

Mathematics Calendar

The most comprehensive and up-to-date Mathematics Calendar information is available on e-MATH at <http://www.ams.org/mathcal/>.

May 1999

* 7-9 **Cornell Topology Festival**, Cornell University, Ithaca, New York.

Speakers: S. Boyer, R. Edwards, Y. Eliashberg, M. Kapovich, P. Shalen, D. Wise, C. Woodward.

Information: Send e-mail to dls37@math.cornell.edu, or see our Web page at <http://math.cornell.edu/~vogtmann/topfest/1999.html>.

* 20-24 **Twenty-seventh Canadian Operator Theory and Operator Algebras Symposium**, University of Prince Edward Island, Charlottetown, PEI, Canada.

Speakers: K. Davidson (Univ. of Waterloo), G. Elliott (Univ. of Toronto), L. Ge (Univ. of New Hampshire), D. Hadwin (Univ. of New Hampshire), D. Handelmann (Univ. of Ottawa), D. Larson (Texas A&M Univ.), S. Power (Univ. of Lancaster), I. Putnam (Univ. of Victoria), H. Radjavi (Dalhousie Univ.), M. Rordam (Univ. of Copenhagen).

Information: G. MacDonald, Dept. of Math. & CS, Univ. of Prince Edward Island, Charlottetown, PEI, Canada, C1A 4P3; e-mail: gmacdonald@upe.ca; Web page: <http://www.math-cs.upei.ca/people/gmacdon/cosy/>.

* 26-28 **Crystallographic Groups and Their**

Generalizations II, K. U. Leuven (Campus Kortrijk), Kortrijk, Belgium.

Scientific Committee: H. Abels (Bielefeld), Y. Felix (Louvain la Neuve), F. Grunewald (Duesseldorf), P. Igodt (Leuven/Kortrijk).

Invited Speakers: Y. Benoist (E.N.S.), M. Bridson (Oxford), C. Casacuberta (Barcelona), K. Dekimpe (Leuven/Kortrijk), B. Farb (Chicago), W. Goldman (College Park), G. Margulis (Yale).

Topics: Recent developments concerning crystallographic groups and all concepts which can be seen as generalizations of them are the subjects of this workshop. A nonexhaustive list of possible topics includes: Affine crystallographic groups and affine manifolds; almost crystallographic groups and infra-nilmanifolds; polynomial structures on polycyclic-by-finite groups and polynomial manifolds; discrete subgroups of Lie groups and homogeneous spaces; localisation problems for groups; finitely generated groups, quasi-isometry and rigidity; geometric group theory.

Call for Abstracts: Interested researchers will be offered an opportunity to present a short talk (25 minutes) on their work. For this they should send a title and abstract (in \LaTeX -format) to the scientific committee, via the e-mail address: Paul.Igodt@kulak.ac.be. For those talks which eventually cannot be scheduled, the authors/participants will

get an opportunity to present a poster (max. two A3-size documents).

Information: Registration documents and all practical information are found at the Web site <http://www.kulak.ac.be/workshop/>.

* 28-30 **Fourth Panhellenic Conference on Differential Geometry and Its Applications (with International Participation)**, University of Patras, Department of Mathematics, Patras, Greece.

Aim: The aim of the conference is to bring together mathematicians working on various areas of differential geometry and other related fields. This year there will also be parallel sessions on the teaching of geometry at the secondary and undergraduate level.

Information: B. J. Papantoniou, tel/fax ++30-61-997138; e-mail: bpapant@math.upatras.gr; A. Arvanitoyeorgos, e-mail: taarv@hol.gr.

* 29-June 1 **CMS Summer 1999 Meeting**, Memorial University of Newfoundland, St. John's, Newfoundland.

Program: This meeting will feature plenary speakers from a broad spectrum of mathematics by top mathematicians. It will also feature sessions in various areas of mathematics.

This section contains announcements of meetings and conferences of interest to some segment of the mathematical public, including ad hoc, local, or regional meetings, and meetings and symposia devoted to specialized topics, as well as announcements of regularly scheduled meetings of national or international mathematical organizations. A complete list of meetings of the Society can be found on the last page of each issue.

An announcement will be published in the *Notices* if it contains a call for papers and specifies the place, date, subject (when applicable), and the speakers; a second announcement will be published only if there are changes or necessary additional information. Once an announcement has appeared, the event will be briefly noted in every third issue until it has been held and a reference will be given in parentheses to the month, year, and page of the issue in which the complete information appeared. Asterisks (*) mark those announcements containing new or revised information.

In general, announcements of meetings and conferences held in North America carry only the date, title of meeting, place of meeting, names of speakers (or sometimes a general statement on the program), deadlines for abstracts or contributed papers, and source of further information. Meetings held outside the North American area may carry more detailed information. In any case, if there is any application deadline with respect to participation in the meeting, this fact should be noted. All communications on meetings and conferences in the mathematical sciences

should be sent to the Editor of the *Notices* in care of the American Mathematical Society in Providence or electronically to notices@ams.org or mathcal@ams.org.

In order to allow participants to arrange their travel plans, organizers of meetings are urged to submit information for these listings early enough to allow them to appear in more than one issue of the *Notices* prior to the meeting in question. To achieve this, listings should be received in Providence six months prior to the scheduled date of the meeting.

The complete listing of the Mathematics Calendar will be published only in the September issue of the *Notices*. The March, June, and December issues will include, along with new announcements, references to any previously announced meetings and conferences occurring within the twelve-month period following the month of those issues. New information about meetings and conferences that will occur later than the twelve-month period will be announced once in full and will not be repeated until the date of the conference or meeting falls within the twelve-month period.

The Mathematics Calendar, as well as Meetings and Conferences of the AMS, is now available electronically through e-MATH on the World Wide Web. To access e-MATH, use the URL: <http://e-math.ams.org/> (or <http://www.ams.org/>). (For those with VT100-type terminals or for those without WWW browsing software, connect to e-MATH via Telnet (telnet e-math.ams.org; login and password e-math) and use the Lynx option from the main menu.)

Plenary Speakers: E. Barbeau (Toronto), R. K. Brylinski (Pennsylvania State), M. van den Bergh (Limburg/Belgium) and T. Korner (Cambridge).

Prize Lectures: The Jeffery-Williams Lecture will be given by J. Friedlander (Univ. of Toronto). The Krieger-Nelson Prize will be given by N. Tomczak-Jaegermann (Univ. of Alberta).

Sessions: Session titles and speakers are: **Combinatorics and Its Applications** (N. Shalaby and D. Stinson, organizers): F. Bennett (Halifax), C. Colbourn (Maine), K. Heinrich (SFU), A. Rosa (McMaster), D. Stinson (Waterloo), L. Vinet (Montreal); **Education: What Mathematical Competitions Do for Mathematics** (B. Sawyer and E. Williams, organizers): E. Barbeau (Toronto), R. Dunkley (Waterloo), T. Gardiner (Birmingham), R. Janes (Director of NCTM), and S. Sullivan (MUN student); **Graduate Student Seminar:** A special session is being organized for graduate students. Anyone interested in participating in the organization of this program should contact H. Brunner, e-mail: cms99@math.mun.ca; **Joint CMS-CRM Session on Harmonic Analysis** (K. Hare, organizer): J. Benedetto (Maryland), B. Forrest (Waterloo), J.-P. Gabardo (McMaster), E. Granirer (UBC), H. Henig (McMaster), Z. Hu (Windsor), R. Kerman (Brock), T. Korner (Cambridge), T. Lau (Alberta), D. Oberlin (Florida), J.-O. Ronning (Skode U.), G. Sinnamon (UWO), S. Wainger (Wisconsin); **Nonlinear Analysis and Its Applications** (S. Singh and B. Watson, organizers): G. Allasia (Torino), J. Borwein (SFU), P. Gauthier (Montreal), K. Goebel (Lublin), W. A. Kirk (Iowa), W. Light (Leicester), S. Park (Seoul), B. Rhoades (Indiana), W. Takahashi (Tokyo), E. Tarafdar (Australia), J. Whitfield (Lakehead); **Perspectives in Ring Theory** (E. Goodaire and E. Jespers, organizers): Y. Bahturin (Moscow), M. van den Bergh (Limburg/Belgium), J. Okninski (Warsaw), D. S. Passman (Wisconsin), M. Putcha (North Carolina State), L. Renner (UWO), S. K. Sehgal (Edmonton); **Joint CMS-Fields Institute Session on Representation Theory** (A. Broer, organizer): J. Brundan (Oregon at Eugene), R. K. Brylinski (Pennsylvania State), C. Cunningham (Massachusetts), S. R. Evens (Arizona at Tucson), L. Helminck (North Carolina State), M. Hunziker (Brandeis), A. S. Kleshchev (Oregon at Eugene), F. Knop (Rutgers), V. Lakshmibai (Northeastern), W. M. McGovern (Seattle), G. McNinch (Notre Dame), F. Murnaghan (Toronto), M. Nevins (Alberta), M. Reeder (Boston College), Y. Sanderson (Rutgers), G. Savin (Utah), E. Sommers (Harvard), P. Trapa (Institute for Advanced Studies); **Surveys in Mathematics** (K. Murty, organizer): Speakers to be announced.

Submission of Abstracts: The CMS publishes abstracts for all scheduled talks. Titles for plenary speakers, prize lecturers, and invited special sessions for the scientific and education program will appear in the April issue of the *CMS Notes*. Titles for

contributed papers will appear in the May issue of the *CMS Notes*. All abstracts will be published in the meeting program and will be available on the Canadian Mathematical Electronics Services (Camel): <http://came1.math.ca/CMS/Events/summer99/> and on the CMS99 Summer Meeting Web site: <http://www.math.mun.ca/~cms99/>.

June 1999

* 4-9 **Geometry, Analysis, and Mathematical Physics: Analysis and Geometry**, Obernai (near Strasbourg), France.

Organizer: J.-M. Bismut (Orsay).

Background: The Programme of European Research Conferences (EURESCO) was launched ten years ago and is run by the European Science Foundation, largely with funding from the Euroconferences Activity of the European Union. Each conference consists of a series of meetings, held typically every other year. There are neither written contributions nor proceedings. Unconventional ideas and new approaches, not yet fully explored, are encouraged.

Information and Application Forms: J. Hendekovic, European Science Foundation, Office of European Research Conferences (EURESCO), 1 quai Lezay-Marnésia, 67080 Strasbourg Cedex, France; fax +33 (0) 3 88 36 69 87; e-mail: euresco@esf.org; WWW server at <http://www.esf.org/euresco/>.

* 6-12 **International Conference on Rational Approximation (ICRA99)**, University of Antwerp, Antwerp, Belgium.

Organizers: A. Cuyt and B. Verdonk.

Scientific Committee: A. Bultheel, A. Cuyt, A. Magnus, J. Schmets, J.-P. Thiran, M. Van Barel, P. Van Dooren, B. Verdonk.

Logistic Support: S. Becuwe and P. Van Tilborgh.

Focus: The conference will focus on rational approximation theory in the broadest sense, including all computational aspects and applications. Contributions are welcomed on the subjects of Pade approximation, continued fractions, orthogonal polynomials, and rational approximation in general. More than in the past, attention will be paid to the development of reliable algorithms and the use of symbolic techniques.

Invited Speakers: Several one-hour survey lectures will be given by specialists in the field. The invited speakers are G. Baker Jr. (Los Alamos), P. Borwein (Burnaby), P. Graves-Morris (Bradford), W. B. Jones (Boulder), G. Labahn (Waterloo), L. Lorentzen (Trondheim), D. S. Lubinsky (Johannesburg), H. J. Stetter (Wien).

Call for Papers: Participants are invited to present a 25-minute research talk. To this end, please submit a title and a short abstract of at most 1 page no later than April 1, 1999. Registration forms are due on the same date. Participants are encouraged to register electronically at <http://win-www.uia.ac.be/u/icra99/>.

Proceedings: Kluwer Academic Publishers and Baltzer Science Publishers have agreed

to publish the proceedings of the ICRA99 conference, which will be distributed over issues of the following three journals: *Numerical Algorithms*, *Reliable Computing*, and *Acta Applicandae Mathematicae*.

Information: Visit the conference Web page at <http://win-www.uia.ac.be/u/icra99/>, or contact one of the organizers at Dept. of Mathematics and Computer Science, University of Antwerp (UIA), Universiteitsplein 1, B-2610 Antwerp, Belgium; tel: +32-3-820-24-01; fax: +32-3-820-24-21; e-mail: icra99@uia.uia.ac.be.

* 7-9 **Canadian Operational Research Society Conference (CORS '99)**, Windsor, Ontario, Canada.

Chairs: General chair: R. Caron (rcaron@uwindsor.ca); program chair: D. Stanford (stanford@fisher.stats.uwo.ca).

Abstracts: Due date: March 1, 1999.

Information: Web site: <http://www.cors.ca/windsor/>.

* 11-12 **Mathematical Physics and Quantum Field Theory**, University of California, Berkeley, California.

Organizers: P. Hislop, Mathematics Dept., Univ. of Kentucky, Lexington, KY 40506-0027; tel: 606-257-3470; e-mail: hislop@ms.uky.edu; H. Warchall, Mathematics Dept., Univ. of North Texas, Denton, TX 76203-5118; tel: 940-565-3531; e-mail: hankw@unt.edu.

Focus: Symposium on the occasion of the seventieth birthday of Eyvind H. Wichmann, professor emeritus of physics at the Univ. of California, Berkeley. Talks will take place at the Berkeley Physics Department on Friday and Saturday, June 11 and 12. Symposium banquet on Friday evening. Social outing on Sunday, June 13.

Topics: Mathematical physics, quantum field theory, and related topics.

Information: To receive additional information or to contribute a talk, contact either of the organizers.

* 11-13 **20th Annual Meeting of the Canadian Applied and Industrial Mathematical Society (CAIMS-99)**, Université Laval, Quebec, Canada.

Supported by: The Canadian Applied and Industrial Mathematical Society (CAIMS), Le Centre de Recherche Mathématiques de Montréal (CRM), The Field Institute for Research in Mathematics, SIAM, GAMM.

Scientific Committee: J. Bélair (Univ. de Montréal), F. Bergeron (UQAM), J. Clements (Dalhousie Univ.), M. Fortin (chair), H. Manouzi (Univ. Laval), R. Miura (UBC), B. Moodie (Univ. of Alberta), B. Simpson (Univ. of Waterloo).

Invited Keynote Speakers: G. Alefeld, O. Diekeman, M. Gunzburger.

Local Organization Committee: M. Beauchamp, M. Fortin, J. J. Gervais, H. Manouzi, R. Pierre.

Minisymposia Themes: Dynamical systems in physiology; bifurcation theory; population dynamics; control problems for

nonlinear partial differential equations; numerical methods and simulations for nonlinear partial differential equations; interval arithmetic: algebraic problems; interval arithmetic: continuous problems; quantum computing; combinatorics and symbolic computations; fluid mechanics. The meeting will be held concurrently with the "Journée des Elements Finis", a one-day industrial mathematics workshop, the subject of which will be "Numerical Methods in Biomechanics".

Deadlines: Deadline for receipt of abstracts: Friday, April 30, 1999; deadline for registration (on site): Thursday, June 10, 1999.

Information: Further information on fees, etc., is available at the conference Web site: <http://www.mat.ulaval.ca/caims99/>, where it is possible to register electronically; get the material for abstract submission. Contact (e-mail preferred) R. Pierre, CAIMS-99, Département de Mathématiques et Statistique, Université Laval, Québec, QC, G1K 7P4, Canada; tel: 1-418-656-2972; fax: 1-418-656-2817; e-mail: rpierre@mat.ulaval.ca.

*16-19 **Joint Conference of the 5th Barcelona Logic Meeting and the 6th Kurt Gödel Colloquium**, Casa de la Caritat, Barcelona, Spain.

Lecturers: V. Danos (Univ. de Paris 7), L. van den Dries (Univ. of Illinois at Urbana-Champaign), M. Foreman (Univ. of California, Irvine), I. Juhasz (Hungarian Academy of Sciences), B. Kim (MIT), L. Libkin (Bell Laboratories), A. Macintyre (Edinburgh Univ.), H. Ono (Japan Advanced Institute of Science and Technology), D. Pigozzi (Iowa State Univ.), J. P. Ressayre (Univ. de Paris 7).

Information: <http://crm.es/info/cobalome.htm>.

*19-23 **NSF-CBMS Regional Conference on Mathematical Analysis of Viscoelastic Flows**, University of Delaware, Newark, Delaware.

Principal Lecturer: M. Renardy (Virginia Tech).

Organizers: D. O. Olagunju (Univ. of Delaware), olagunju@math.udel.edu; and Y. Renardy (Virginia Tech.), renardyy@math.vt.edu.

Information: Visit the Web site: <http://www.math.udel.edu/~olagunju/cbms/>, or contact the organizers.

*19-25 **Dynamics of Patterns**, Anogia, Crete, Greece.

Background: The Foundation for Research and Technology-Hellas (Institute of Applied and Computational Mathematics), in collaboration with the Univ. of Crete (Dept. of Mathematics), will continue in 1999 the series Euroconferences in Mathematics on Crete.

Organizers: N. Alikakos (Athens, Greece), G. Papanicolaou (Stanford Univ.)

Sponsor: The Training and Mobility of Researchers Programme of the Commission

of the European Union.

Main Speakers: G. Fusco (L'Aquila, Italy), W. Jaeger (Heidelberg, Germany), S. Mueller (Leipzig, Germany), E. Presutti (Rome, Italy), M. Soner (Princeton, NJ), M. Struwe (Zurich, Switzerland).

Location: The conferences will take place at the Anogia Academic Village, <http://www.uch.gr/Tmhmeta/MATHEMATICS/anogia.html>, a conference center located in the traditional Cretan village of Anogia on the slopes of Mount Ida.

Support: The Training and Mobility of Researchers Programme financially supports young researchers from the countries of the European Economic Area and Israel, as well as researchers from certain countries in Central and Eastern Europe, to enable them to attend the conferences. There will also be some limited funds from other sources available to support participants not belonging to the above groups. Support can cover (all or certain) travel, living, and registration expenses.

Information: Contact the local coordinator: S. Papadopolou, Dept. of Mathematics, Univ. of Crete, Heraklion, Crete, Greece; fax: 81-393881; e-mail: souzana@math.uch.gr; or N. Alikakos, Dept. of Mathematics, Univ. of Athens, Panepistimiopolis, 15784 Zografou, Athens, Greece; e-mail: nalikako@cc.uoa.gr.

*21-26 **Conference on Symplectic Geometry**, Instituto Superior Tecnico, Lisboa, Portugal.

Confirmed Speakers: M. Audin (Strasbourg), P. Biran (Stanford), Y. Eliashberg (Stanford), H. Geiges (Leiden), V. Ginzburg (Santa Cruz), E. Giroux (Lyon), V. Guillemin (MIT), Y. Karshon (Jerusalem), D. McDuff (Stony Brook), L. Polterovich (Tel-Aviv), S. Tolman (Illinois), A. Weinstein (Berkeley), J. Weitsman (Santa Cruz).

Program: There will be about 20 one-hour lectures on symplectic geometry and symplectic topology. The conference will start in the morning of Monday, June 21, and will finish in the afternoon of Saturday, June 26, with two half-days for sightseeing. A two-week course on algebraically integrable systems by M. Audin will take place in the weeks before and after the conference (June 14-18 and June 28-July 2).

Deadlines: Application for partial funding: April 1, 1999; application for local arrangements: May 1, 1999.

Information: URL: <http://www.math.ist.utl.pt/omega99.html>; e-mail: omega99@math.ist.utl.pt; tel: +351-1-841-7113; fax: +351-1-841-7598; postal address: Conference on Symplectic Geometry, a/c A. Cannas da Silva, Departamento de Matematica, Instituto Superior Tecnico, 1049-001 Lisboa, Portugal.

*21-27 **European Summer Courses 1999, C.I.M.E.: Computational Mathematics Driven by Industrial Applications**, Martina Franca (Taranto), Italy.

Organizers: The C.I.M.E. Foundation (International Mathematical Summer Center).

Scientific Direction: V. Capasso (Univ. di Milano), J. Periaux (Dassault Aviation), H. W. Engl (Univ. of Linz).

Courses: Five lectures in English on: 1) Path, trees and flows: Graph optimisation problems with industrial applications, R. Burkard (Technische Univ. Graz); 2) New computational concepts, adaptive differential equation solvers and virtual labs, P. Deuffhard (Konrad Zuse Zentrum, Berlin); 3) Computational methods for aerodynamic analysis and design, A. Jameson (Stanford Univ.); 4) Mathematical problems in industry, J.-L. Lions (Academy of Sciences, Paris, and Dassault Aviation); 5) Wavelet transforms and cosine transform in signal and image processing, G. Strang (MIT).

Seminars: Two-hour seminars will be held by the scientific directors and R. Mattheij: 1) Mathematics of the crystallisation process of polymers, V. Capasso (Univ. di Milano); 2) Inverse problems: Regularization methods, application in industry, H. W. Engl (Johannes Kepler Univ., Linz); 3) Mathematics of glass, R. Mattheij (TU Eindhoven); 4) Combining game theory and genetic algorithms for solving multi-objective shape optimisation problems in aerodynamics engineering, J. Periaux (Dassault Aviation).

Applications: Those who want to attend the session should send an application to the director of C.I.M.E. at the address below, **no later than April 30, 1999.**

Information: Fondazione C.I.M.E., c/o Dipartimento di Matematica "Ulisse Dini", Viale Morgagni, 67/A, 50134 Firenze, Italy; tel: +39-55-434975/+39-55-4237123; fax: +39-55-434975/+39-55-4222695; e-mail: cime@udini.math.unifi.it; C.I.M.E. director A. Cellina or Attention C.I.M.E. secretary V. Vespri. Information can also be found on the C.I.M.E. Web page, <http://www.math.unifi.it/cime/welcome.to.cime/>

*21-July 3 **PDEs in Models of Superfluidity, Superconductivity and Reactive Flow (NATO Advanced Study Institute)**, Cargese, Corsica, France.

Scientific Committee: H. Berestycki (Paris), L. A. Caffarelli (Austin), L. P. Kadanoff (Chicago), J. R. Ockendon (Oxford), Y. Pomeau (Paris), V. I. Zakharov (Moscow).

Aim: The development of modelling in the fields of superconductivity, superfluids, reactive flows, and combustion has given rise to a variety of highly sophisticated mathematical problems involving nonlinear partial differential equations. At the same time, there have been many important developments in the mathematical treatment of PDEs. The aim of this ASI is to bring together mathematicians with physicists working in these various topics and to give comprehensive and tutorial presentations of the basic ideas and more advanced developments and thus to encourage exchanges between these fields. The program

is therefore meant to be interdisciplinary.

Main Lecturers: M. Ausloos, H. Berestycki, H. Brezis, S. J. Chapman, L. P. Kadanoff, R. Klein, D. Levermore, A. Newell, Y. Pomeau, J. F. Rodrigues, H. Stone, G. Tarantello, F. A. Williams, V. I. Zakharov, E. Zuazua.

Applications: Registration forms and financial conditions are available from C. Philippe, Laboratoire de Physique Statistique, 24 rue Lhomond, 75231 Paris Cedex 05, France; tel: 00 33 1 44 32 37 65; e-mail: pde99@physique.ens.fr.

Information: http://www.phys.ens.fr/cargese/english/schools/ecole_pde.htm.

*25-30 **Number Theory and Arithmetical Geometry: Arakelov Geometry and Applications**, Obernai (near Strasbourg), France. **Organizer:** J.-B. Bost (Bures-sur-Yvette).

Background: The Programme of European Research Conferences (EURESCO) was launched ten years ago and is run by the European Science Foundation, largely with funding from the Euroconferences Activity of the European Union. Each conference consists of a series of meetings, held typically every other year. There are neither written contributions nor proceedings. Unconventional ideas and new approaches, not yet fully explored, are encouraged.

Information and Application Forms: J. Hendekovic, European Science Foundation, Office of European Research Conferences (EURESCO), 1 quai Lezay-Marnésia, 67080 Strasbourg Cedex, France; fax+33(0)388366987; e-mail: euresco@esf.org; WWW: <http://www.esf.org/euresco/>.

*26-July 2 **Holomorphic Dynamics**, Anogia, Crete, Greece.

Background: The Foundation for Research and Technology-Hellas (Institute of Applied and Computational Mathematics), in collaboration with the Univ. of Crete (Dept. of Mathematics), will continue in 1999 the series Euroconferences in Mathematics on Crete.

Organizers: K. Athanassopoulos (Crete, Greece), S. Bullett (London, U.K.), A. Douady (Paris-Sud, France), B. Harvey (London, U.K.). **Sponsor:** The Training and Mobility of Researchers Programme of the Commission of the European Union.

Main Speakers: K. Astala (Jyvaskyla, Finland), B. Branner (Lyngby, Denmark), A. Douady (Paris-Sud, France), J. Hubbard (Cornell Univ.), M. Lyubich (Stony Brook), J. Milnor (Stony Brook), J.-C. Yoccoz (Paris-Sud, France).

Location: The conferences will take place at the Anogia Academic Village, <http://www.uch.gr/Tmhmata/MATHEMATICS/anogia.html>, a conference center located in the traditional Cretan village of Anogia on the slopes of Mount Ida.

Support: The Training and Mobility of Researchers Programme financially supports young researchers from the countries of the European Economic Area and Israel, as well as researchers from certain countries

in Central and Eastern Europe, to enable them to attend the conferences. There will also be some limited funds from other sources available to support participants not belonging to the above groups. Support can cover (all or certain) travel, living, and registration expenses.

Information: Contact the local coordinator: S. Papadopoulou, Dept. of Mathematics, Univ. of Crete, Heraklion, Crete, Greece; fax: 81-393881; e-mail: souzana@math.uch.gr; or S. Bullett, School of Mathematical Sciences, Queen Mary & Westfield College, Univ. of London, Mile End Road, London E1 4NS, UK; e-mail: s.r.bullett@qmw.ac.uk.

*26-July 2 **Algebra and Discrete Mathematics: Infinite Combinatorics and Their Impact on Algebra**, Hattingen (near Essen), Germany.

Organizers: S. Shelah (Jerusalem) and R. Goebel (Essen).

Background: The Programme of European Research Conferences (EURESCO) was launched ten years ago and is run by the European Science Foundation, largely with funding from the Euroconferences Activity of the European Union. Each conference consists of a series of meetings, held typically every other year. There are neither written contributions nor proceedings. Unconventional ideas and new approaches, not yet fully explored, are encouraged.

Information and Application Forms: J. Hendekovic, European Science Foundation, Office of European Research Conferences (EURESCO), 1 quai Lezay-Marnésia, 67080 Strasbourg Cedex, France; fax+33(0)388366987; e-mail: euresco@esf.org; WWW: <http://www.esf.org/euresco/>.

*26-July 2 **Holomorphic Dynamics**, Anogia, Crete, Greece.

Information: The Foundation for Research and Technology-Hellas (Institute of Applied and Computational Mathematics), in collaboration with the University of Crete (Department of Mathematics), will continue in 1999 the series Euroconferences in Mathematics on Crete.

Sponsor: The Training and Mobility of Researchers Programme of the Commission of the European Union.

Organizers: K. Athanassopoulos (Crete, Greece), S. Bullett (London, U.K.), A. Douady (Paris-Sud, France), B. Harvey (London, U.K.).

Main Speakers: K. Astala (Jyvaskyla, Finland), B. Branner (Lyngby, Denmark), A. Douady (Paris-Sud, France), J. Hubbard (Cornell Univ.), M. Lyubich (Stony Brook), J. Milnor (Stony Brook), J.-C. Yoccoz (Paris-Sud, France).

Location: The conferences will take place at the Anogia Academic Village (<http://www.uch.gr/Tmhmata/MATHEMATICS/anogia.html>), a conference center located in the traditional Cretan village of Anogia on the slopes of Mount Ida.

Support: The Training and Mobility of Researchers Programme financially supports young researchers from the countries of

the European Economic Area and Israel, as well as researchers from certain countries in Central and Eastern Europe, to enable them to attend the conferences. There will also be some limited funds from other sources available to support participants not belonging to the above groups. Support can cover (all or certain) travel, living, and registration expenses. For information please contact the local coordinator of the conference series.

Information: For additional information please contact the local coordinator: S. Papadopoulou, Dept. of Mathematics, Univ. of Crete, Heraklion, Crete, Greece; fax: 81-393881; e-mail: souzana@math.uch.gr; or: S. Bullett, School of Mathematical Sciences, Queen Mary & Westfield College, Univ. of London, Mile End Road, London E1 4NS, United Kingdom; e-mail: s.r.bullett@qmw.ac.uk.

*27-July 4 **Local and Global Problems for Dirac Operators**, Ixatapa, Zihuatanejo, Mexico.

Organizers: W. Sproessig, Technical Univ. of Freiberg, Germany (sproessig@math.tu-freiberg.de) and John Ryan, Univ. of Arkansas (jrryan2@osf1.gmu.edu).

Program: To study the recent developments in the theory and application of Dirac operators in analysis, including harmonic analysis, several complex variables, boundary problems and Hardy spaces.

Deadline for Abstracts: March 31, 1999.

*28-July 1 **The 5th Experimental Chaos Conference**, Orlando, Florida.

Conference Organizers: M. Ding, Center for Complex Systems, Florida Atlantic University, Boca Raton, FL 33431; 407-367-2324; fax 407-367-3634; ding@daffy.ccs.fau.edu; W. L. Ditto, Applied Chaos Lab., School of Physics, Georgia Institute of Technology, Atlanta, GA 30332; 404-894-5216; fax 404-894-9958; wditto@acl.gatech.edu; A. Osborne, Dipartimento di Fisica Generale, via Pietro Giuria 1, 10125 Torino, Italy; osborne@ph.unito.it; M. L. Spano, NSWC, Carderock Lab., 9500 MacArthur Blvd., Code 684, W. Bethesda, MD 20817; 301-227-4466; fax 301-227-4449; mark@chaos.dt.navy.mil; L. M. Pecora, Naval Research Lab., Code 6343, Washington, DC 20375; 202-767-6002; fax 202-767-1697; pecora@zoltar.nrl.navy.mil.

Sponsor: M. Shlesinger, Physical Sciences Division, Office of Naval Research 331, Arlington, VA 22217; 703-696-4220; fax 703-696-6887; shlesim@onr.navy.mil.

Scope: This conference will include experimental aspects of nonlinear dynamics with an emphasis on the physical, engineering, and biological sciences. Preliminary topics include: Spatiotemporal chaos and patterns, Quantum chaos (dots, r.f. waves, acoustic waves, etc.), Optics, Hydrodynamics and turbulence (including meteorology and oceanography), Biology, Condensed matter systems, Control of chaos, Mechanical systems, Geophysics, Synchro-

nization, Electronic circuits, and General chaotic systems.

Information: The conference will be held at Coronado Springs Resort, Walt Disney World, Orlando, Florida. The conference is sponsored by the Office of Naval Research. Members of the worldwide scientific, medical, and engineering communities interested in recent developments and techniques of experimental nonlinear dynamics are invited to attend the conference and to contribute to its technical sessions and workshops. Additional information will be mailed to you if you visit our Web site, <http://www.physics.gatech.edu/ecc5/>.

* 28–July 6 **European Summer Courses 1999, C.I.M.E.: Iwahori-Hecke Algebras and Representation Theory**, Martina Franca (Taranto), Italy.

Organizer: The C.I.M.E. Foundation (International Mathematical Summer Center).

Scientific Direction: V. Baldoni (Univ. di Roma "Tor Vergata") and D. Barbasch (Cornell Univ.).

Courses: Six lectures in English on: 1) Double Hecke algebras and applications, I. Cherednik (Univ. of North Carolina at Chapel Hill), 2) Representation theory of affine Hecke algebras, G. Heckman (Catholic Univ., Nijmegen, Netherlands), 3) Representations of affine Hecke algebras, G. Lusztig (MIT), 4) Affine-like Hecke algebras and p -adic representation theory, R. Howe (Yale Univ.).

Applications: Those who want to attend the session should send an application to the director of C.I.M.E. at the address below, **no later than April 30, 1999.**

Information: Contact: Fondazione C.I.M.E., c/o Dipartimento di Matematica "Ulisse Dini", Viale Morgagni, 67/A, 50134 Firenze, Italy; tel.: +39-55-434975/+39-55-4237123; fax: +39-55-434975/+39-55-4222695; e-mail: cime@udini.math.unifi.it; Attention C.I.M.E. director A. Cellina or C.I.M.E. secretary V. Vespri. Information can also be found on the C.I.M.E. Web page, <http://www.math.unifi.it/cime/welcome.to.cime/>.

July 1999

* 1–10 **European Summer Courses 1999, C.I.M.E.: Theory and Applications of Hamiltonian Dynamics**, Cetraro (Cosenza), Italy.

Organizer: The C.I.M.E. Foundation (International Mathematical Summer Center).

Scientific Direction: A. Giorgilli (Univ. Di Milano).

Courses: Six lectures in English on: 1) Physical applications of Nekhoroshev theorem and exponential estimates, G. Benettin (Univ. di Padova, Italy), 2) KAM-theory, H. Eliasson (Royal Institute of Technology, Stockholm, Sweden), 3) The adiabatic invariant in classical dynamics: Theory and applications, J. Henrard (Faculté Univ. Notre Dame de la Paix, Namur, Belgium), 4) Some aspects of qualitative theory of Hamiltonian PDEs, S. B. Kuksin (Heriot-Watt Univ.,

Edinburgh, and Steklov Institute, Moscow), 5) An overview on some problems in celestial mechanics, C. Simó (Univ. de Barcelona, Spain).

Applications: Those who want to attend the session should send in an application to the director of C.I.M.E. at the address below, **no later than April 30, 1999.**

Information: Contact: Fondazione C.I.M.E., c/o Dipartimento di Matematica "Ulisse Dini", Viale Morgagni, 67/A, 50134 Firenze, Italy; tel.: +39-55-434975/+39-55-4237123; fax: +39-55-434975/+39-55-4222695; e-mail: cime@udini.math.unifi.it; Attention C.I.M.E. director A. Cellina or C.I.M.E. secretary V. Vespri. Information can also be found on the C.I.M.E. Web page, <http://www.math.unifi.it/cime/welcome.to.cime/>.

* 2–5 **VIIIth Oporto Meeting on Geometry, Topology and Physics**, Dep. Matematica Pura, Fac. Ciências, Oporto University, Oporto, Portugal.

Aim: The aim of the Oporto meetings is to bring together mathematicians and physicists interested in the interrelationship between geometry, topology and physics and to provide them with a pleasant and informal environment for scientific interchange.

Topics: The focus themes for this year are: 1. spinors and geometry, 2. integrability & algebraic geometry and, 3. topological quantum field theory. The meeting will consist largely of four short courses, of approximately three lectures each, given by the main speakers, supplemented by a limited number of seminars (more details later). The talks are at the advanced graduate or postdoctoral level, and should be of interest to all researchers wishing to learn about recent developments in the overlap between geometry, topology, and physics.

Main Speakers: R. Donagi (Univ. of Pennsylvania): Spectral curves, integrable systems, and moduli; J. Froehlich (Institut für Theoretische Physik): Supersymmetry and noncommutative geometry; E. Getzler (Northwestern Univ.): The Virasoro conjecture for Gromov-Witten invariants: A status report; I. Krichever (Columbia Univ.): Moduli spaces of Riemann surfaces and 2D integrable systems.

Information: WWW: <http://fisica.ist.utl.pt/~jmourao/om/omviii/textoom99b.html>.

* 3–9 **Computer Vision and Speech Recognition: Statistical Foundations and Applications**, Anogia, Crete, Greece.

Background: The Foundation for Research and Technology-Hellas (Institute of Applied and Computational Mathematics), in collaboration with the University of Crete (Department of Mathematics), will continue in 1999 the series Euroconferences in Mathematics on Crete.

Organizers: B. Gidas (Brown Univ.), D. Mumford (Brown Univ.).

Sponsor: The Training and Mobility of Researchers Programme of the Commission

of the European Union.

Main Speakers: Y. Amit (Chicago), O. Catoni (Paris VI, France), P. Diakonis (Stanford), O. Faugeras (INRIA Sophia Antipolis, France), D. Geman (École Polytechnique, Palaiseau, France), S. Geman (Brown Univ.), I. Johnstone (Stanford), C. Regazzoni (Genoa, Italy), S. Ullmann (Weizmann Institute, Israel), J. Zerubia (INRIA Sophia Antipolis, France).

Location: The conferences will take place at the Anogia Academic Village, <http://www.uch.gr/Tmhata/MATHEMATICS/anogia.html>, a conference center located in the traditional Cretan village of Anogia on the slopes of Mount Ida.

Support: The Training and Mobility of Researchers Programme financially supports young researchers from the countries of the European Economic Area and Israel, as well as researchers from certain countries in Central and Eastern Europe, to enable them to attend the conferences. There will also be some limited funds from other sources available to support participants not belonging to the above groups. Support can cover (all or certain) travel, living, and registration expenses.

Information: Contact the local coordinator: S. Papadopoulou, Dept. of Mathematics, Univ. of Crete, Heraklion, Crete, Greece; fax: 81-393881; e-mail: souzana@math.uch.gr; or B. Gidas, Division of Applied Mathematics, Brown Univ., Providence, RI 02912; e-mail: gidas@dam.brown.edu.

* 5 **Mathematical Finance Workshop**, Edinburgh, Scotland.

Aim: The workshop aims to cover a broad spectrum of issues, from recent progress in theoretical mathematical finance to the concrete impact this has had on our understanding of the management of asset portfolios.

Speakers: A. Dassios (London School of Economics): Quantile and other options dependent on occupation times of Brownian motion; H. Pham (Equipe d'Analyse et de Mathématiques Appliquées, Univ. de Marne-la-vallée): Optimization in incomplete and constrained markets; B. Werker (Univ. Libre de Bruxelles): Estimation via stochastic volatility and GARCH models; E. Whalley (Warwick Univ.): Option pricing with transaction costs.

Contributed Talks: Contributed talks of 25 minutes are invited from students, academic researchers, and industrial researchers alike. The deadline for submission of abstracts by e-mail or regular mail is May 15, 1999. Confirmation of acceptance will be given by June 5.

Information: Inquiries concerning the workshop should be addressed to F. Avram, e-mail: florin@ma.hw.ac.uk, and A. Kyprianou.

* 5–9 **Quadratic Forms and Their Applications**, University College, Dublin, Ireland.

Organizers: E. Bayer-Fluckiger, Besançon (bayer@math.univ-comte.fr); D. Lewis,

Dublin (dwlewis@ollamh.ucd.ie); and A. Ranicki, Edinburgh (aar@maths.ed.ac.uk).

Sponsors: The conference is supported by the European Union under the auspices of the TMR network project "K-Theory, Linear Algebraic Groups and Related Structures".

Speakers: The main speakers will be A. Berge (Bordeaux), J. J. Boutros (Paris), J. H. Conway (Princeton), D. Hoffmann (Besançon), C. Kearton (Durham), M. Kreck (Mainz/Oberwolfach), R. Parimala (Bombay), M. Rost (Regensburg), W. Scharlau (Muenster), J.-P. Serre (Paris), M. Taylor (Manchester), C. T. C. Wall (Liverpool).

Registration: <http://mathsa.ucd.ie/TMR/quadconf.html>.

*5-August 21 **Summer Semester on Complex Potential Theory and its Applications**, Feza Gursev Institute, Istanbul, Turkey.

Emphasis: Feza Gursev Institute will host a research-teaching semester (July 5-August 6 and August 16-21, 1999) on Complex Potential Theory (CPT) and its applications. There will be a workshop in Edirne (Linear Topological Spaces and Complex Analysis III) August 9-August 13, emphasizing, mainly, the connection between complex analysis and functional analysis.

Organizers: A. Aytuna (Middle East Technical Univ.), T. Terzioglu (Sabanci Univ.) and V. Zahariuta (Feza Gursev Institute & Rostov State Univ.).

Purpose: CPT is a relevant potential theory for the multidimensional complex analysis that deals with plurisubharmonic functions and maximal plurisubharmonic functions; it is strongly connected with the study of the complex Monge-Ampère equation. CPT is an active area of research in mathematics with applications in approximation and interpolation theory, partial differential equations, complex dynamical systems, differential geometry, number theory and so on. The aim, during the semester, is to impart the main ideas of CPT to advanced graduate students and other interested mathematicians through a series of lectures by leading researchers in the field as well as to proceed scientific discussions of the advanced results and some open problems in CPT.

Lecturers: The semester will consist largely of courses taught by invited lecturers. The following specialists will provide 10-15 hour courses of lectures each: A. Aytuna (METU, Turkey): Introduction to the classical potential theory in the complex plane; S. Kolodziej (Jagellonian Univ., Krakow, Poland): The main aspects of CPT and Monge Ampère equations; E. Poletsky (Syracuse Univ., USA): Plurisubharmonic currents and pluripotentials; J. Siciak (Jagellonian Univ., Krakow, Poland): Pluripotentials and their applications in interpolation and approximation theory; D. Vogt (Wuppertal Univ., Germany): CPT, Phragmén-Lindelöf Principles and applications to partial differential equations; V. Zahariuta (Rostov

State Univ., Russia & Feza Gursev Institute): Plurisubharmonic functions and analytic functions of several complex variables.

Participation: Candidates should send in their request for participation directly to the Feza Gursev Institute (<http://www.gursev.gov.tr/complex.html>). TUBITAK will fully support those participants from the outlying universities within Turkey. Those institutions which are able to provide funds are expected to meet at least part of the living expenses of the participants.

Deadlines: Candidates requesting financial support: June 1, 1999; candidates not requesting financial support: June 15, 1999. The organizing committee will make running evaluations and will communicate its decisions to all the candidates within as short a time as possible.

*6 **Intuitionistic Modal Logics and Applications, IMLA'99 (Satellite to LICS'99)**, Trento, Italy.

Organizers: M. Fairtlough (Univ. of Sheffield), M. Ferrari (Univ. of Milan), M. Mendler (Univ. of Sheffield),

Program Committee: M. Fairtlough (Sheffield), Z. Luo (Durham), M. Mendler (Sheffield), P. Miglioli (Milan), E. Moggi (Genova), A. Pitts (Cambridge), T. Stroup (Passau).

Speaker: F. Pfenning (Pittsburgh).

Goal: Intuitionistic and modal logics are of foundational relevance to computer science, and both have led to successful applications in the formal specification and verification of computer systems. The intuitionistic and modal frameworks are usually investigated separately. However, a growing body of published work, stimulated by theoretical considerations and fed by various applications in computer science, shows that both paradigms may fruitfully be merged. Intuitionistic modal logic (IML) and modal type theory (MTT) can exploit both the proof-theoretic strengths of intuitionistic logic and the model-theoretic features of modal logics. The potential and the challenge of IML and MTT both lie in finding a satisfactory combination of its intensional and its extensional aspects. This one-day workshop is intended to seed a more concerted organization of the ongoing research in the area of IML, bringing together the method-oriented and the problem-oriented approaches on the one hand, and the proof-theoretic and model-theoretic ones on the other. This will create fruitful research stimuli through the friction between engineering applications and pure theory, and between intensional and extensional lines of thinking.

Topics: Applications of intuitionistic necessity or possibility, strong monads, or evaluation modalities; Use of IML and MTT to formalize mechanisms of abstraction and refinement; Applications of IML and MTT to formal verification, abstract interpretation, and program analysis and optimization; Applications of modal types to integration of inductive and co-inductive types, higher-

order abstract syntax, strong functional programming; Extraction of constraints or programs, nonstandard information extraction techniques; Curry-Howard correspondence between computational lambda calculi and computational logics; Extensions of this correspondence by other modalities or quantifiers; Models of IML such as algebraic, categorical, Kripke, topological, realizability interpretations; Notions of proof for IML and intermediate constructive logics; Proof search in and implementations of IML.

Format: The workshop will be an informal one-day meeting with invited talk, regular paper presentations, and discussion.

Publication: The final versions of all workshop papers will be made available on the workshop Web page. Authors of accepted papers will be invited to submit full and revised versions for a special journal issue of *Mathematical Structures in Computer Science* (MSCS) dedicated to the topic of the workshop. There will be a second round of refereeing for MSCS according to high journal standards.

Submissions: There is no page limit for workshop contributions, which may be in the form of extended abstracts or draft full papers. Workshop contributions to be considered for MSCS must be original work that has not yet appeared elsewhere. Submissions should be sent to floc99imla@dcs.shef.ac.uk or to one of the organizers by April 2, 1999.

Deadlines: IMLA submission deadline: April 2, 1999; IMLA notification: May 21, 1999; IMLA final version: June 11, 1999.

Information: <http://www.dcs.shef.ac.uk/~matt/mendler/floc-ws.html>.

*6-16 **Advanced Course on Mathematical Aspects of Image Processing**, Centre de Recerca Matemàtica and Centre de Visió per Computador, Barcelona, Spain.

Speakers: V. Caselles (Univ. de les Illes Balears) and J. M. Morel (École Normale Supérieure de Cachan): Mathematical models in image processing; S. Mallat (École Polytechnique de Palaiseau) and Y. Meyer (École Normale Supérieure de Cachan): Signal processing with wavelets; J. Serra (École des Mines, Paris): Mathematical morphology.

Information: <http://crm.es/info/acmaip/acmaip.html>

*7-15 **European Summer Courses 1999, C.I.M.E.: Global Theory of Minimal Surfaces in Flat Spaces**, Martina Franca (Taranto), Italy.

Organizer: The C.I.M.E. Foundation (International Mathematical Summer Center).

Scientific Direction: G. P. Pirola (Univ. di Pavia).

Courses: Six lectures in English on: 1) Asymptotic geometry of properly embedded minimal surfaces, W. H. Meeks III (Univ. of Massachusetts, Amherst), 2) Properly embedded minimal surfaces with finite total curvature, A. Ros (Univ. de Granada, Spain), 3) Minimal surfaces of finite topology prop-

erly embedded in E (Euclidean 3-space), H. Rosenberg (Univ. Paris VII, France).

Applications: Those who want to attend the session should send an application to the director of C.I.M.E. at the address below, **no later than April 30, 1999.**

Information: Contact: Fondazione C.I.M.E., c/o Dipartimento di Matematica "Ulisse Dini", Viale Morgagni, 67/A, 50134 Firenze, Italy; tel.: +39-55-434975/+39-55-4237123; fax: +39-55-434975/+39-55-4222695; e-mail: cime@udini.math.unifi.it; Attention C.I.M.E. director A. Cellina or C.I.M.E. secretary V. Vespri. Information can also be found on the C.I.M.E. Web page, <http://www.math.unifi.it/cime/welcome.to.cime/>.

* 8-17 **School on Singularities in Algebraic Geometry and String Theory**, Complexo Interdisciplinar de Universidade de Lisboa, Lisbon, Portugal.

Organizers: C. Florentino, M. M. Lopes, J. Mourão, O. Neto, J. P. Nunes.

Aim: Our aim is to have a ten-day school on the fascinating interface between singularity theory (in complex algebraic geometry) and superstring theory. We will have six courses by leading experts on both mathematical and physical aspects of singularity theory.

Lecturers: P. Aspinwall (Duke Univ.), V. Batyrev (Univ. of Tuebingen), Ph. Candelas (Univ. of Texas), L. Dung-Trang (Univ. de Provence), M. S. Narasimhan (International Center for Theoretical Physics), M. Reid (Univ. of Warwick).

Deadline: For registration: April 30, 1999.

Financial Support: Fundação para a Ciência e Tecnologia, Centro de Álgebra da Universidade do Lisboa, Centro de Análise Matemática, Geometria e Sistemas Dinâmicos, Centro de Matemática e Aplicações Fundamentais, Centro Interdisciplinar de Astrofísica, Project TMR ERCFMRXCT980040 "Singularities of Differential Equations and Foliations".

Information: <http://www.fisica.ist.utl.pt/~jmouroao/cim/main.html>.

* 8-24 **XXIXth Probability Summer School**, Saint-Flour (Cantal), France.

Invited Speakers: E. Bolthausen (Zurich Univ., Switzerland), Large deviations and interacting random walks and random surfaces; E. Perkins (Univ. of British Columbia, Vancouver, Canada), Measure-valued branching diffusions and interactions; A. van der Vaart (Univ. of Amsterdam, Netherlands), Semiparametric statistics.

Information: P. Bernard, Univ. Blaise Pascal, Mathématiques Appliquées, F63177 Aubière Cedex, France; tel.: 04.73.40.70.52 or 04.73.40.70.50; fax: 04.73.40.70.64; e-mail: bernard@ucfma.univ-bpclermont.fr.

* 12-14 **Feynman Integrals and Related Topics**, Yonsei University, Seoul, Korea.

Sponsors: Natural Science Research Inst. and Inst. for Mathematical Sciences; Yonsei

Univ.; Korean Mathematical Society; Korea Science and Engineering Foundation.

Organizers: S. Albeverio (Ruhr-Univ.), K. S. Chang (Yonsei Univ.), T. Hida (Meijo Univ.), G. W. Johnson (Univ. of Nebraska), G. Kallianpur (Univ. of N. Carolina), M. L. Lapidus (Univ. of California, Riverside), Y. M. Park (Yonsei Univ.).

Invited Speakers: S. Albeverio (Ruhr-Univ.), Z. Brzezniak (Univ. of Hull), J. Van Casteren (Univ. of Antwerp), B. D. Choi (KAIST), D. M. Chung (Sogang Univ.), A. B. Cruzeiro (Univ. Lisbon), B. DeFacio (Univ. of Missouri), T. Hida (Meijo Univ.), T. Ichinose (Kanazawa Univ.), B. Jefferies (Univ. of New South Wales), G. W. Johnson (Univ. of Nebraska), G. Kallianpur (Univ. of N. Carolina), L. Kauffman (Univ. of Ill., Chicago), M. L. Lapidus (Univ. of California, Riverside), Y. J. Lee (Cheng Kung Univ.), N. Obata (Nagoya Univ.), Y. M. Park (Yonsei Univ.), A. N. Sen Gupta (Louisiana State Univ.), D. A. Storvick (Univ. of Minnesota), L. Streit (Bielefeld and Lisbon), V. K. Tuan (Kuwait Univ.), A. Truman (Univ. of Wales-Swansea), I. S. Wee (Korea Univ.), J. C. Zambrini (Univ. of Lisbon), T. Zastawniak (Univ. of Hull).

Call for Papers: We invite submissions for 20-minute presentations on any aspect of Feynman integral and related topics. A one-page abstract typed in $\mathcal{A}_{\mathcal{M}}\mathcal{S}$ - \TeX or \LaTeX must be received by June 11, 1999, to be considered for inclusion in the program.

Proceedings: The proceedings of the conference will be submitted for publication in the *J. of Korean Math. Soc.* The deadline for submitting a paper for the proceedings is July 14, 1999.

Social Program: Welcome reception, two social dinners, and an excursion. A guided half-day tour will be organized. One-day (or half-day) optional tour (July 15) will be arranged.

Information: K. S. Chang, Dept. of Mathematics, Yonsei Univ., Seoul, 120-749, Korea; fax: 82-2-392-6634; e-mail: kunchang@bubble.yonsei.ac.kr.

* 12-15 **On-Line Decision Making**, Rutgers University, Busch Student Center, Piscataway, New Jersey.

Organizers: Y. Freund, AT&T Labs-Research, R. Vohra, Northwestern Univ.

Local Arrangements: P. Pravato, DIMACS Center, pravato@dimacs.rutgers.edu, tel: 732-445-5929.

Focus: In recent years there has been increasing interest in the analysis of algorithms for making repeated decisions within an unknown environment. This work is going on in a variety of fields, including: information theory, game theory and mathematical economics, machine learning, statistics, computer science, and behavioral science. To facilitate such collaborations, we are organizing this workshop as an opportunity for people from various fields to educate themselves about the work going on in other fields.

Information: Y. Freund, AT&T Labs-Research, e-mail: yoav@research.att.com;

WWW: <http://dimacs.rutgers.edu/Workshops/index.html>.

* 12-16 **British Combinatorial Conference 1999**, University of Kent at Canterbury, Canterbury, Kent CT2 7NF, UK.

Local Organizers: J. D. Lamb and D. A. Preece.

Rado Lecturer: W. T. Tutte.

Invited Speakers: S. Ball, C. Colbourn, M. Dyer, K. Metsch, J. Pach, R. Thomas, C. Thomassen, N. Wormald.

Information: <http://www.ukc.ac.uk/CBS/ms/bcc17/>.

* 12-17 **Workshop on "Model Theory and Permutation Groups"**, University of Trento, Italy.

Aim: In recent years infinite permutation groups have been the subject of intensive investigation. An interesting aspect of this area is the interplay between algebra and model theory. Aim of the workshop is to provide an introduction to this subject and to address open problems and possible new developments.

Speakers: D. Evans (Univ. of East Anglia, Norwich, UK), D. Macpherson (Univ. of Leeds, UK), P. M. Neumann (Univ. of Oxford, UK).

Organizers: S. Baratella and O. Puglisi (Univ. of Trento).

Information: For information about travel and accommodation, please contact E. Nones, tel: +39-0461-881166; fax: +39-0461-881122; e-mail: enones@amm.unitn.it. Information about the scientific program can be obtained from the organizers, tel: +39-0461-881616; fax: +39-0461-881624; baratella@science.unitn.it, puglisi@science.unitn.it.

* 13-22 **International Conference on Bio-mathematics-Bioinformatics and Applications of Functional Differential Difference Equations**, Akdeniz University, Antalya, Turkey.

Focus: The aim of the conference is to stimulate collaboration between mathematicians and bioscientists and to act as a forum for the exchange of recent research results and new perspectives in those fields. In addition, the conference is devoted to a rapidly growing interdisciplinary domain of science where experimental biology and medicine, biochemistry, functional differential and difference equations, stochastic functional differential equations and stochastic processing, functional analysis, evolution equations, operator theory, computational mathematics, and various fields of technology all come together.

Topics: The conference will cover the theory of difference and differential equations with applications to related disciplines within biology and medicine, including immunology, epidemiology, evolution, population dynamics and ecology, molecular biology, cell signaling, tumor growth and treatment, metabolic modeling, neuromodeling, computational biology, cardiovascular modeling, and biomechanics. In addition, special

sessions will be organized around focused topics that are particularly new or rapidly gaining importance. Titles of the planned parallel sessions: Theory of Differential Difference Equations; Discrete and Dynamical Modeling; Cell and Molecular Biology; Ecology and Evolutionary Dynamics; Neural Networks and Applications; Epidemiology and Theory of Epidemics.

Organizers: Z. Agur, O. Arino, J. Cushing, O. Diekmann, S. Elaydi, K. Gopalsamy, G. Ladas, E. Litsyn, M. C. Mackey, G. Webb, H. Yoshiyuki.

Local Organizing Committee: H. Akca, B. Attili, L. Berezansky, L. Byszewski, B. Ciplak, V. Covachev, K. Fiskin, E. Galperin, H. Parnas, Z. Taib.

Information: H. Akca, King Fahd University of Petroleum and Minerals, Mathematical Sciences Department, P. O. Box 1071, Dhahran 31261, Saudi Arabia; e-mail: akca@kfupm.edu.sa, or ciplak@pascal.sci.akdeniz.edu.tr, or fiskin@pascal.sci.akdeniz.edu.tr.

* 17-23 **Groups of Tree Automorphisms and Lattices**, Anogia, Crete, Greece.

Background: The Foundation for Research and Technology-Hellas (Institute of Applied and Computational Mathematics), in collaboration with the University of Crete (Department of Mathematics), will continue in 1999 the series Euroconferences in Mathematics On Crete.

Organizers: H. Bass (Columbia Univ.), A. Lubotzky (Hebrew Univ., Israel), S. Mozes (Hebrew Univ., Israel), M. Picardello (Rome II, Italy).

Sponsor: The Training and Mobility of Researchers Programme of the Commission of the European Union.

Main Speakers: H. Bass (Columbia Univ.), M. Burger (Zurich, Switzerland), P. de la Harpe (Geneva, Switzerland), A. Lubotzky (Hebrew Univ., Israel), S. Mozes (Hebrew Univ., Israel), F. Paulin (Paris-Sud, France).

Location: The conferences will take place at the Anogia Academic Village, <http://www.uch.gr/Tmhmta/MATHEMATICS/anogia.html>, a conference center located in the traditional Cretan village of Anogia on the slopes of Mount Ida.

Support: The Training and Mobility of Researchers Programme financially supports young researchers from the countries of the European Economic Area and Israel, as well as researchers from certain countries in Central and Eastern Europe, to enable them to attend the conferences. There will also be some limited funds from other sources available to support participants not belonging to the above groups. Support can cover (all or certain) travel, living, and registration expenses.

Information: Contact the local coordinator: S. Papadopoulou, Dept. of Mathematics, Univ. of Crete, Heraklion, Crete, Greece; fax: 81-393881; e-mail: souzana@math.uch.gr; or S. Mozes, Dept. of Mathematics, Hebrew Univ. of Jerusalem, Givat Ram,

91904 Jerusalem, Israel; e-mail: mozes@math.huji.ac.il.

* 19-22 **2nd International Symposium on Finite Volumes for Complex Applications—Problems and Perspectives**, University of Duisburg, Germany.

Organizers: F. Benkhaldoun, D. Hänel, and R. Vilsmeier; e-mail: du99@vug.uni-duisburg.de; tel: +49 203 379 2500; fax: +49 203 379 3087.

Focus: The FVCA-Symposium is intended to provide a discussion forum for mathematicians and physicists concerned with or interested in finite volume methods for any application.

Topics: Limits of methods and errors; Global error analysis; Discontinuous solutions and fitting; Multidimensional and directional schemes; Systems with source terms; Complex geometries and adaptivity; Complexity, efficiency and large computations; New fields of application.

Speakers: F. Coquel (Paris, France), G. Degrez (von Karman Institute, St-Genesius-Rode, Belgium), J. M. Ghidaglia (ENS de Cachan, France), R. Klein (Potsdam Institut f. Klimafolgenforschung, Germany), R. Lazarov (Lawrence Livermore National Laboratory, CA), S. Noelle (Univ. of Bonn, Germany), J. A. Sethian (Univ. California, Berkeley (to be confirmed)).

Deadline: For abstracts: March 15, 1999.

Information: <http://www.vug.uni-duisburg.de/FVCAII/> or contact the organizers.

* 19-23 **Statistical Inference from Genetic Data on Pedigrees**, Houghton, Michigan.

Organizers: J. Dong (Michigan Technological Univ.), e-mail: jdong@mtu.edu, tel: 906-482-3177; A. Godbole (Michigan Tech.).

Topics: E. A. Thompson will deliver ten lectures in a most dynamic area of mathematical activity—one that lies at the confluence of the fields of statistics, probability, molecular biology, and genetics.

Funding: This is an NSF/CBMS Regional Conference in the Mathematical Sciences supported by NSF and Michigan Technological University. Travel and subsistence support will be available for about thirty participants.

Information: <http://www.math.mtu.edu/~jdong/CBMS.html>.

* 19-24 **CT99 - International Category Theory Meeting**, University of Coimbra, Coimbra, Portugal.

Invited Speakers: S. Awodey (Carnegie Mellon Univ.), M. Batanin (Macquarie Univ., Australia), C. Butz (McGill Univ., Canada), M. P. Carrasco (Univ. Granada, Spain), J. Funk (UBC, Canada), S. Mac Lane (Univ. Chicago), I. Moerdijk (Univ. Utrecht, Netherlands), J. Rosicky (Masaryk Univ., Czech Republic), S. Schanuel (SUNY at Buffalo), E. Vitale (Univ. Louvain-la-Neuve, Belgium).

Call for Papers: Contributed talks of 30 minutes in length in all areas of category theory and applications are invited.

Scientific Committee: J. Adámek (Tech. Univ. Braunschweig, Germany), B. Banaschewski (McMaster Univ., Canada), P. T. Johnstone (Univ. of Cambridge, UK), A. Joyal (Univ. Québec, Montréal, Canada), F. W. Lawvere (SUNY at Buffalo), D. Scott (Carnegie Mellon Univ.), R. Street (Macquarie Univ., Australia), W. Tholen (York Univ., Canada).

Organizing Committee: M. M. Clementino, G. Gutierrez, J. Picado, M. Sobral, L. Sousa.

Satellite Event: School on Category Theory and Applications, University of Coimbra, Portugal, July 13-17, 1999; <http://www.mat.uc.pt/~scta/>; e-mail: scta@mat.uc.pt.

Information: For detailed information visit the conference Web page <http://www.mat.uc.pt/~ct99/>, or send e-mail to ct99@mat.uc.pt.

* 19-30 **Symmetries and the Moment Mapping**, CIRM (Marseille-Luminy), France.

Aim: Summer school aimed at doctoral students and young researchers in mathematics or theoretical physics.

Program: Six minicourses plus a number of research talks.

Main Lecturers: M. Audin, P. Iglesias, L. Jeffrey, A. Kirillov, R. Palais, E. Prato.

Organizers: P. Iglesias (Université de Provence, France) and E. Prato (Université de Nice, France).

Information: <http://math.unice.fr/~elisa/sam/sam.html>; <http://www.cmi.univ-mrs.fr/sam/sam.html>.

* 31-August 2 **Mathfest 99**, Mathematical Association of America, Providence, RI.

Meeting: Join MAA for Mathfest, its annual summer meeting, guaranteed to reignite your passion for mathematics and teaching. Mathfest offers a variety of traditional lectures, as well as more interactive Special Sessions, Contributed Paper Sessions, Minicourses, and the Short Course. This year's short course delves into Recent Developments in the Teaching of Differential Equations. Mathfest also offers an exhibit hall, numerous student activities, and social events where you can chat and compare meeting notes with your colleagues.

Invited Addresses: Numbers, Numbers, Numbers: Prime Numbers, Carmichael Numbers, and Smooth Numbers (C. Pomerance); Geometry and Visualization of Surfaces (C. Terng); Wide Open Spaces (M. Currie); A Square Pie for the Simpsons, and Other Mathematical Diversions (D. Kalman); The Creation of the Calculus: Who, What, When, Where, Why (V. F. Riskey); Teaching Stages (T. Banchoff); The Mandelbrot Set, the Farey Tree, and the Fibonacci Sequence (R. L. Devaney); What to Do in K-12 (J. Roitman); Queues with Time Varying Rates and their Applications (W. A. Massey); 100 Years of Hilbert's Problems (J. Gray)

Information: MAA at <http://www.maa.org>, or call 800-741-9415.

August 1999

* 2-4 **Workshop on the Theory and Practice of Integer Programming in Honor of Ralph E. Gomory on the Occasion of His 70th Birthday**, IBM Watson Research Center, Yorktown Heights, New York.

Sponsors: DIMACS Center, IBM Watson Research Center.

Organizers: W. Cook (Rice Univ.), W. Pulleyblank (IBM Watson Research Center).

Focus: The focus of the workshop will be on integer linear programming. Integer programming underlies much of modern OR, including scheduling, logistics, resource allocation, and routing problems. It is also the subject of much theoretical and computational research, leading to software much more powerful than a few years ago but still unable to deal with real-world problems of the required size and complexity.

Information: W. Cook, Rice Univ., e-mail: bico@caam.rice.edu. Local arrangements: P. Pravato, DIMACS Center; e-mail: pravato@dimacs.rutgers.edu; tel: 732-445-5929; WWW: <http://dimacs.rutgers.edu/Workshops/index.html>.

* 16-20 **International Conference on Analysis and Mathematical Physics in Honor of Lars Gårding on His 80th Birthday**, University of Lund, Sweden.

Organizing Committee: C. Bennowitz, G. Gudmundsdottir, and A. Melin, Centre for Mathematical Sciences, Lund Univ., Box 118, S-221 00 Lund, Sweden; e-mail: cbz@maths.lth.se.

Topics: Topics in the general area of differential equations and their relation to mathematical physics will be emphasized. This includes spectral theory and scattering theory, both direct and inverse problems, stability of matter, and related subjects.

Plenary Speakers: The conference will consist of 10-15 plenary lectures and special sessions for 30-minute invited talks and contributed talks. The plenary speakers who have accepted an invitation so far are: M. Atiyah, M. Birman, P. Deift, G. Grubb, B. Simon, J. Sjöstrand, J. Ph. Solovej, and A. Wightman.

Call for Papers: Titles and abstracts for contributed talks can be submitted at the conference Web site until June 30, 1999.

Information: Further information and updates will be posted on the conference Web site, <http://www.maths.lth.se/garding80.html>.

* 19-25 **Topology and Dynamics: Rokhlin Memorial**, Euler International Mathematical Institute, St. Petersburg Mathematical Institute of Russian Academy of Science, St. Petersburg, Russia.

Focus: The conference is devoted to the memory of prominent mathematician V. A. Rokhlin (1919-1984).

Topics: The main subjects of the conference are: algebraic and differential topology; algebraic, real algebraic, and Riemannian geometry; smooth and symplectic dynamics,

ergodic theory; applications.

Organizers: St. Petersburg State Univ., St. Petersburg Mathematical Institute of Russian Academy of Science, St. Petersburg Mathematical Society, and Euler International Mathematical Institute.

Program Committee: A. D. Alexandrov (St. Petersburg), V. Arnol'd (Moscow, Paris), M. Gromov (Paris), F. Hirzebruch (Bonn), S. Novikov (Moscow, Maryland), Ya. Sinai (Moscow, Princeton), S. Smale (Berkeley), V. Turaev (Strasburg), A. Vershik (St. Petersburg, chairman), O. Viro (St. Petersburg, Uppsala).

Local Organizers: N. Netsvetaev, A. Vershik.

Proceedings: One-hour talks and short communications (25 minutes) are planned. The proceedings of the conference will be published. Deadline for submission of talks: April 1, 1999.

Support: Support from RFBR (Russia) and Intas (EC) is expected.

Information: M. Zvageľ'skii, 191011 Steklov Inst. of Math. (POMI), nab. reki Fontanka, 27, St. Petersburg, Russia; e-mail: rokhlin@euler.pdmi.ras.ru; <http://www.pdmi.ras.ru/EIMI/1999/rokhlin/>.

* 27-29 **GAMM-Workshop on Computational Plasticity**, Christian-Albrechts-University of Kiel, Germany.

Organizers: M. Brokate (Kiel), C. Carstensen (Kiel), B. D. Reddy (Cape Town).

Aim: The aim of the workshop is to provide a forum to discuss and present aspects of the state of the art of the mathematical foundations of computational plasticity.

Topics: Topics range from the mathematical theory of continuum models in plasticity to the well-posedness of boundary and of initial-boundary value problems and their efficient discretization, including algorithmic aspects in solution procedures. Topics of interest include, but are not restricted to, the following: Mathematical analysis of (visco-)plasticity, well-posedness of (perfectly) plastic problems, numerical analysis of variational inequalities, computational (visco-)plasticity, numerical analysis of localization, a priori error analysis, a posteriori error analysis, adaptive algorithms for spatial and time-step discretization, coarsening and special adaptive strategies.

Participation: Everybody interested in the topics of the symposium is warmly invited to attend. Please let us know about your intention to participate as.s.a.p. A second announcement with further information, in particular, concerning hotel accommodations, will be distributed in March 1999.

Call for Papers: Participants wanting to give a talk (20 min.) should submit an abstract before June 15, 1999. Notification of acceptance will be given in July 1999.

Information: All correspondence in connection with the workshop, including registration and submission of abstracts, is to be made via e-mail to: jva@numerik.uni-kiel.de. Visit the home page at

<http://www.numerik.uni-kiel.de/cc/work99.html>, where more information on hotel reservations and a registration form are available.

* 30-September 3 **International Conference on Analysis and Geometry Devoted to the 70th Anniversary of Yu. G. Reshetnyak**, Novosibirsk, Russia.

Background: The Sobolev Institute of Mathematics of the Siberian Division of the Russian Academy of Sciences and Novosibirsk State University convene the International Conference on Analysis and Geometry devoted to the 70th anniversary of Yu. G. Reshetnyak, an outstanding scholar and professor.

Honorary Conference Board: A. D. Alexandrov, O. A. Ladyzhenskaya, S. P. Novikov.

Organizing Committee: N. S. Dairbekov, A. A. Egorov, I. G. Markina, A. D. Mednykh, A. S. Romanov (secretary), I. A. Taimanov, and S. K. Vodop'yanov (chair).

Program Committee: M. Agranovskii, J. Ball, O. V. Besov, V. I. Burenkov, V. Gol'dshtein, L. Hedberg, S. S. Kutateladze, V. I. Kuz'minov, O. Martio, S. Muller, F. Murat, I. Nikolaev, M. Reimann, V. A. Toponogov.

Topics: The focus of the conference will be on the following topics: Spaces with bounded curvature in the sense of Alexandrov, Quasiconformal mappings and mappings with bounded distortion, Nonlinear potential theory and Sobolev spaces, Variational problems and related equations.

Languages: Russian and English.

Information: Communications about this conference should be sent either by e-mail to angeom@math.nsc.ru or by regular mail to Analysis and Geometry-99, Sobolev Institute of Mathematics, pr. Ak. Kopt'yuga, 4, 630090, Novosibirsk, Russia. Further information can be found at the conference Web site, <http://www.math.nsc.ru/conference/angeom/>.

September 1999

* September-May **National Mathematics Honor Society Pi Mu Epsilon's Kansas Gamma Chapter, 50th Anniversary**, Wichita State University, Wichita, Kansas.

Information: Contact P. N. Bajaj, tel: 316-978-3941, e-mail: bajaj@twsuvm.uc.twsu.edu.

* 1-3 **Symposium on Operations Research 1999 (SOR'99)**, Magdeburg, Germany.

Organizer: German Operations Research Society (GOR).

Focus: All areas of operations research will be covered at this conference.

Deadline: Submission of papers (by e-mail): March 15, 1999.

Information: G. Schwödiauer (general chair), Univ. of Magdeburg, Faculty of Economics and Management, P. O. Box 41 20, D-39016 Magdeburg, Germany; tel: ++49-391-6718739; fax: ++49-391-6711136; e-mail: schwoediauer@wiwi.uni-magdeburg.de;

WWW: <http://www.uni-magdeburg.de/SOR99/>.

* 1–10 **Geometry, Integrability and Quantization**, St. Constantine resort (near Varna), Bulgaria.

Goal: The aim of this conference is to bring together experts in differential geometry, complex analysis, mathematical physics, and related fields to assess recent developments in these areas and to stimulate research in related topics.

Organizers: I. M. Mladenov (Sofia) and G. L. Naber (Chico).

Information: Contact I. M. Mladenov, mmladenov@bgcict.acad.bg, or G. L. Naber, gnaber@csuchico.edu.

* 6–10 **Second Meeting on Quaternionic Structures in Mathematics and Physics**, Univ. di Roma “La Sapienza”, Univ. Roma Tre, Rome, Italy.

Scientific Committee: D. V. Alekseevsky (Moscow), K. Galicki (New Mexico), P. Gauduchon (Palaiseau), S. Marchiafava (Roma), S. Salamon (Oxford).

Local Organizing Committee: S. Marchiafava, P. Piccinni, M. Pontecorvo.

Information: <http://www.mat.uniroma3.it/users/max/meeting/meeting.html>. Proceedings of the first meeting can be found in the e-library of EMS: <http://www.emis.de/proceedings/QSMP94/index.html>.

* 8–15 **European Summer Courses 1999, C.I.M.E.: Direct and Inverse Methods in Solving Nonlinear Evolution Equations**, Cetraro (Cosenza), Italy.

Organizer: The C.I.M.E. Foundation (International Mathematical Summer Center).

Scientific Direction: A. M. Greco (Univ. di Palermo).

Courses: Six lectures in English on: 1) Exact solutions of nonlinear PDEs by singularity analysis, R. Conte (CEA Saclay, Gif-sur-Yvette Cedex, France), 2) Integrable systems and bi-Hamiltonian manifolds, F. Magri (Univ. di Milano, Italy), 3) Hirota methods for nonlinear differential and difference equations, J. Satsuma (Univ. of Tokyo, Japan), 4) Lie groups and exact solutions of nonlinear differential and difference equations, P. Winternitz (Univ. de Montreal, Canada).

Applications: Those who want to attend the session should send an application to the director of C.I.M.E at the address below, **no later than April 30, 1999**.

Information: Contact: Fondazione C.I.M.E., c/o Dipartimento di Matematica “Ulisse Dini”, Viale Morgagni, 67/A, 50134 Firenze, Italy; tel.: +39-55-434975/+39-55-4237123; fax: +39-55-434975/+39-55-4222695; e-mail: cime@udini.math.unifi.it; Attention C.I.M.E. director A. Cellina or C.I.M.E. secretary V. Vespri. Information can also be found on the C.I.M.E. Web page, <http://www.math.unifi.it/cime/welcome.to.cime/>.

* 13–18 **International Conference on Arith-**

metic Algebraic Geometry, Venice, Italy.

Sponsors: The Network on Arithmetic Algebraic Geometry of the European Project for Training and Mobility of Researchers, the Italian Ministry for University Research and Technology (MURST), and the Universities of Padova and Venezia.

Speakers: A. A. Beilinson, P. Berthelot, G. Faltings, I. Fesenko, B. Gross, G. Harder, M. Harris, M. Kurihara, J. Nekovar, B. Perrin-Riou, P. Schneider. (H. Carayol and A. Wiles have also been invited.)

Information: Additional information, including registration and hotel reservation procedures, is available at the conference Web site, <http://www.math.unipd.it/~venice99/>; or via e-mail addressed to venice99@math.unipd.it; or via fax addressed to Organizing Committee—Venice99, 39-049-875-8596. The deadline for applications is May 31, 1999.

* 23–24 **IMA Tutorial: Low-Speed Combustion**, IMA, University of Minnesota, Minneapolis, Minnesota.

Organizers: J. D. Buckmaster (Univ. of Illinois, Urbana), M. Matalon (Northwestern Univ.).

Focus: This tutorial will serve as an introduction to the topics of the “Low-Speed Combustion” and “Fires” workshops.

Information: Institute for Mathematics and its Applications, Univ. of Minnesota, 207 Church St. SE, 400 Lind Hall, Minneapolis, MN 55455; tel: 612-624-6066; e-mail: staff@ima.umn.edu; Web page: <http://www.ima.umn.edu/reactive/fall/t1.html>.

* 27–October 1 **IMA Workshop: Low-Speed Combustion**, IMA, University of Minnesota, Minneapolis, Minnesota.

Organizers: J. D. Buckmaster (Univ. of Illinois, Urbana), M. Matalon (Northwestern Univ.).

Information: Institute for Mathematics and its Applications, Univ. of Minnesota, 207 Church St. SE, 400 Lind Hall, Minneapolis, MN 55455; tel: 612-624-6066; e-mail: staff@ima.umn.edu; Web page: <http://www.ima.umn.edu/reactive/fall/rf1.html>.

October 1999

* 4–8 **International Workshop on General Topological Algebras**, Tartu, Estonia.

Organizers: The Estonian Academy of Sciences, the Estonian Mathematical Society, and the University of Tartu.

Program Committee: M. Abel (Univ. of Tartu, Estonia), M. Akkar (Univ. of Bordeaux I, France), G. Allan (Univ. of Cambridge, UK), M. Fragoulopoulou (Univ. of Athens, Greece), A. Helemskii (Moscow State Univ., Russia), A. Mallios (Univ. of Athens, Greece), and W. Zelazko (Polish Academy of Sciences, Poland).

Topics: Locally convex and more general topological algebras, nonassociative topological algebras, topologization of algebras, application of results of topological algebras.

Information: For more detailed information please contact M. Abel, 46 Vanemuise St., Room 232, Institute of Pure Mathematics, University of Tartu, 51014 Tartu, Estonia; e-mail: abel@math.ut.ee; fax: 372-7-375-862.

* 10–14 **National Conference on Algebra VII**, Beijing Normal Univ., Beijing, China.

Organizers: J. Zhang and Y. Zhang.

Topics: All areas of algebra.

Keynote Speakers: M. Broue, S. Ding, C. Dong, T. Y. Lam, G. Lehrer, J. Li, C. Ringel, J. G. Thompson, H. Tuan, Z. Wan, C.-T. Yan, E. I. Zelmanov.

Languages: Chinese and English.

Information: Y. Zhang, Department of Mathematics, Beijing Normal Univ., 100875 Beijing, China; tel: 86-010-62209178, 86-010-62208992; fax: 86-010-62200567 to Department of Mathematics; e-mail: nca@bnu.edu.cn; Web page: <http://www.nca.bnu.edu.cn/>.

* 11–13 **IMA Workshop: Fires**, IMA, University of Minnesota, Minneapolis, Minnesota.

Organizers: H. Baum (NIST), R. Rehm (NIST).

Information: Institute for Mathematics and its Applications, Univ. of Minnesota, 207 Church St. SE, 400 Lind Hall, Minneapolis, MN 55455; tel: 612-624-6066; e-mail: staff@ima.umn.edu; Web page: <http://www.ima.umn.edu/reactive/fall/rf2.html>.

* 14–15 **IMA Minisymposium: Mathematical and Computational Strategies for Simplifying Complex Kinetics**, IMA, University of Minnesota, Minneapolis, Minnesota.

Organizers: J. D. Buckmaster (Univ. of Illinois, Urbana), another organizer to be determined.

Information: Institute for Mathematics and its Applications, Univ. of Minnesota, 207 Church St. SE, 400 Lind Hall, Minneapolis, MN 55455; tel: 612-624-6066; e-mail: staff@ima.umn.edu; Web page: <http://www.ima.umn.edu/reactive/fall/ms1.html>.

* 22–24 **IMA “Hot Topics” Workshop: Scaling Phenomena in Communication Networks**, IMA, University of Minnesota, Minneapolis, Minnesota.

Sponsors: DIMACS Center; IMA, Univ. of Minnesota.

Organizers: A. Erramilli (Bellcore Research/Netmetrix Inc.), V. Paxson (Lawrence Berkeley National Laboratory), I. Sanjeev (Lucent Technologies), W. Willinger (AT&T-Labs Research).

Focus: This workshop will be structured around three fundamental aspects of the study of scaling phenomena in networks: description, analysis, and control. Participants are asked to contribute to this effort by giving a talk and/or actively engaging in the proceedings. This area shows great potential to apply the theory to analyze and control complex, large-scale networks such as the Internet. It is expected this workshop will advance the study of scaling phenomena in networks from a descriptive

theory to a prescriptive reality. Presented under the auspices of the Special Year on Networks.

Information: Contact I. Saniee, Lucent Technologies, e-mail: iis@research.bell-labs.com; Web page: <http://dimacs.rutgers.edu/Workshops/index.html> or <http://www.ima.umn.edu/reactive/fall/networks.html>.

- * 23–24 **Midwest Partial Differential Equations Seminar, Fall 1999**, University of Illinois, Urbana-Champaign, Illinois.

Confirmed Speakers: P. Constantin (Univ. of Chicago), C. Doering (Univ. of Michigan, Ann Arbor), L. C. Evans (Univ. of California, Berkeley), N. Goldenfeld (Univ. of Illinois, Urbana), R. Jensen (Loyola Univ., Chicago), W.-M. Ni (Univ. of Minnesota), A. Yip (Purdue Univ.).

November 1999

- * 5 **IMA Tutorial: High-Speed Combustion**, IMA, University of Minnesota, Minneapolis, Minnesota.

Organizer: A. Kapila (Rensselaer Polytechnic Institute).

Information: Institute for Mathematics and its Applications, Univ. of Minnesota, 207 Church St. SE, 400 Lind Hall, Minneapolis, MN 55455; tel: 612-624-6066; e-mail: staff@ima.umn.edu; Web page: <http://www.ima.umn.edu/reactive/fall/t2.html>.

- * 8–12 **IMA Workshop: High-Speed Combustion in Gaseous and Condensed-Phase Energetic Materials**, IMA, University of Minnesota, Minneapolis, Minnesota.

Organizers: A. Kapila (Rensselaer Polytechnic Institute), D. S. Stewart (Univ. of Illinois, Urbana).

Information: Institute for Mathematics and its Applications, Univ. of Minnesota, 207 Church St. SE, 400 Lind Hall, Minneapolis, MN 55455; tel: 612-624-6066; e-mail: staff@ima.umn.edu; Web page: <http://www.ima.umn.edu/reactive/fall/rf4.html>.

- * 29–December 3 **Group Theory and Computation**, University of Sydney, Sydney, Australia.

Focus: The meeting will focus on a wide range of topics in group theory and computation. It incorporates the fifth in the series of biennial meetings held under the general title of “Computational Algebra and Number Theory”. Some of the lectures will honor the significant contributions to group theory and computation made by M. F. (Mike) Newman of the ANU in Canberra on the occasion of his 65th birthday.

Organizers: J. Cannon and L. Kovacs.

Speakers: G. Baumslag (CUNY), A. Caranti (Trento), J. Carlson (Georgia), M. du Sautoy (Cambridge), K. Gupta (Manitoba), G. Havas (Brisbane), D. Holt (Warwick), G. Kemper (Heidelberg), L. Kovacs (Canberra), A. Mann (Jerusalem), E. O’Brien (Auckland), S. Pride (Glasgow), A. Shalev (Jerusalem), C. Sims (Rutgers), M. Vaughan-Lee (Oxford).

Information: The WWW page for the conference is <http://math.auckland.ac.nz/Conferences/Groups-11-1999/>. This page contains further information on the topics of the conference. It will be updated on a regular basis to provide additional organizational and program details.

December 1999

- * 20–22 **Seventh IMA International Conference on Cryptography and Coding**, Royal Agricultural College, Cirencester, United Kingdom.

Sponsors: Codes & Ciphers Limited, Concept Laboratories Limited, HW Communications Limited, Racal-Airtech Limited, and Vodafone Limited.

Information: Contact P. Bye, Conference Officer, The Institute of Mathematics and its Applications, Catherine Richards House, 16 Nelson Street, Southend-on-Sea, Essex SS1 1EF, UK; tel: 01702-354020; fax: 01702-354111; e-mail: conferences@ima.org.uk; WWW: <http://www.ima.org.uk/mathematics/conferences.htm>.

January 2000

- * 26–30 **IMA Workshop: Confinement and Remediation of Environmental Hazards**, IMA, University of Minnesota, Minneapolis, Minnesota.

Organizers: J. Chadam (Univ. of Pittsburgh), A. C. Cunningham (Montana State Univ.), R. Ewing (Texas A&M Univ.).

Information: Institute for Mathematics and its Applications, Univ. of Minnesota, 207 Church St. SE, 400 Lind Hall, Minneapolis, MN 55455; tel: 612-624-6066; e-mail: staff@ima.umn.edu; Web page: <http://www.ima.umn.edu/reactive/winter/rf5.html>.

February 2000

- * 9–13 **IMA Workshop: Resource Recovery**, IMA, University of Minnesota, Minneapolis, Minnesota.

Organizers: J. Chadam (Univ. of Pittsburgh), P. Ortoleva (Indiana Univ.), M. Wheeler (Univ. of Texas, Austin).

Information: Institute for Mathematics and its Applications, Univ. of Minnesota, 207 Church St. SE, 400 Lind Hall, Minneapolis, MN 55455; tel: 612-624-6066; e-mail: staff@ima.umn.edu; Web page: <http://www.ima.umn.edu/reactive/winter/rf6.html>.

March 2000

- * 15–19 **IMA Workshop: Air Quality Engineering**, IMA, University of Minnesota, Minneapolis, Minnesota.

Organizers: G. Carmichael (Univ. of Iowa), D. Chock (Ford Motor Company).

Information: Institute for Mathematics and its Applications, Univ. of Minnesota, 207 Church St. SE, 400 Lind Hall, Minneapolis, MN 55455; tel: 612-624-6066; e-mail: staff@ima.umn.edu; Web page: <http://www.ima.umn.edu/reactive/winter/rf7.html>.

April 2000

- * 16–19 **FRACTAL 2000: “Complexity and Fractals in the Sciences”, 6th International Multidisciplinary Conference**, Singapore. **Information:** <http://www.kingston.ac.uk/fractal/>.

The following new announcements will not be repeated until the criteria in the next to the last paragraph at the bottom of the first page of this section are met.

May 2000

- * 1–5 **IMA Workshop: Dispersive Corrections to Transport Equations**, IMA, University of Minnesota, Minneapolis, Minnesota. **Organizers:** N. B. Abdallah (Univ. of Toulouse), A. Arnold (Berlin Technical Univ.), C. D. Levermore (Univ. of Arizona), K. T.-R. McLaughlin (Univ. of Arizona).

Information: Institute for Mathematics and its Applications, Univ. of Minnesota, 207 Church St. SE, 400 Lind Hall, Minneapolis, MN 55455; tel: 612-624-6066; e-mail: staff@ima.umn.edu; Web page: <http://www.ima.umn.edu/reactive/spring/rf8.html>.

- * 17–20 **Trends in Approximation Theory, An International Symposium Celebrating the 60th Birthday of Larry L. Schumaker, held in conjunction with the 15th Annual Shanks Lecture**, Vanderbilt University, Nashville, Tennessee.

Organizers: K. Kopotun (Vanderbilt Univ.), T. Lyche (Univ. of Oslo, Norway), and M. Neamtu (Vanderbilt Univ.).

Scope: L. Schumaker’s 60th birthday provides an excellent opportunity to organize a meeting in approximation theory. The symposium will honor his many outstanding contributions to this field, his unselfish devotion to the promotion of approximation in the mathematical community, and his unceasing commitment to the education of the younger generation of mathematicians. It is also an occasion to celebrate the field of approximation theory at large, to highlight and compliment its past achievements, and to explore its future.

Our aim is to bring together researchers from diverse areas of approximation theory, to stimulate international collaboration, and to promote interaction and the exchange of ideas. We welcome the participation of both pure and applied mathematicians working in approximation theory from all around the world. We especially encourage young mathematicians and graduate students to attend.

Topics: Abstract approximation, approximation with constraints, classical approximation, complex approximation, extremal problems, interpolation and smoothing, curves and surfaces, multiresolution analysis, nonlinear approximation, orthogonal polynomials, radial basis functions, shift-invariant spaces, splines, subdivision and

refinable functions, image and signal processing, wavelets.

Speakers: W. Cheney (Austin), C. Chui (Stanford), Z. Ciesielski (Sopot, Poland), R. DeVore (Columbia), N. Dyn (Tel-Aviv, Israel), M. von Golitschek (Wuerzburg, Germany), J. Korevaar (Amsterdam, The Netherlands), G. G. Lorentz (Chico) (Shanks Lecturer), S. M. Nikol'skii (Moscow, Russia), R. Varga (Kent).

Information: <http://www.math.vanderbilt.edu/~at/>.

*18-19 **IMA Tutorial: Simulation of Transport in Transition Regimes**, IMA, University of Minnesota, Minneapolis, Minnesota.

Organizer: I. Gamba (University of Texas, Austin).

Information: Institute for Mathematics and its Applications, Univ. of Minnesota, 207 Church St. SE, 400 Lind Hall, Minneapolis, MN 55455; tel: 612-624-6066; e-mail: staff@ima.umn.edu; Web page: <http://www.ima.umn.edu/reactive/spring/t3.html>.

*21-26 **Millennial Conference on Number Theory**, University of Illinois, Urbana, Illinois.

Focus: The Millennial Conference on Number Theory, held in conjunction with a Special Year in Number Theory at the Univ. of Illinois, is an international meeting on all areas of number theory. The conference will feature 19 one-hour plenary talks, invited talks of shorter length, and contributed talks.

Speakers: G. Andrews, J. Coates, H. Davenport, K. Ford, R. Graham, A. Granville, D. R. Heath-Brown, C. Hooley, W.-C. Li, K. Murty, M. Nathanson, K. Ono, C. Pomerance, W. Schmidt, C. Skinner, K. Soundararajan, R. Taylor, R. Tijdeman, R. C. Vaughan.

Organizing Committee: B. C. Berndt, N. Boston, H. G. Diamond, A. J. Hildebrand, W. Philipp.

Information: The conference Web page is <http://www.math.uiuc.edu/nt2000/millennial.html>. Additional information will be posted on this Web page as it becomes available.

*22-26 **IMA Workshop: Simulation of Transport in Transition Regimes**, IMA, University of Minnesota, Minneapolis, Minnesota.

Organizers: P. Degond (Toulouse), I. Gamba (Univ. of Texas, Austin), R. Glassey (Indiana Univ.), P. Roe (Univ. of Michigan).

Information: Institute for Mathematics and its Applications, Univ. of Minnesota, 207 Church St. SE, 400 Lind Hall, Minneapolis, MN 55455; tel: 612-624-6066; e-mail: staff@ima.umn.edu; Web page: <http://www.ima.umn.edu/reactive/spring/rt9.html>.

June 2000

*5-9 **IMA Workshop: Multiscale Models for Surface Evolution and Reacting Flows**, IMA, University of Minnesota, Minneapolis, Minnesota.

Organizers: L. Borucki (Motorola), C. Ringhofer (Arizona State Univ.).

Information: Institute for Mathematics and its Applications, Univ. of Minnesota, 207 Church St. SE, 400 Lind Hall, Minneapolis, MN 55455; tel: 612-624-6066; e-mail: staff@ima.umn.edu; Web page: <http://www.ima.umn.edu/reactive/spring/rt10.html>.