European Composite Forum

An organization by the name of European Composite Forum has been formed with the primary objective of stimulating contact and dialogue between scientists at European universities and research laboratories and the European composite industry. The inaugural meeting of the Forum was held in Bordeaux, France, on 23 Sept. 1985, and the first full-fledged annual meeting was also held in Bordeaux, 10-12 July 1986.

The Forum covers a range of subjects within the field of composites, for example, characterization and modelling, fibers, matrices, environmental effects, nondestructive evaluation, life prediction, design, applications, and manufacturing techniques. Subscribers to the Forum receive, at regular intervals, reports of recently completed or ongoing studies by a number of scientists who have been appointed by the Forum organizers. The associated research scientists are M. G. Bader, United Kingdom; C. Bathias, France; P. Beaumont, United Kingdom; A. R. Bunsell, France; A. Cardon, Belgium; W. S. Carswell, United Kingdom; I. Crivelli-Visconti, Italy; F. X. de Charentenay, France; K. Friedrich, Federal Republic of Germany; B. Harris, United Kingdom; P. Hogg, United Kingdom; D. Hull, United Kingdom; H. Lilholt, Denmark; I. H. Marshall, United Kingdom; F. L. Matthews, United Kingdom; R. Naslain, France; D. C. Phillips, United Kingdom; G. Pritchard, United Kingdom; R. Talreja, Denmark; G. Verchery, France; I. Ward, United Kingdom; and R. Warren, Sweden.

At the annual meeting of the Forum in 1986 the following presentations were made:
- M. G. Bader, "Composites Research at the University of Surrey"
- I. Crivelli-Visconti, "Research Activities at DIMP-Naples"
- F. L. Matthews, "The Impact Behaviour of Glass/Carbon Epoxy Hybrid Laminates"
- R. Talreja, "Damage Analysis, Non-destructive Evaluation and Reliability of Composite Materials"
- A. H. Cardon, "Influence of Environmental Factors on the Life Time of a Polymeric Matrix Composite"
- F. X. de Charentenay, "Time Dependent Failure Processes in Laminates: 1 - Long Term Damage Accumulation, 2 - High Speed Delamination"
- B. Harris, "Fatigue of Hybrid Composites"
- I. H. Marshall, "Buckling of Composite Panels with Access Holes"
- K. Friedrich, "Performance of Polymer Composites Under Different Loading Conditions"

Further information regarding the Forum can be obtained from Dr. A. R. Bunsell or Dr. A. Massiah, European Composite Forum, Espace Forum 33, 54, cours du Chapeau-Rouge, 33000 Bordeaux, France.

Ramesh Talreja, International Coordinator
The Technical University of Denmark
Department of Solid Mechanics
Lyngby, Denmark

Advanced Composite Optical System Gimbal

The Advanced Composite Optical System Gimbal developed by the General Electric Company Space Systems Division received the Materials Engineering First Award for 1985.

This device uses a novel combination of a metal matrix composite material and two types of graphite fibers in an epoxy matrix to achieve substantial reductions in weight and thermal distortion over the baseline aluminum casting (Fig. 1).

To explore the advantages of advanced composites in aircraft optical systems, a typical cast aluminum gimbal was selected as a baseline design. The objective of the program was to reduce weight and thermal distortion while equalising the stiffness and strength properties of the original component, and providing attachments for a motor, encoder, bearings, and actuators.

Polymer matrix composites, such as "Kevlar" 49/epoxy and graphite/epoxy, are logical choices for applications requiring high...
FIG. 1—Advanced composite optical system gimbal incorporating metal matrix composite and graphite/epoxy components.

stiffness and low thermal distortion. However, the complex attachment requirements posed major problems. To overcome this difficulty, it was decided to combine graphite/epoxy with an isotropic metal matrix composite, which can be machined to provide the attachment points. The material selected was aluminum reinforced with 40% silicon carbide particulates by volume. This composite has about the same density as aluminum, but twice the modulus (21 versus 10 million psi), half the coefficient of the thermal expansion (7 versus 14 × 10^-6/°F), and a high tensile strength (65 000 psi).

The side pieces are made from graphite/epoxy prepreg tape and fabric. High-strength graphite fabric was selected because it facilitates fabrication of these doubly curved components. High modulus unidirectional tape imparts stiffness.

The side pieces are attached to the encoder and motor mounts (the top and bottom pieces) with rivets and epoxy adhesive. The bearing mounts and actuator attachments are bonded in place with epoxy.

The composite gimbal is 25% lighter than the aluminum baseline and the maximum thermal distortion is computed to be 65% less. The gimbal was successfully tested to verify its structural integrity.

Papers on Thermoplastic Matrix Composites Sought for ASTM Symposium

A Call for Papers is issued for the Symposium on Advances in Thermoplastic Matrix Composite Materials, sponsored by ASTM Committee D-30 on High Modulus Fibers and Their Composites. The symposium will be held the week of 18 Oct. 1987 in Bal Harbour, FL.

The symposium will examine various aspects of recent advances in continuous and discontinuous fiber-reinforced thermoplastic matrix composites, with major emphasis on continuous fiber-reinforced structural composites. Thermoplastic composites are receiving considerable attention for a number of impressive properties, for example, impact toughness, delamination fracture energy, and solvent resistance. Also, thermoplastic composite materials offer processing flexibility. As applications for thermoplastic composites increase, a forum to discuss their advantages and disadvantages in the context of processing, material response, and design and analysis is essential to advance the technology.

Topics of interest include process modeling; effect of processing on mechanical properties; short-term properties; fiber-matrix interface issues; failure mechanisms; damage mechanisms; testing; fatigue behavior; environmental effects; fracture toughness; nonlinear behavior; time-dependent response; delamination behavior; impact behavior; damage tolerance; damage repair; design and analysis; and other related topics.

For further information contact Theresa Smoot, ASTM, 1916 Race Street, Philadelphia, PA 19103, 215/299-5413. Additional information is available from the Symposium Chairman Golam M. Newaz, Mechanics Section, Battelle, Columbus Division, 505 King Avenue, Columbus, OH 43201-2693, 614/424-4670.

To maintain the high quality standards of ASTM, all papers will undergo peer review prior to inclusion in the anticipated Special Technical Publication (STP) based on this symposium. Final manuscripts for the STP are due 1 Oct. 1987; this deadline will be rigidly enforced. All papers not submitted to ASTM by the deadline will not be accepted for the STP. If a paper is submitted after the deadline, it may be forwarded to the appropriate ASTM journal to be considered for publication. Please contact Theresa Smoot or the symposium chairman if you cannot meet the deadline.

Call for Papers

9th Symposium on Composite Materials: Testing and Design

A call for papers is issued for the 9th Symposium on Composite Materials: Testing and Design, sponsored by ASTM Committee D-30 on High Modulus Fibers and Their Composites to be held 25-26 April 1988 at Las Vegas, NV.

The symposium will examine recent advances in testing and design of composite materials that have been used to evaluate damage tolerance and durability. The emphasis will be on continuous fiber-reinforced composite materials, interpretation of generic mechanisms, and transition through design, analysis, and testing guidelines into application structure.

Significant advances have occurred in the area of damage tolerance and durability for composite structures. Basic mechanisms have been evaluated and analytic and experimental procedures forwarded to account for these issues in design. A forum to discuss the state of the art in this subject area is timely.

Topics of interest include:

- High-strain to failure material systems
- Long-term behavior
Prospective authors are requested to submit a title, a 500 to 1000 word abstract with key figures, and the ASTM Paper Submittal Form by 1 June 1987 to Theresa Smoot, ASTM, 1916 Race Street, Philadelphia, PA 19103, (215) 299-5413. Additional information is available from the Symposium Chairman Samuel P. Garbo, Sikorsky Aircraft Division of United Technologies, 6900 North Main Street, Stratford, CT 06601-1381, (203) 386-4576. Paper Submittal Forms may be obtained from Theresa Smoot.

A Special Technical Publication (STP) based on the symposium proceedings is anticipated by ASTM. The deadline for all manuscripts is 31 Jan. 1988. Papers not submitted to ASTM by the deadline will not be accepted for the subject STP. If a paper is submitted after the deadline, it will be forwarded to the appropriate ASTM journal to be considered for publication. Please contact Theresa Smoot or Sam Garbo if you cannot meet the deadline. ASTM will print and distribute accepted abstracts at the symposium.

International Conference on Composite Interfaces (ICCI-II)

The first international conference devoted to the understanding of all aspects of composite interfaces was held in May of 1986, and received strong support from the scientific community. Composite materials have become important in all areas of material sciences. It is now widely accepted that the interfacial region strongly influences the mechanical performance of composite materials. Unfortunately, poor understanding of this area prohibits us from manufacturing more advanced and reproducible composites.

The nature of the conference is a forum of interdisciplinary and fundamental aspects of interfacial structures of polymer, ceramic and metallic composites and their influence on physical and mechanical properties. Both experimental and theoretical aspects of interfaces will be considered. The intermixing of concepts in ceramics, metal, and polymers will be emphasized.

ICCI-II will be held at Case Western Reserve University in Cleveland, OH from June 13 through 17, 1988. The conference consists of plenary lectures, invited papers, and contributed papers both in lecture form and a poster session.

Those who are interested in contributing should send a 500-word abstract no later than 15 July 1987 to Professor H. Ishida, General Chairman, ICCI-II. The technical committee will notify the author of acceptance soon after the deadline date. The deadline date must be adhered to. Camera-ready text on special paper, which will be provided, will be used to publish the hardbound proceedings book distributed at the time of the conference. The full paper is due on 30 Nov. 1987.

Please send abstract to Professor H. Ishida, General Chairman, ICCI-II, Department of Macromolecular Science, Case Western Reserve University, 10900 Euclid Avenue, Cleveland, OH 44106-1712.

COMPOSITEXPO 87

COMPOSITEXPO 87 an international exhibition for international industry will be held at the Imperial College of Science and Technology, London, England, on 20-24 July 1987. This coincides with the congress ICCM-VI/ECCM-2 sixth International Conference and the Second European Conference on Composite Materials. This international meeting promises to be a high level event (a hundred societies plan to exhibit at COMPOSITEXPO 87). The scientific committee of the congress selected 250 papers. For further information contact the European Association for Composite Materials 2, place de la Bourse, 33076 Bordeaux Cedex, France. Telephone: (33) 56 52 98 94. Telex: 560 047 Chareci.
Calendar on Composites

6–8 April 1987
*International Conference on Stability of Plate and Shell Structures*
Ghent, Belgium
Contact: D. Vandepitte, Grotesteeuw-Nord 2, B-9710 Zwijnaarde, Belgium

6–8 April 1987
*28th AIAA Structures, Structural Dynamics, and Materials Conference*
Contact: Dr. K. T. Kedward, Alcoa Defense Systems, Inc., 16761 Via Del Campo Ct., San Diego 92127
Telephone: 619-695-2260

6–9 April 1987
*5th International Modal Analysis Conference*
London, England
Contact: D. J. Demichele, Union College, Graduate and Continuing Studies, Wells House, 1 Union Ave., Schenectady, NY 12308
Telephone: 518-370-6288

6–10 April 1987
*International Conference on Computational Plasticity*
Barcelona, Spain
Contact: D. R. J. Owen, Dept. of Civil Engineering, University College of Swansea, Singleton Park, Swansea SA2 8PP, United Kingdom

7–8 April 1987
*Applied Solid Mechanics Conference*
Glasgow, Scotland
Contact: A. S. Tooth, Dept. of Mechanics of Materials, University of Strathclyde, 65 Montrose St., Glasgow G1 1XJ, United Kingdom

9–10 April 1987
*AIAA Dynamics Specialists Conference*
Contact: A. F. Messina, Dept. 76-12, Lockheed-California Co., P.O. Box 511, Burbank, CA 91520
Telephone: 818-846-4910

13–15 April 1987
*International Conference on Environmental Degradation of Materials*
University Park, PA
Contact: R. P. McNitt, 227 Hammond Building, University Park, PA 16802

13–16 April 1987
*IUTAM Symposium on Advanced Boundary Element Methods*
San Antonio, TX
Contact: Dr. T. A. Cruse, Southwest Research Institute, P.O. Box Drawer 28510, San Antonio, TX 78284
Telephone: 512-684-5111

27–28 April 1987
*Composite Materials—Fatigue and Fracture (2nd Symposium)*
Cincinnati, OH
Contact: Matt Lieff, ASTM
Telephone: 215-299-5516

26–30 April 1987
*Mechanical Relaxation of Residual Stress*
Cincinnati, OH
Contact: L. Mordfin, National Bureau of Standards, B344 Materials Building, Gaithersburg, MD 20899

28 April–1 May 1987
*MAFELAP 1987: Conference on the Mathematics of Finite Elements and Applications*
Uxbridge, United Kingdom
Contact: Secretary, Institute of Computational Mathematics, Brunel University, Uxbridge, Middleses, UB8 3PH, United Kingdom

18–21 May 1987
*Impact 1987: International Conference on Impact Loading and Dynamic Behavior of Materials*
Bremen, West Germany
Contact: Conference Secretary, Deutsche Gesellschaft fur Metallkunde, Adenauerallee 21 D-6370 Oberursel, Federal Republic of Germany
Telephone: 061 71/4081

25–27 May 1987
*American Society of Civil Engineering Mechanics Division Specialty Conference*
Buffalo, NY
Contact: T. T. Soong, Civil Engineering Dept., 238 Engineering West, Suny & Buffalo, Buffalo, NY 14260

31 May–1 June 1987
*CANCAM-87: 11th Canadian Congress of Applied Mechanics*
Edmonton, Canada
Contact: Dr. G. Faulkner, Dept. of Mechanical Engineering, University of Alberta, Edmonton, Alberta, Canada T6G 2G8
Telephone: 403-432-3446

June 1987
*EROMECH 224: Kinematic Theory Aspects of Evaporation and Condensation*
Kardzhaly, Bulgaria
Contact: Dr. St. Radev, National Committee for Theoretical & Applied Mechanics, Bulgarian Academy of Sciences, P.O. Box 373, 1090 Sofia, Bulgaria

1–2 June 1987
*Experimental Mechanics—Today*
Vienna, Austria
Contact: Dr. H. P. Rossmannith, Institute for Mechanics, Technical University Vienna, Karlsplatz 13, A-1040 Vienna, Austria
Telephone: 22-5601 X 3121

1–3 June 1987
*EURMECH 222, Unsteady Cavitation and its Effects*
Wageningen, The Netherlands
Contact: Dr. J. H. J. Van Der Meulen Marin, Postbus 28, 6700 AA Wageningen, The Netherlands

29
2-4 June 1987  
**International Conference on Boundary Element Technology**  
Rio De Janeiro, Brazil  
Contact: Liz Newman, Computational Mechanics Institute, 52 Hempstead Rd., Southampton S01 2DD, United Kingdom  
Telephone: (0703) 2212398

4-6 June 1987  
**International Symposium on Cold Regions Heat Transfer**  
Calgary, Alberta, Canada  
Contact: V. J. Lunardini, U.S. Army Cold Regions Research and Engineering Labs, 72 Lyme Rd., Hanover, NH 03755-1290  
Telephone: 603-646-4326

8-10 June 1987  
**AIAA 19th Fluid Dynamics, Plasma Dynamics, and Laser Conference**  
Honolulu, Hawaii  
Contact: American Institute of Aeronautics and Astronautics, 1633 Broadway, New York, NY 10019  
Telephone: 212-408-9797

8-10 June 1987  
**AIAA Thermophysics Conference**  
Honolulu, Hawaii  
Contact: American Institute of Aeronautics and Astronautics, 1633 Broadway, New York, NY 10019  
Telephone: 212-408-9797

9-11 June 1987  
**AIAA 8th Computational Fluid Dynamics Conference**  
Honolulu, Hawaii  
American Institute of Aeronautics and Astronautics, 1633 Broadway, New York, NY 10019  
Telephone: 212-408-9797

15-17 June 1987  
**EUROMECH 221: The Mechanical Effects of Welding**  
Lulea, Sweden  
Contact: Dr. L. Karlsson, Dept. of Mechanical Engineering, Lulea University of Technology, 951 87 Lulea, Sweden

15-19 June 1987  
**1987 Spring Conference on Experimental Mechanics**  
Houston, TX  
Contact: Kathy Ramsay, Society for Experimental Mechanics, 7 School St., Bethel, CT 06801  
Telephone: 203-790-6373

16-18 June 1987  
**EUROMECH 223: Vibration and Stability of Axially Moving Materials**  
Tampere, Finland  
Contact: Prof. A. Pramila, Tampere University of Technology, 33101 Tampere, Finland

16-19 June 1987  
**International Conference on Fluid Mechanics**  
Beijing, China  
Contact: Zhang Zhaoshun, Chinese Society of Theoretical & Applied Mechanics, Zhong Guancun, Peoples Republic of China

17-19 June 1987  
**International Conference on Fracture of Concrete and Rock**  
Houston, TX  
Contact: S. E. Swartz, Dept. of Civil Engineering, Seaton Hall, Kansas State University, Manhattan, KS 66506  
Telephone: 913-532-5862

21-24 June 1987  
**Applied Mechanics, Biomechanics, and Fluids Engineering Conference**  
Cincinnati, OH  
Contact: Dr. M. J. Forrestal, Advanced Systems Development, Division I, 1611 Sandia National Laboratories, Albuquerque, NM 87185

21-25 June 1987  
**American Society of Engineering Education. Annual Conference. Mechanics Division**  
Reno, NV  
Contact: L. E. Ehlers, Dept. of Mechanical Engineering, University of Nebraska, Lincoln, NE 68588-0525  
Telephone: 402-472-1678

21-25 June 1987  
**International Conference on Computational Engineering Mechanics**  
Beijing, China  
Contact: Prof. Gong Yaonan, Solid Mechanics Research Center, P.O. Box 85, Beijing, Peoples Republic of China

21-26 June 1987  
**IUTAM Symposium on Nonlinear Stochastic Dynamical Engineering Systems**  
Igls, Austria  
Contact: F. Ziegler, Technical University of Vienna, Karlsplatz 13, Vienna, A-1040, Austria

22-24 June 1987  
**International Conference on Soil Dynamics and Earthquake Engineering**  
Princeton, NJ  
Contact: A. S. Cakmak, Dept. of Civil Engineering, Princeton, NJ 08544  
Telephone: 609-452-4601

23-26 June 1987  
**IMACS International Symposium on Computer Methods for Partial Differential Equations**  
Bethlehem, PA  
Contact: G. Richter, Dept. of Computer Science, Rutgers University, New Brunswick, NJ 08903

29 June-3 July 1987  
**5th International Conference on Numerical Modelling in Thermal Problems**  
Montreal, Canada  
Contact: Prof. R. W. Lewis, Dept. of Civil Engineering, University College of Swansea, Singleton Park, Swansea SA2 8PP, United Kingdom

29 June-3 July 1987  
**1st International Conference on Industrial and Applied Mathematics**  
Paris, France  
Contact: SIAM, 14th Floor, 115 South 17th St., Philadelphia, PA 19103-5052  
Telephone: 215-564-2929
6-8 July 1987
Canadian Conference on Earthquake Engineering
Ottawa, Ontario, Canada
Contact: J. L. Humar, Dept. of Civil Engineering, Carlton University, Ottawa, Ontario, Canada K1S 5B6
Telephone: 613-564-4315

6-9 July 1987
Solid Fuel Utilization
Lisbon, Portugal
Contact: Portugese Section of the Combustion Institute, Institute Superior Tecnico, Mechanical Engineering Dept., 1096 Lisbon Codex Portugal

6-10 June 1987
5th International Conference on Numerical Methods in Linear and Turbulent Flow
Montreal, Canada
Contact: Dr. C. Taylor, Dept. of Civil Engineering, University College of Swansea, Singleton Park, Swansea, SWA2 8PP, United Kingdom

6-10 June 1987
Advances in Numerical Methods in Engineering: Theory and Application
Swansea, United Kingdom
Contact: J. Middleton, Dept. of Civil Engineering, University College of Swansea, Swansea SA2 8PP, United Kingdom
Telephone: 0792 295514

13-15 July 1987
EUROMECH 225: The Aerodynamics of Spacecraft
Cranfield, United Kingdom
Contact: Prof. J. Stollery, College of Aeronautics, Cranfield Institute of Technology, Cranfield, Bedford MK43 OA1, United Kingdom

20-25 July 1987
ICCM-VI 6th International Conference on Composite Materials
London, England
Contact: Mr. F. L. Matthews, Director, Centre for Composite Materials, Imperial College, Prince Consort Rd., London SW7 2BY, England
Telephone: 441-589-511 X4003

27-30 July 1987
ECCM 2, Second European Conference on Composite Materials
London, England
Contact: European Association for Composite Materials, 2, Place De La Bourse, 33076 Bordeaux, Cedex, France
Telephone: 33 56 65 47

27 July 1987
4th International Conference on Composite Structures
Paisley, Scotland
Contact: Dr. I. H. Marshall, Dept. of Mechanical and Production Technology, Paisley College of Technology, Paisley, Renfrewshire, Scotland
Telephone: 441-887-1241

28 July–2 August 1987
International Conference on Fatigue and Fatigue Thresholds
Charlottesville, VA
Contact: Dept. of Conferences and Institutes, Division of Continuing Education, University of Virginia, Charlottesville, VA 22903

3-5 August 1987
International Symposium on Multiphase Flows
Hanzhou, China
Contact: C. T. Crowe, Dept. of Mechanical Engineering, Washington State University, Pullman, WA, 99164-2920
Telephone: 509-335-8654

10-13 August 1987
International Conference on Mathematical Modelling
St. Louis, MO
Contact: E. Y. Rodin, Dept. of Systems Science and Mathematics, Washington University, P.O. Box 1040, St. Louis MO 63130

23-27 August 1987
International Symposium on Computational Fluid Mechanics
Sydney, Australia
Contact: Prof. W. Soedel, School of Mechanical Engineering, Purdue University, W. Lafayette, IN 47907

31 August–3 September 1987
EURMECH 227: Mechanical Behavior of Adhesive Joints
St.-Etienne, France
Contact: Prof. G. Verchery, EMSE, 158 Cours Famiel, 42023 Saint-Etienne, Cedex, France

31 August–4 September 1987
9th International Conference on Boundary Element Methods in Engineering
Stuttgart, West Germany
Contact: Liz Newman, Computational Mechanics Institute, 52 Hempstead Rd., Southampton S01 2DD, United Kingdom
Telephone: (0703) 221398

September 1987
Second Conference on Composite Materials— American Society for Composites
Newark, DE
Contact: Dr. Charles Browning, Materials Laboratory, Wright-Patterson Air Force Base, OH 45433

1-4 September 1987
Boundary Element Methods in Engineering
Germany
Contact: Liz Newman, Conference Secretary, Computational Mechanics Institute, 52 Hempstead Rd., Southampton, S01 2DD, United Kingdom

2-5 September 1987
EUROMECH 226: Nonlinear/Nonclassical Effects in Surface Acoustic Waves
Nottingham, United Kingdom
Contact: Dr. D. F. Parker, Dept. of Theoretical Mechanics, Nottingham University, Nottingham, NG7 2RD, United Kingdom

7-9 September 1987
Symposium on Turbulent Shear Flow
Toulouse, France
Contact: F. W. Schmitt, Dept. of Mechanical Engineering, Pennsylvania State University, University Park, PA 16802
7-11 September 1987
From Materials Science to Materials Engineering
Versailles, France
Contact: AFREM Secretariat General, 12 Rue Brancion, 75737 Paris, Cedex 15, France
Telephone: 45 39 22 33

8-11 September 1987
International Conference on Composite Methods for Predicting Material Processing Effects
Cachan, France
Contact: Prof. M. Predeleanu, Laboratoire De Mecanique Et Techno-
logy, 61 Avenue Du President Wilson, 94230 Cachan, France
Telephone: 46 64 99 55

14-25 September 1987
Instrumentation for Combustion and Flow Engines
Vimeiro, Portugal
Contact: Prof. D. F. G. Durao, Instituto Superior Technico, Mechanical Engineering Dept., 1096 Lisbon Codex Portugal

15-19 September 1987
EURMECH 215: Mechanics of Sediment Transport in Fluvial and Marine Environments, Genova, Italy
Contact: Prof. G. Seminara, Instituto Di Idraulica, Universita Di Genova, Via Montallegro, 1, 16145 Genova, Italy

22-24 September 1987
Second International Conference on Testing, Evaluation and Quality Control of Composites
Contact: Stephen Snook, Butterworth Scientific Ltd., P.O. Box 63, Westbury House, Bury St., Guildford, Surrey GU2 5BH, United Kingdom
Telephone: 0483 31261

13-15 October 1987
19th International SAMPE Technical Conference
Washington, DC
Contact: Marge Smith, SAMPE, P.O. Box 2459, Covina, CA 91722
Telephone: 818-331-0616

15-20 November 1987
ASME Winter Annual Meeting
New York, NY
Contact: ASME, United Engineering Center, 345 E. 45th St., New York, NY 10017

24-29 April 1988
Composite Materials—Testing and Design (9th Symposium)
Las Vegas, NV
Contact: Matt Lieff, ASTM, 1916 Race St., Philadelphia, PA 19103
Telephone: 215-299-5516

21-27 August 1988
17th International Congress of Theoretical and Applied Mechanics
Grenoble, France
Contact: Prof. Germanine, Ecole Polytechnic, Paris, France

27-30 Sept. 1988
20th International SAMPE Technical Conference
Minneapolis, MN
Contact: Marge Smith, SAMPE, P.O. Box 2459, Covina, CA 91722
Telephone: 818-331-0616

Calendar prepared by Prof. Michael W. Hyer.
Department of Mechanical Engineering,
The University of Maryland,
College Park, MD 20732.