics
I.I.T.
Madras, India

Professor R.N. Iyengar
Central Building Research Institute
Roorkee 247 667, India
Fax: +91 1332 722722 / 72543
Phone: +91 1332 72243

Scientific Committee:
Professor S.T. Ariaratnam
University of Waterloo
Faculty of Engineering
Solid Mechanics Division
Waterloo, ONTARIO N2L 3G1
CANADA
Fax: +1 519 888 6197
98-4 (99-xx) IUTAM Symposium on Recent Developments in Nonlinear Oscillations of Mechanical Systems

Place: Vietnamese Association of Mechanics, (VAM)
Date: 1998 possibly moved to 1999

Chairmen: Professor Nguyen Van Dao
Vietnam National University
19 Le Thanh Tong
Hanoi, Vietnam
Fax: +84 4 245507

Professor Dr.-Ing. E.J. Kreuzer
Arbeitsbereich Meerestechnik II
TU-Hamburg-Harburg
Eißendorfer Straße 42
D-21071 HAMBURG, DEUTSCHLAND
Fax: +49 40 77182028

Scientific Committee: Professor Dr. D.H. van Campen
Dept. of Mechanical Engineering
University of Technology
Den Dolech 2
P.O. Box 513, W-hoog 0.144
NL-5600 MB EINDHOVEN
THE NETHERLANDS
Fax: +31 40 447355

Professor Dr. F.L. Chernousko
Institute for Problems in Mechanics
Russian Academy of Sciences
Vernadskogo Prospekt 101
MOSCOW 117526, RUSSIA
Fax: +7 095 938 2048

Professor A.H. Nayfeh
Virginia Polytechnic Institute
and State University
Dept. of Engrg. Science and Mechanics
113A Burruss Hall
BLACKSBURG, VA 24061-0219
USA
Fax: +1 540 231 4574

98-5 (99-xx) IUTAM Symposium on Nonlinear Wave Behaviour in Multi-Phase Flow

Place: University of Notre Dame, Indiana, USA
Date: 1999, preferred

Chairman: Professor H.-C. Chang
University of Notre Dame
Dept. of Chemical Engineering
Notre Dame, IN 46556, USA
Fax: +1 219 631 8366

Scientific Committee: Professor A. Crespo
Catedra de Mecánica de Fluidos
E.T.S. Ingenieros Industriales
U.P.M.
Cl. José Gutierrez Abascal 2
E-28006 Madrid, Spain
Professor Jean Fabre
Institut de Mécanique de Fluides
Inst. Nat. Polytechnique
2, Rue Camichel
All. du Professeur Camille Soulé
F-31400 Toulouse Cedex, France
Fax: +33 61 28 58 99

Professor J. Gollub
Dept. of Physics
University of Pennsylvania &
Haverford College
Haverford PA 19041, USA

Professor T.J. Hanratty
Chemical Engineering
University of Illinois
205 RAL, Box C-3
1209 W. California Street
Urbana IL 61801, USA

Professor R.S. MacKay
Dept. of Applied Mathematics
& Theoretical Physics
University of Cambridge
Silver Street
Cambridge CB3 9EW, UK

Professor M.J. McCready
Dept. of Chemical Engrg.
University of Notre Dame
Notre Dame IN 46556, USA

Professor R.I. Nigmatulin
Russian Academy of Sciences
Siberian Branch
TIMMS
Michurinsky pr.1 Inst. of Mechanics
Lomonosov University of Moscow
Moscow GSP V-192, 119899-Russia

Professor G.I. Sivashinsky
Dept. of Mathematical Sciences
Tel-Aviv University
Ramat-Aviv
TEL-AVIV 69978, Israel

Professor L. van Wijngaarden (ex officio)
University Twente
P.O. Box 217
NL-7500 AE Enschede
THE NETHERLANDS
Fax: (+31) 53 489-3663

98-6 IUTAM Symposium on Segregation in Granular Flows

Place: Albuquerque, NM, USA
Date: 1998

Chairman: Professor A.D. Rosato
Mechanical Engrg. Dept.
New Jersey Institute of Technology
University Heights
Newark, NJ 07102, USA
Fax: +1 201 642 4282

Scientific Committee:
Professor J.-L. Auriault
Laboratoire Sols, Solides, Structures
Universite Joseph Fourier Grenoble 1
B.P. 53 X
F-38041 GRENOBLE CEDEX 9
FRANCE

Professor H.W. Buggisch
Inst. f. Mechanische
Verfahrenstechnik u. Mechanik
Universität Karlsruhe (TH)
Am Fasanengarten
Postfach 6380
D-76128 KARLSRUHE, Germany
Fax: +49 721 6083758

Professor R. Jackson
Princeton University
Chemical Engrg. Dept.
98-7 IUTAM/IUGG Symposium on Developments in Geophysical Turbulence

Place: National Center for Atmospheric Research, Boulder, USA
Date: 1998

Chairmen: Professor R.M. Kerr
National Center for Atmospheric Research
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98-8 (99-xx) IUTAM Symposium on Laminar-Turbulent Transition

Place: Arizona, USA
Date: 1999 preferred (5 years)

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98-9 IUTAM Symposium on Unilateral Multibody Dynamics

Place: Munich, Germany
Date: 1998

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98-10 (99-xx) IUTAM Symposium on Theoretical and Numerical Methods  
in Continuum Mechanics of Porous Materials

Place:  
University of Stuttgart, Germany

Date:  
1999

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98-11 IUTAM Symposium on Advanced Optical Methods and Applications in Solid Mechanics

Place: Poitiers, France
Date: 1998

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98-12 IUTAM Symposium on Synthesis in Bio Solid Mechanics

Place: Lyngby, Denmark
Date: 1998

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98-13 IUTAM/IASS Symposium on Deployable Structures: Theory and Applications

Place: University of Cambridge, UK
Date: 1998

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98-14 IUTAM/ISIMM Symposium on Three-Dimensional Aspects of Air-Sea Interaction

Place: Nice, France
Date: 1998

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Place: Riga Technical University, Latvia
Date: 1998

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98-18 IUTAM Symposium on Mechanics of Passive and Active Flow Control

Place:
Göttingen, Germany

Date:
1998

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99-1 IUTAM/IACM/IABEM Symposium on Advanced Mathematical and Computational Mechanics Aspects of the Boundary Element Method

Place: Silesian Technical University of Gliwice, Poland
Date: 1999

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99-2 IUTAM Symposium on Geometry and Statistics of Turbulence

Place: Tokyo, Japan
Date: 1999

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99-3 IUTAM Symposium on Scaling Laws in Sea Ice Mechanics and Sea Ice Dynamics

Place: Potsdam, NY, USA
Date: 1999

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99-4 IUTAM Symposium on Mechanical and Electromagnetic Waves in Structured Media

Place: Sydney, Australia
Date: 1999

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The following proposals were not accepted for the period 1998/99:

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<tr>
<th>SYMP NUMBER</th>
<th>TITLE</th>
<th>LOCATION</th>
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<td>Recent Trends in High Speed Rotor Dynamics</td>
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<td>beta</td>
</tr>
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<td>98-16</td>
<td>Turbulence in Compressible Flows</td>
<td>Poitiers, France</td>
<td>beta</td>
</tr>
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<td>Functional Series in Nonlinear Dynamics</td>
<td>Sheffield, UK</td>
<td>gamma</td>
</tr>
</tbody>
</table>

Items 18 and 19.

**Item 18. Continued discussion and final decision on International Summer School on Mechanics**

The proposal for an IUTAM Summer School in 1998 on *Advanced Turbulent Flow Computations*, originally submitted by Prof. E. Krause (Aachen, Germany) and Prof. R. Peyret to the Scientific Council of CISM on 24 May 1996 and forwarded to IUTAM on 26 July 1996 was rated alpha by the symposia panel and accepted by acclamation by the General Assembly. The second (and late) proposal of an IUTAM Summer School on *Liquid-Metal MHD*, submitted by P.A. Davidson (Cambridge, UK) and A. Thess (Dresden, Germany) for the year 1999 was recommended to the General Assembly by the Bureau and also accepted by acclamation. Announcements will be included in the Newsletter N-22.

**Item 19. Continued discussion and final decision regarding annual dues**

The Bureau has been asked to look into the financial developments and to find means to stabilize the budget. Following the proposal made by the Treasurer, Professor B.A. Boley, see Items 3 and 4, the General Assembly decided the following amounts for the units of dues after being informed about the OECD-index of about 4.2% (excluding Turkey): The proposed increase amounts to 2.5% which is far below this average index,

- 580 US$ in 1998,
- 594 US$ in 1999,

or 587 US$ for 1998 and 1999 for those members who prefer to pay equal amounts in each of these two years. The UK delegation voted against this slight increase of dues.

**Item 20. Appointment of members of the Working Parties**

The following Working Parties together with their members have been proposed to the General Assembly and finally unanimously approved by a vote for the four year period 1996–2000:

WP2–Dynamic Systems (IAPSD) – W. Schiehlen (IUTAM), R.S. Sharp (IAPSD), Masato Abe, K. Hedrick and H. True
WP3–Fracture Mechanics and Damage (ICF) – J.B. Leblond (IUTAM), T. Yokobori (ICF), D. Hayhurst (UK), D. Krajcinovic (USA), J. Lemaître (France)
WP4–Mechanics of Materials (ICM) – S.R. Bodner (IUTAM), T. Inoue (ICM), A. Bakker (Netherlands), F. Ellyin (Canada), M. Jono (Japan) and Y.-W.
Mai (Australia)
WP5—Electromagnetic Processing (HYDROMAG) — H.K. Moffatt (IUTAM), R. Moreau (HYDROMAG), S. Asai (Japan), N. El-Kaddah (USA), R.E. Rosensweig (USA)
WP6—Computational Mechanics (IACM) — E.R. de Arantes e Oliveira (IUTAM), J.T. Oden (IACM), H. Mang (Austria), T. Belytschko (USA), P. Ladevéze

Reports of the Working Parties are expected by the General Assembly at least once in each four year period with perhaps one interim report (see p. 91 of the annual Report 1995).

Note added: WP4 plans to organize an IUTAM sponsored symposium and has announced a proposal. Such a proposal should be submitted early 1998.

Item 21. Appointment of members of the Congress Committee
Following the recommendations of the Congress Committee, the General Assembly reappointed for a second term (1996-2000), (i)
(i) Profs. H. Aref (USA, 20th ICTAM), S. Bodner (Israel, member XCC), J. Engelbrecht (Estonia), B. Lundberg (Sweden, EUROMECH), G.E.A. Meier (Germany), T.J. Pedley (UK), M. Sayir (Switzerland), T. Tatsumi (Japan)

and appointed apriori (ii),
(ii) Prof. P. Lugner (Austria), representative of IAVSD, Dr. J.R.A. Pearson (UK, representative of ICR), Prof. R.I. Tanner (Australia, for a two year period, 1996-1998; replacing Prof. B.L. Karihaloo) and Prof. N. Olhoff (Denmark, Secretary of CC).

From a slate of 13 candidates (also made visible by a viewgraph) nine are to be appointed:
Slate: Profs. D. Bogy (USA), D. van Campen (Netherlands), L.B. Freund (USA), G.M.L. Gladwell (Canada), L.G. Leal (USA), H.K. Moffatt (UK), P.A. Monkewitz (Switzerland), R. Moreau (France), Z. Mróz (Poland), R.I. Nigmatulin (Russia), P. Suquet (France), L. van Wijngaarden (Netherlands, Fen-gan Zhuang (China)

The nine members of CC appointed by secret ballot are (iii):
(iii) Profs. D. Bogy (USA), L.B. Freund (USA), G.M.L. Gladwell (Canada), H.K. Moffatt (UK), R. Moreau (France), R.I. Nigmatulin (Russia), P. Suquet (France), L. van Wijngaarden (Netherlands, Fen-gan Zhuang (China)

The President expressed his thanks to the following for their devoted service to the Congress Committee: Profs. B.A. Boley (USA), G.G. Chernyi (Russia), P. Germain (France), Z. Hashin (Israel), J.W. Hutchinson (USA), B.L. Karihaloo (former Australia, Denmark), S. Leibovich (USA), Z. Mróz

(Poland), B. Tabarrok (Canada), and Zemin M. Zheng (China). The new membership of the Congress Committee is recorded in the following table:

Members of the Congress Committee
* Prof. A. Acrihos (USA) 1998
Prof. H. Aref (USA) 2000
* Prof. S.R. Bodner (Israel) 2000
Prof. D. Bogy (USA) 2000
Prof. C.R. Calladine (UK) 1998
Prof. C. Cercignani (Italy) 1998
Prof. J. Engelbrecht (Estonia) 2000
Prof. L.B. Freund (USA) 2000
Prof. G.M.L. Gladwell (Canada),
Prof. M.A. Hayes (Ireland) 1998, Rep. of ISIMM
Prof. N.J. Hoff (USA)
Prof. T. Inoue (Japan) 1998, Rep. of ICM
Prof. J. Jimenez (Spain) 1998
* Prof. S. Kaliszky (Hungary) 1998
Prof. A.N. Kounadis (Greece) 1998
Prof. F.H. Ku (USA)
Prof. P. Lugner (Austria) 2000, Rep. of IAVSD
Prof. B. Lundberg (Sweden) 2000
Prof. G.E.A. Meier (Germany) 2000
* Prof. H.K. Moffatt (UK) 2000
Prof. R. Moreau (France) 2000
Prof. B.C. Nakra (India) 1998
Prof. R.I. Nigmatulin (Russia) 2000
Prof. J.T. Oden (USA) 1998, Rep. of IACM
* Prof. N. Olhoff, Secretary (Denmark) 2000
Dr. J.R.A. Pearson (UK) 2000, Rep. of ICR
Prof. T.J. Pedley (UK) 2000
Prof. M. Sayir (Switzerland) 2000
* Prof. W. Schiehlen, Chairman (Germany) 2000
Prof. P. Suquet (France) 2000
Prof. R.I. Tanner (Australia) 1998
Prof. T. Tatsumi (Japan) 2000
Prof. Ren Wang (China) 1998
Prof. L. van Wijngaarden (The Netherlands) 2000
Prof. Fen-Gan Zhuang (China) 2000
Prof. F. Ziegler (Austria) 1998

* Members of Executive Committee (1996-2000)
Year, where stated, indicates end of term (applies to members elected after 1972).
**Item 22. Election of members-at-large of the General Assembly**

All elected members and members-at-large of the General Assembly were reelected for the period 1996 through 2000. In addition, the General Assembly elected for the same period Professor Paul Germain (France) as member-at-large.

**Item 23. Election of officers and all members of the Bureau**

The General Assembly agreed to vote by secret ballot only on the positions P, and Z of the proposal of the electoral committee:

- P. W. Schiehlen (Germany)
- S. M.A. Hayes (Ireland)
- T. L.B. Freund (USA)
- W. K.V. Frolov (Russia) and J. Engelbrecht (Estonia)
- X. T. Tatsumi (Japan)
- Y. H.K. Moffatt (UK)
- Z. Ren Wang (China) and R. Moreau (France)

Election of officers:

Position P: Professor W. Schiehlen (Germany) was elected President for the period 1996-2000 by raising hands.

Position S: Professor M.A. Hayes (Ireland) was elected Secretary General for the period 1996-2000 by raising hands.

Position T: Professor L.B. Freund (USA) was elected Treasurer for the period 1996-2000 by raising hands.

Election of members:

Position X: Professor T. Tatsumi (Japan) was reelected Member for the period 1996-2000 by raising hands.

Position Y: Professor H.K. Moffatt (UK) was reelected Member for the period 1996-2000 by raising hands.

In secret ballot,

Position W: Professor J. Engelbrecht (Estonia) was elected Member for the period 1996-2000 with the majority of votes.

Position Z: Professor Ren Wang (China) was elected Member for the period 1996-2000 with the majority of votes.

**Item 24. Election of members of Symposia Panels**

The members of the Solid Mechanics Panel have all been re-elected for the period 1996-2000 following an address of Prof. J. Salençon to the General Assembly. The Fluid Mechanics Panel has been changed: Prof. H.K. Moffatt and Prof. K. Gersten resigned after having served two terms. The new members are (the General Assembly delegated the appointments to the Bureau for its 3rd session on Saturday, 31 August 1996):

- Prof. Patrick Huerre, Dept. de Mecanique, Ecole Polytechnique-CNRS, F-91128 Palaiseau Cedex, France, and Prof. E. Krause, Aerodyn. Institut, RWTH Aachen, Wulfferstraße 5-7, D-52062 Aachen, Germany, fax: +49 241 8888257.

In the annual Report 1996, the Panels will be listed accordingly:

**Fluid Mechanics**
- Prof. A. Acrivos (USA), Chairman
- Prof. Patrick Huerre (France)
- Prof. E. Krause (Germany)
- Prof. R. Narasimha (India)
- Prof. T. Tatsumi (Japan)

**Solid Mechanics**
- Prof. J. Salençon (France), Chairman
- Prof. J.D. Achenbach (USA)
- Prof. G. Maier (Italy)
- Prof. K. Sobczyk (Poland)
- Prof. B. Storakers (Sweden)

The President thanked Prof. H.K. Moffatt and Prof. K. Gersten for their devoted work on the IUTAM Fluid Mechanics Panel.

**Item 25. Date and venue of the next General Assembly**

On invitation by Professor W. Schiehlen, IUTAM-President elect, the General Assembly decided to hold its next meeting on 29 and 30 August 1998 in Stuttgart, Germany.

**Item 26. Any other business**

Item 26.1 Decisions taken with respect to item number 16.1.

16.1 IUTAM and developing countries - Prof. R. Narasimha.

Prof. R. Narasimha addressed the General Assembly and handed out a short form of his speech:

**IUTAM AND DEVELOPING COUNTRIES**

COSTED Rep., pp. 134-135

1985-95: 81 IUTAM Symposia, of which only 6 were held in developing countries (Brazil, China (Beijing), India, China (Taipei))

IF IUTAM is "to promote development of mechanics, both theoretical and applied, as a branch of science" in ALL MEMBER-COUNTRIES, we need:

MORE MEETINGS IN DEVELOPING COUNTRIES, as travel is difficult in developing world.

MY EXPERIENCE: LITTLE INTERACTION BETWEEN IUTAM AND COSTED.

URGE: GREATER SUPPORT FROM IUTAM FOR PROMOTION OF MECHANICS IN DEVELOPING COUNTRIES.

OPTIONS:

(i) Change criteria for selection?
(ii) Reserve some meetings?
(iii) Encourage JOINT PROPOSALS for IUTAM-Symposia in developing countries? (COSTED is willing to co-sponsor, support on areas like industry, development, environment), cf. Sir James Lighthill. (iii A) JOINT IUTAM/COSTED WORKING GROUP?
(iv) More “Workshops” in developing countries?
After some discussions, where the IUTAM winter school 1997 in India and some IUTAM-Symposia in developing countries, like in Egypt 1997, etc and the new Working Parties were mentioned, the General Assembly delegated any consideration and further proper action to the Bureau and its 1997 meeting.

Then, the President closed the meeting at 18.15 hours.

*Franz Ziegler, Secretary-General*

**Agreement by and between**

**IUTAM and Kluwer Academic Publishers B.V.**

Kluwer Academic Publishers B.V. hereinafter referred to as the "Publisher".

WHEREAS IUTAM and the Publisher agree that, as of January 1, 1996, Kluwer Academic Publishers 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. Kluwer Academic Publishers shall be the preferred 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 accord with the IUTAM Scientific Committee, will remain free in their decision to choose an alternative way of publishing the proceedings.

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 Kluwer 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 recognizable 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 Kluwer Academic Publishers 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 including but not limited to the following: the exclusive right to print, publish and sell the Volumes in any language throughout the world, including the exclusive authorization to license the right to translate, print, publish, or sell any non-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.

2. Responsibilities

1. The Organizers, in their role of the 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, either 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.

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. In any event, if the page limit mentioned under 1.6 is adhered to, the special price to participants will not exceed Dfl 140 (hundredforty Dutch guilders, currently approximately US$93). Should inflation or costs increase appreciably this maximum will be subject to appraisal.
5. 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 Kluwer 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. Kluwer will provide the Organizers with a subsidy of Dfl 1000 (one thousand Dutch guilders) 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 Kluwer Academic Publishers will remain in force for an initial period of 3 (three) years, starting January 1, 1996. 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 3-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

Any disputes that may arise in connection with this present Agreement or the breach thereof shall be settled before a competent court of law at the site of the IUTAM Secretary General.

INTERNATIONAL UNION OF THEORETICAL AND APPLIED MECHANICS

STATUTES

Statuts de l'Union Internationale
de Mécanique Théorique et Appliquée

ART. 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.

ART. II

Les Principaux objectifs de l'Union sont
a) de constituer un lien entre personnes et organisations engagées dans le
   travail scientifique (théorique ou expérimental) concernant la
   mécanique ou les sciences associées;

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.

ART. 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.

ART. 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 nondiscrimination et
reconnaîtra le droit pour tout homme de science 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.
ART. 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.

ART. VI
L'Assemblée Générale se compose:
a) des représentants des «organisations adhérentes» (cf. art. VIII);
b) des membres du Bureau (cf. art. XI);
c) des membres par l'Assemblée Générale de l'Union cooptées;
d) s'il y a lieu, et sur décision de l'Assemblée Générale, des représentants de comités ou groupes d'hômes de science.
La durée de fonction de tout membre élu doit être précisée, lors de son élection, par l'Assemblée Générale. La durée de fonction des membres du Bureau doit coïncider avec celle de leur fonction au Bureau.

ART. VII
L'Assemblée Générale doit tendre à une représentation adéquate de tout groupe d'hômes de science poursuivant des recherches en mécanique théorique ou appliquée et non représentés par une organisation adhérante.

ART. VIII
Les organisations d'hômes de science 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 exclut 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.

1) Adoptés par l'Assemblée Générale de l'Union le 2 September 1990 à Vienne (l'Autriche)
Le Secrétariat Général centralise 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 Secrétariat 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 peuvent être désignés en dehors des membres du Bureau mais parmi les membres de l'Assemblée Générale.
Le Bureau doit dresser un budget prévisionnel pour l'année à venir, administrer les finances de l'Union et soumettre à l'Assemblée Générale un rapport financier annuel.
Le Vice-Président remplit 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 Secrétariat Général ou du Trésorier si cela s'avère nécessaire.

ART. XII
L'Assemblée Générale désigne un Comité permanent des Congrès chargé de l'organisation à intervalles réguliers des Congrès Internationaux de Mécanique Théorique et Appliquée.

a) Le Président de l'Union préside aussi le Comité des Congrès.
b) Les Membres de ce Comité sont élus par l'Assemblée Générale; ce sont des hommes de science actifs dans le domaine de la mécanique théorique ou appliquée, n'appartenant pas nécessairement à l'Assemblée Générale.
c) Le Comité des Congrès élit ou réélit, pour une durée qu'il juge convenable, son Secrétaire Général.

ART. 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 fait bénéficier l'Union de donations, legs ou subventions.

ART. XIV
Le nombre des représentants d'une «organisation adhérente» et le montant de la cotisation annuelle qu'elle doit acquitter sont déterminés, selon le tableau suivant, par la catégorie à laquelle désire appartenir l'organisation, après accord de l'Assemblée Générale.

<table>
<thead>
<tr>
<th>Catégorie</th>
<th>Nombre de représentants</th>
<th>Nombre d'unités de la cotisation annuelle</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>II</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>III</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>IV</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>V</td>
<td>5</td>
<td>12</td>
</tr>
</tbody>
</table>

Le montant de l'unité de cotisation annuelle est fixé par l'Assemblée Générale, au moins une année avant celle à laquelle cette cotisation devient exigible.

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 peut instituer un Comité Exécutif chargé de prendre en son nom toutes les décisions nécessaires pendant la période qui s'écoule entre deux Congrès successifs, et de lui en faire rapport à sa prochaine réunion. Le Comité Exécutif comprend le président et 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'UTAM immédiatement après le Congrès.
Procédés pour l'élection du Bureau de l'IUTAM

1. Lors de l'Assemblée générale (GA) précédant celle au cours de laquelle le nouveau Bureau doit être élu, un Comité électoral (EC) doit être élu comprenant le Président de l'IUTAM (qui assure la présidence de ce Comité) et deux à quatre membres de l'Assemblée GA, non membres du Bureau en exercice.

2. À la suite de cette élection, le Comité EC doit inviter les membres de la GA 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 Comité BC.

3. Prenant en compte toutes les suggestions reçues, le Comité BC 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 Comité EC 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'Assemblée GA avant la première session de cette Assemblée générale au cours de laquelle le nouveau Bureau doit être élu.


5. Avant la seconde session de l'Assemblée GA 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'Assemblée GA 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.

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 (theoretical or experimental) in mechanics or in related sciences;
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;
c) to engage in other activities meant to promote development of mechanics, both theoretical and applied, as a branch of science.

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

a) representatives of the adhering organizations (Article VIII);
b) members of the Bureau (Article XI);
c) members-at-large;
d) representatives of committees and groups of scientists, if so decided by the General Assembly.

The term of an elected member 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.

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.

1) Adopted by the General Assembly on September 2, 1990 in Vienna (Austria).
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 center for all matters 
af-ecting 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 fulfill 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.

XII  
The General Assembly establishes a standing Congress Committee 
which is responsible for the organization of International Congresses of 
Theoretical and Applied Mechanics at regular intervals.

1) Adopted by the General Assembly on September 2, 1990 in Vienna (Austria)

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:

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of representatives</th>
<th>Units of annual subscription</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>II</td>
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<td>III</td>
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<td>IV</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>V</td>
<td>5</td>
<td>12</td>
</tr>
</tbody>
</table>

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).

1) Article XV adopted by the General Assembly on August 28, 1994 in 
Amsterdam.
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 Burea) for administrative expenses of the Congress Committee, from all Congress members. This fee will be paid over to IUTAM after the Congress.

Procedure 1 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 members of the GA, within a specified time-limit, suggestions for candidates for the Burea, 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 Burea: 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 1 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.

1) Procedure adopted by the General Assembly on August 28, 1994 in Amsterdam.
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.

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.

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.

The General Assembly will vote on those candidates mentioned in the proposals of paragraphs 3 and 4.

List of Publications

a) Annual Reports (available from the IUTAM-Secretariat)
Since 1948, the Union has published a Report every year with detailed information on all its activities (IUTAM Archive at CISM, Udine, Italy)

b) Newsletter (available from the IUTAM-Secretariat)
The Union publishes a Newsletter at irregular intervals.

c) Proceedings of IUTAM-Symposia are available by ordering directly from the Publisher.

49-1 Problems of Cosmical Aerodynamics, Proceedings of the Symposium on the Motion of Gaseous Masses of Cosmical Dimensions held at Paris, France, August 16–19, 1949, organized by IUTAM and IAU. Published by: Central Air Documents Office, Army–Navy–Air–Force, UB Building, Dayton 2, Ohio, USA.


50-2 Colloquium on Plastic Flow and Deformation within the Earth, Hershey, Pennsylvania, USA, September 12–14, 1950, organized by IUTAM and IUGG. Published by the American Geophysical Union in the "Transactions American Geophysical Union", vol. 32, n° 4, pp. 497-543, 1951. A few copies can be obtained from the Secretary, American Geophysical Union, 1530, P. Street, N. W., Washington, D.C. (USA).


52-1 Colloque Massau, tenu à Bruxelles, Belgique, les 25–29 avril 1952, organisé par le Comité Massau, avec le concours de l’IUTAM. Association des Ingénieurs de Gand, rue de la Victoire, Bruxelles.

53-1 2nd Symposium on Gas Dynamics of Interstellar Clouds, Cambridge (UK), 1953, in cooperation with IAU.

54-1 Colloquium on Photoelasticity and Photoplasticity, (Bruxelles, Belgium, 29–31 July 1954), Published by Imprimerie Dioncre, Chaussée de Boondael, 602–602a,
Ixelles-Bruxelles (Belgique).


57-1 Third Symposium on Cosmical Gas Dynamics, (Cambridge, Massachusetts, USA, 24–29 June 1957, in cooperation with IAU). Published by Reviews of Modern Physics, American Institute of Physics, 335 East 45th Street, New York 17, N.Y. (USA), 1958.


58-2 Symposium on Non-Homogeneity in Elasticity and Plasticity, (Warsaw, Poland, 2–9 September 1958), organized by IUTAM. Published by Pergamon Press Ltd., 4 & 5 Fitzroy Square, London W1 (UK), 1959.


Rues have been published by Springer–Verlag, Berlin, 1976.

76-1 IUTAM Symposium on Structure of Turbulence and Drag Reduction, (Washington, D.C., USA, 7–12 June 1976).


The Proceedings of the Symposium, edited by D.G. Provis and R. Radok, have been published by Springer-Verlag, Berlin, 1977 as Vol. 64 in the series Lecture Notes in Physics.

The Proceedings of the Symposium have been published by Société Française de Mécaniciens as a special issue of Revue Française de Mécanique, Paris, 1976.


77-2 IUTAM Symposium on Dynamics of Multibody Systems, (Munich, FRG, 29 August–3 September 1977).


77-4 IUTAM Symposium on Dynamics of Vehicles on Roads and Tracks, (Vienna, Austria, 19–23 September 1977).

77-5 IUTAM / IUGG Symposium on Monsoon Dynamics, (Delhi, India, 5–9 December 1977).


The Proceedings of the Symposium, edited by N.H. Ibragimov and L.V. Ovsjannikov, have been published by the USSR Academy of Sciences, Siberian Branch, 1978.

78-3 IUTAM Symposium on Non-Newtonian Fluid Mechanics, (Louvain-la-Neuve, Belgium, 28 August–1 September 1978).

78-4 IUTAM Symposium on Metal Forming Plasticity, (Tutzing, FRG, 28 August–3 September 1978).


79-1 IUTAM Symposium on Structural Control, (Waterloo, Ontario, Canada, 4–7 June 1979).

79-2 IUTAM Symposium on the Physics and Mechanics of Ice, (Copenhagen, Denmark, 6–10 August 1979).


The Proceedings of the Symposium, edited by R. Rautmann, have been


80-2 IUTAM Symposium on Three–Dimensional Constitutive Relations and Ductile Fracture, (Dourdan, France, 2–5 June 1980).


The Proceedings of the Symposium, edited by A.R.S. Ponte and D.R. Hayhurst, have been published by Springer–Verlag, Berlin 1981.


The Proceedings of the Symposium, edited by B.W. Ninham, J.T.G. Overbeek and A.C. Zettlemeyer, have been published in Advances in Colloid and Interface Science, Vol. 16 and 17 (1982).


The Proceedings of the Symposium, edited by M. Pichal, have been published by the Institute of Thermomechanics, Czechoslovak Academy of Sciences, Prague, Czechoslovakia.

82-1 IUTAM Symposium on Three–Dimensional Turbulent Boundary Layers, (Berlin–West, 29 March–1 April 1982).

82-2 IUTAM / COSPAR Symposium on Giant Planets and their Satellites, (Ottawa, Canada, 16 May–2 June 1982).

82-3 IUTAM / COSPAR Symposium on Impact Processes in Solid Bodies, (Ottawa, Canada, 15 May–2 June 1982).

82-4 IUTAM / COSPAR Symposium on Fundamental Aspects of Material Science in Space, (Ottawa, Canada, 16 May–2 June 1982).

82-5 IUTAM / ISIMM Symposium on Modern Developments in Analytical Mechanics, (Torino, Italy, 7–11 June 1982).
The Proceedings of the Symposium, edited by S. Benenti, M. Francaviglia and A. Lichnerowicz, have been published by the Academy of Sciences of Torino, 1983.

82-6 IUTAM Symposium on Mechanics of Composite Materials, (Blacksburg, Virginia, USA, 16–19 August 1982).

82-7 IUTAM Symposium on Nonlinear Deformation Waves, (Tallinn,

The Proceedings of the Symposium, edited by J.M.T. Thompson & G.W. Hunt, have been published by Cambridge University Press 1983.

82-9 IUTAM Symposium on Deformation and Failure of Granular Materials, (Delft, The Netherlands, 31 August–3 September 1982).

82-10 IUTAM Symposium on Structure of Complex Turbulent Shear Flow, (Marseilles, France, 31 August–3 September 1982).


82-12 IUTAM Symposium on Random Vibrations and Reliability, (Frankfurt/Oder, GDR, 31 October–6 November 1982).
The Proceedings of the Symposium, edited by K. Hennig, have been published by Akademie–Verlag, Berlin 1983.


83-5 IUTAM / IUGG Symposium on Seabed Mechanics, (Newcastle upon Tyne, UK, 5–9 September 1983).
The Proceedings of the Symposium, edited by B. Denness, have been published by Graham & Trotman, London 1983.

83-6 IUTAM Symposium on Turbulence and Chaotic Behavior in Fluids, (Kyoto, Japan, 5–10 September 1983).
The Proceedings of the Symposium, edited by T. Tatsumi, have been published by North–Holland, Amsterdam, 1984.


84-3 IUTAM Symposium on the Influence of Polymer Additives on Velocity and Temperature Fields, (Essen, FRG, 26–28 June 1984).
The Proceedings of the Symposium, edited by B. Gampert, have been published by Springer–Verlag, Berlin 1986.

The Proceedings of the Symposium, edited by V.V. Kozlov, have been published by Springer–Verlag, Berlin 1985.


85-1 IUTAM Symposium on Mechanics of Damage and Fatigue, (Haifa and Tel Aviv, Israel, 1–4 July 1985).


85-4 IUTAM Symposium on Inelastic Behavior of Plates and Shells, (Rio de Janeiro, Brazil, 5–9 August 1985).
Kambe, have been published by North-Holland, Amsterdam, 1988. ISBN 0-444-87142-X.


88-2 IUTAM Symposium on Recent Advances in Nonlinear Fracture Mechanics, (Pasadena, California, USA, 14–16 March 1988).


88-6 IUTAM / IFAC Symposium on Dynamics of Controlled Mechanical Systems, (Zürich, Switzerland, 30 May–3 June 1988).

89-1 IUTAM / IACM Symposium on Discretization Methods in Structural Mechanics, (Vienna, Austria, 5–9 June 1989).

89-2 IUTAM Symposium on Structure of Turbulence and Drag Reduction, (Zürich, Switzerland, 25–28 July 1989).


89-5 IUTAM / IAHR Symposium on Ice-Structure Interaction, (St. John's, Newfoundland, Canada, 14–17 August 1989).


89-7 IUTAM Symposium on Adiabatic Waves in Liquid–Vapor Systems, (Göttingen, FRG, 28 August–1 September 1989).


90-6 IUTAM Symposium on Fluid Mechanics of Stirring and Mixing, (La Jolla, California, USA, 20–24 August 1990).


90-9 IUTAM Symposium on Creep in Structures, (Cracow, Poland, 10–14 September 1990).


91-2 IUTAM Symposium on Optimal Control of Mechanical Systems (Moscow, Russia, 19–25 April 1992).

The Proceedings of the Symposium, co–edited by F.L. Chernouso, have been published in Russian in the form of a (special) issue of the journal "Izvestiya of the Russian Academy of Sciences, Tekhnicheskaya Kibernetika, No. 1, Jan.–Febr. 1993", ISSN 0002–3388; and in the English translation of this journal published by Scripta Technica Inc., A. Wiley Company, New York.


94-1 IUTAM Symposium on Liquid-Particle Interactions in Suspension Flow (Grenoble, France, 18–22 April 1994)
The chairman G. Cognet has not edited the Proceedings (Oct. 1996).

94-2 IUTAM Symposium on Waves in Liquid / Gas and Liquid / Vapor Two-Phase Systems (Kyoto, Japan, 9–13 May 1994).


Selected papers under the title Mechanics and Combustion of Droplets and Sprays have been published by Begell House Publishers at 79 Madison Avenue, New York, NY 10016, FAX (+1) 212–213–8368, edited by N.A. Chigier.


96-1 IUTAM Symposium on Interaction between Dynamics and Control in


96-3 IUTAM Symposium on Variable Density Low Speed Turbulent Flows (Marseille, France, 7–10 July 1996). Co-sponsored by ICSU.


d) Proceedings of the International Congresses for 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.

2nd Congress, Zürich (Switzerland), 12–17 September 1926.

3rd Congress, Stockholm (Sweden), 24–29 August 1930.


5th Congress, Cambridge (Massachusetts, USA), 12–16 September 1938.

Proceedings not published (was given in the hands of Gauthier-Villars, Paris).


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.
10th Congress, Stresa (Italy), 31 August–7 September 1960.

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, Heidelberger 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.

14th International Congress on Theoretical and Applied Mechanics (ICTAM), Delft (Netherlands), 30 August–4 September 1976.


e) History of IUTAM

(Please note again: The publications listed above, with the exception of the Annual Reports and the Newsletters, are not available at the IUTAM Secretariat. Please order directly from the publisher).
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