Meetings & Conferences
of the AMS

Nashville, Tennessee

Vanderbilt University

October 16–17, 2004

Saturday – Sunday

Meeting #999

Southeastern Section
Associate secretary: John L. Bryant
Announcement issue of *Notices*: August 2004
Program first available on AMS website: September 2, 2004
Program issue of electronic *Notices*: October 2004
Issue of *Abstracts*: Volume 25, Issue 4

Deadlines

For organizers: Expired
For consideration of contributed papers in Special Sessions: June 29, 2004
For abstracts: August 24, 2004

Invited Addresses

Ruth M. Charney, Brandeis University, *Title to be announced*.

Peter S. Ozsvath, Columbia University, *Title to be announced*.

Sorin T. Popa, University of California Los Angeles, *Title to be announced*.

Rudi Weikard, University of Alabama at Birmingham, *Title to be announced*.

Special Sessions

Algebraic Geometry and Commutative Algebra (Code: SS 8A), **Juan C. Migliore**, University of Notre Dame, and **Uwe Nagel**, University of Kentucky.

Biomathematics (Code: SS 12A), **Laurent Pujo-Menjouet** and **Glenn F. Webb**, Vanderbilt University.

Geometry of Hyperbolic Manifolds (Code: SS 10A), **John G. Ratcliffe** and **Steven T. Tschantz**, Vanderbilt University.

Index Theory and the Topology of Manifolds (Code: SS 3A), **Bruce Hughes** and **Guoliang Yu**, Vanderbilt University.

Inverse Problems (Code: SS 9A), **Maeve L. McCarthy**, Murray State University, and **Rudi Weikard**, University of Alabama at Birmingham.

Local and Homological Algebra (Code: SS 6A), **Florian Enescu**, University of Utah, and **Adela N. Vraciu**, University of South Carolina.

Nonlinear Partial Differential Equations and Applications (Code: SS 11A), **Gieri Simonett**, Vanderbilt University.

Operator Theory on Function Spaces (Code: SS 7A), **Dechao Zheng**, Vanderbilt University.

Semigroup Theory (Code: SS 13A), **Matthew I. Gould**, Vanderbilt University, and **Karen Ann Linton**, California State Polytechnic University, Pomona.

Topological Aspects of Group Theory (Code: SS 5A), **Michael L. Mihalik** and **Mark V. Sapir**, Vanderbilt University.

Universal Algebra and Lattice Theory (Code: SS 4A), **Ralph N. McKenzie**, Vanderbilt University, and **George F. McNulty**, University of South Carolina.

Von Neumann Algebras and Noncommutative Ergodic Theory (Code: SS 1A), **Dietmar Bisch**, Vanderbilt University, and **Sorin T. Popa**, University of California Los Angeles.

Wavelets, Frames, and Sampling (Code: SS 2A), **Akram Aldroubi** and **Douglas P. Hardin**, Vanderbilt University, and **Qiyu Sun**, University of Central Florida.

Albuquerque, New Mexico

University of New Mexico

October 16–17, 2004

Saturday – Sunday

Meeting #1000

Western Section
Associate secretary: Michel L. Lapidus
Announcement issue of *Notices*: August 2004
Program first available on AMS website: September 3, 2004
Program issue of electronic *Notices*: October 2004
Issue of *Abstracts*: Volume 25, Issue 4

Deadlines

For organizers: Expired
For consideration of contributed papers in Special Sessions: June 29, 2004
For abstracts: August 24, 2004

Invited Addresses

Sara C. Billey, University of Washington, Seattle, *Title to be announced.*

Peter Ebenfelt, University of California San Diego, *Title to be announced.*

Theodore Stanford, New Mexico State University, *Title to be announced.*

Craig A. Tracy, University of California Davis, *Title to be announced.*

Special Sessions

Algebraic Geometry (Code: SS 3A), **Hirotachi Abo** and **Chris Peterson**, Colorado State University.

Analysis and Geometry in Carnot-Caratheodory Spaces (Code: SS 13A), **Luca Capogna**, University of Arkansas, and **Robert Smits**, New Mexico State University.

Arithmetic Geometry (Code: SS 6A), **Alexandru Buium** and **Michael J. Nakamaye**, University of New Mexico.

Braids and Knots (Code: SS 14A), **Theodore Stanford**, New Mexico State University.

Categories and Operads in Topology, Geometry, Physics and Other Applications (Code: SS 5A), **Hanna Ewa Makaruk** and **Robert Michal Owczarek**, Los Alamos National Laboratory,

and **Zbigniew Oziewicz**, Universidad Nacional Autónoma de México.

Financial Mathematics: The Mathematics of Derivative Securities (Code: SS 4A), **Maria Cristina Mariani**, New Mexico State University, and **Osvaldo Mendez**, University of Texas at El Paso.

Interactions in Riemannian Geometry (Code: SS 8A), **Charles P. Boyer** and **Krzysztof Galicki**, University of New Mexico.

Mathematical Methods in Turbulence (Code: SS 9A), **Monika Nitsche** and **Vachtang Poutkaradze**, University of New Mexico.

Mathematics for Secondary Teachers: Curriculum and Assessment (Code: SS 16A), **Adriana Aceves** and **Kristin Umland**, University of New Mexico.

Multiscale Methods and Sampling in Time-Frequency Analysis (Code: SS 10A), **Jeffrey Andrew Hogan**, University of Arkansas, and **Joseph D. Lakey**, New Mexico State University.

Nonlinear Partial Differential Equations Applied to Materials Science (Code: SS 11A), **Patricia Bauman**, Purdue University, and **Tiziana Giorgi**, New Mexico State University.

Probabilistic and Geometric Methods in Learning Theory (Code: SS 15A), **Vladimir Koltchinskii**, University of New Mexico.

Random Matrix Theory and Growth Processes (Code: SS 1A), **Craig A. Tracy**, University of California Davis.

Regularity in PDEs and Harmonic Analysis (Code: SS 12A), **Marianne Korten** and **Charles Nelson Moore**, Kansas State University, and **Maria C. Pereyra**, University of New Mexico.

Several Complex Variables and CR Geometry (Code: SS 2A), **Peter Ebenfelt**, University of California San Diego, and **Marshall A. Whittlesey**, California State University, San Marcos.

Spectral Geometry (Code: SS 7A), **Ivan G. Avramidi**, New Mexico Institute of Mining and Technology, and **Thomas Patrick Branson**, University of Iowa.

Evanston, Illinois

Northwestern University

October 23–24, 2004

Saturday – Sunday

Meeting #1001

Central Section
Associate secretary: Susan J. Friedlander
Announcement issue of *Notices*: August 2004
Program first available on AMS website: September 9, 2004
Program issue of electronic *Notices*: October 2004
Issue of *Abstracts*: Volume 25, Issue 4

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions: July 7, 2004

For abstracts: August 31, 2004

Invited Addresses

Ian Agol, University of Illinois at Chicago, *Title to be announced.*

Robert W. Ghrist, University of Illinois, *Title to be announced.*

Yuri Manin, Northwestern University, *Title to be announced.*

Paul Seidel, Imperial College-London and University of Chicago, *Title to be announced.*

Special Sessions

Algebraic Representations and Deformations (Code: SS 19A), **Stephen R. Doty** and **Anthony Giaquinto**, Loyola University of Chicago.

Algebraic Topology: Interactions with Representation Theory and Algebraic Geometry (Code: SS 13A), **Paul G. Goerss**, Northwestern University, **Jesper Kragh Grodal**, University of Chicago, and **Brooke E. Shipley**, University of Illinois at Chicago.

Applications of Motives (Code: SS 18A), **Eric M. Friedlander**, Northwestern University, **Alexander Goncharov**, Brown University, **Mikhail Kapranov**, Yale University, and **Yuri Manin**, Max Planck Institute for Mathematics.

Codes and Applications (Code: SS 5A), **William C. Huffman**, Loyola University of Chicago, and **Vera S. Pless**, University of Illinois at Chicago.

Computability Theory and Applications (Code: SS 8A), **Robert I. Soare** and **Denis R. Hirschfeldt**, University of Chicago.

Differential Geometry (Code: SS 10A), **Anders Ingemar Linner** and **Hongyou Wu**, Northern Illinois University.

Extremal Combinatorics (Code: SS 2A), **Dhruv Mubayi** and **Yi Zhao**, University of Illinois at Chicago.

Fluid Dynamics, Diffusion and Reaction (Code: SS 4A), **Peter S. Constantin** and **Leonid V. Ryzhik**, University of Chicago.

Geometric Aspects of the Langlands Program (Code: SS 17A), **Edward Frenkel**, University of California Berkeley, **Mark Goresky**, Institute for Advanced Study, and **Kari Vilonen**, Northwestern University.

Geometric Partial Differential Equations (Code: SS 7A), **Gui-Qiang Chen** and **Jared Wunsch**, Northwestern University.

Hopf Algebras at the Crossroads of Algebra, Category Theory, and Topology (Code: SS 24A), **Louis H. Kauffman** and **David E. Radford**, University of Illinois at Chicago, and **Fernando J. O. Souza**, University of Iowa.

Index Theory, Morse Theory, and the Witten Deformation Method (Code: SS 3A), **Igor Prokhorenkov** and **Ken Richardson**, Texas Christian University.

Iterated Function Systems and Analysis on Fractals (Code: SS 12A), **Ka-Sing Lau**, Chinese University of Hong Kong, and **Stephen S.-T. Yau**, University of Illinois at Chicago.

Low-Dimensional Topology and Kleinian Groups (Code: SS 21A), **Ian Agol**, **John Holt**, and **Saul Schleimer**, University of Illinois at Chicago.

Mathematical Problems in Robotics (Code: SS 15A), **Robert W. Ghrist**, University of Illinois at Urbana-Champaign.

Mathematical Techniques in Musical Analysis (Code: SS 23A), **Judith Baxter**, University of Illinois at Chicago, **Richard Cohn**, University of Chicago, and **Robert Peck**, Louisiana State University.

Modern Schubert Calculus (Code: SS 1A), **Ezra Miller**, University of Minnesota, and **Frank Sottile**, University of Massachusetts.

Nonlinear Partial Differential Equations and Applications (Code: SS 6A), **Gui-Qiang Chen**, Northwestern University, and **Mikhail Feldman**, University of Wisconsin at Madison.

Nonlinear Waves (Code: SS 14A), **Jerry L. Bona**, University of Illinois at Chicago, **Shuming Sun**, Virginia Polytechnic Institute and State University, and **Bingyu Zhang**, University of Cincinnati.

Representation Theory of Reductive Groups (Code: SS 20A), **Jeffrey D. Adler**, University of Akron, and **Ju-Lee Kim**, University of Illinois at Chicago.

Solving Polynomial Systems (Code: SS 9A), **Anton Leykin** and **Jan Verschelde**, University of Illinois at Chicago.

Special Functions, Orthogonal Polynomials, and Their Applications (Code: SS 22A), **George Gaspar**, Northwestern University, and **Ahmed I. Zayed**, DePaul University.

Spectral Problems of Differential Operators (Code: SS 16A), **Qingkai Kong**, **Hongyou Wu**, and **Anton Zettl**, Northern Illinois University.

Stability Issues in Fluid Dynamics (Code: SS 11A), **Susan J. Friedlander** and **Roman Shvydkoy**, University of Illinois at Chicago.

Pittsburgh, Pennsylvania

University of Pittsburgh

November 6–7, 2004

Saturday – Sunday

Meeting #1002

Eastern Section

Associate secretary: Lesley M. Sibner

Announcement issue of *Notices*: September 2004

Program first available on AMS website: September 23, 2004

Program issue of electronic *Notices*: November 2004

Issue of *Abstracts*: Volume 25, Issue 4

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions: July 20, 2004

For abstracts: September 14, 2004

Invited Addresses

Jeffrey F. Brock, Brown University, *Title to be announced.*

Der-Chen Chang, Georgetown University, *Title to be announced.*

Robert Schapire, Princeton University, *Title to be announced.*

Ofer Zeitouni, University of Minnesota, Minneapolis, *Title to be announced.*

Special Sessions

Convexity and Combinatorics (Code: SS 2A), **James F. Lawrence** and **Valeriu Soltan**, George Mason University.

Geometric Analysis and Partial Differential Equations in Subelliptic Structures (Code: SS 12A), **Cristian E. Gutiérrez**, Temple University, **Guozhen Lu**, Wayne State University, and **Juan J. Manfredi**, University of Pittsburgh.

Graph Polynomials (Code: SS 8A), **E. Glen Whitehead Jr.**, University of Pittsburgh.

The History of Mathematics (Code: SS 3A), **Robert E. Bradley**, Adelphi University, and **Lawrence A. D'Antonio**, Ramapo College of New Jersey.

Invariants of Knots and 3-Manifolds (Code: SS 1A), **Marta M. Asaeda**, University of Maryland, **Jozef H. Przytycki**, George Washington University, and **Adam S. Sikora**, SUNY at Buffalo.

Knots and Macromolecules (Code: SS 7A), **Kenneth C. Millett**, University of California Santa Barbara, and **Eric J. Rawdon**, Duquesne University.

Mathematical Biology (Code: SS 13A), **Jonathan E. Rubin** and **Bard Ermentrout**, University of Pittsburgh.

Mathematical Finance (Code: SS 11A), **David Saunders** and **John Chadam**, University of Pittsburgh.

Mathematical Modeling of Nonlinear Phenomena in Biology and Mechanics (Code: SS 6A), **Anna Vainchtein** and **William C. Troy**, University of Pittsburgh.

Modularity of Galois Representations and Serre's Conjecture (Code: SS 14A), **Mark E. T. Dickinson**, University of Pittsburgh.

Multiscale Algorithms in Computational Fluid Dynamics (Code: SS 5A), **William J. Layton**, University of Pittsburgh, and **Anastasios Liakos**, U.S. Naval Academy.

Multivariate Hypergeometric Functions: Combinatorial and Algebro-Geometric Aspects (Code: SS 9A), **Eduardo Cattani**, University of Massachusetts, Amherst, **Alicia M. Dickenstein**, Universidad de Buenos Aires, and **Laura Felicia Matusevich**, Harvard University.

Partial Differential Equations and Applications (Code: SS 4A), **Xinfu Chen** and **Dehua Wang**, University of Pittsburgh.

PDE-Based Methods in Imaging and Vision (Code: SS 15A), **Stacey E. Levine**, Duquesne University, and **Yunmei Chen**, University of Florida.

Trends in Operator Theory and Banach Spaces (Code: SS 10A), **Christopher J. Lennard** and **Thomas A. Metzger**, University of Pittsburgh.

Atlanta, Georgia

Atlanta Marriott Marquis and Hyatt Regency Atlanta

January 5–8, 2005
Wednesday – Saturday

Meeting #1003
Joint Mathematics Meetings, including the 111th Annual Meeting of the AMS, 88th Annual Meeting of the Mathematical Association of America (MAA), annual meetings of the Association of Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association of Symbolic Logic (ASL).
Associate secretary: Lesley M. Sibner
Announcement issue of *Notices*: October 2004
Program first available on AMS website: November 1, 2004
Program issue of electronic *Notices*: January 2005
Issue of *Abstracts*: Volume 26, Issue 1

Deadlines
For organizers: Expired
For consideration of contributed papers in Special Sessions: August 10, 2004
For abstracts: October 5, 2004
For summaries of papers to MAA organizers: September 14, 2004

Joint Invited Addresses

Andrea L. Bertozzi, University of California Los Angeles, *Title to be announced* (AMS-MAA Invited Address).

Bernd Sturmfels, University of California Berkeley, *Title to be announced* (AMS-MAA Invited Address).

AMS Invited Addresses

Ingrid Daubechies, Princeton University, *Title to be announced* (AMS Josiah Willard Gibbs Lecture).

Eleny Ionel, University of Wisconsin, *Title to be announced.*

Bruce A. Kleiner, University of Michigan, Ann Arbor, *Title to be announced.*

Robert K. Lazarsfeld, University of Michigan, *Title to be announced* (AMS Colloquium Lectures).

Gunther Uhlmann, University of Washington, *Title to be announced.*

Avi Wigderson, Institute for Advanced Study, *Title to be announced.*

Steven M. Zelditch, Johns Hopkins University, *Title to be announced.*

MAA Invited Addresses

Georgia Benkart, University of Wisconsin, Madison, *Title to be announced.*

Erik D. Demaine, Massachusetts Institute of Technology, *Title to be announced.*

Fernando Q. Gouvêa, Colby College, *Title to be announced.*

Steven G. Krantz, Washington University, *Title to be announced.*

Ravi D. Vakil, Stanford University, *Title to be announced.*

Robin J. Wilson, The Open University, *Title to be announced.*

Invited Addresses of Other Organizations

Pavel Pevzner, University of California San Diego, *Title to be announced* (SIAM).

Call for MAA Contributed Papers

The organizers listed below solicit contributed papers pertinent to their sessions. Sessions generally limit presentations to ten minutes, but selected participants may extend their contributions up to twenty minutes. Please see the limits on multiple author submissions as described at the end of this announcement. Each session room contains an overhead projector and screen; blackboards will not be available. Persons needing additional equipment should contact as soon as possible but prior to September 14, 2004, the session organizer whose name is followed by an asterisk (*). Please note that the dates and times scheduled for these sessions remain tentative.

Getting Students to Discuss and to Write about Mathematics (MAA CP A1), Wednesday morning and Thursday afternoon; **Sarah L. Mabrouk***, Framingham State College (`mabrouk@frc.mass.edu`). This session invites papers about assignments and projects that require students to communicate mathematics through in-class oral presentations, in-class discussions that they must lead and motivate, and written assignments and/or papers. These assignments/projects can include analysis and applications of mathematics, presentations of and analysis of proofs, presentations about famous mathematicians and the mathematics that they studied, and assignments/projects that utilize creative writing. Presenters are encouraged to discuss how the use of the assignment/project helps the student to gain greater understanding of mathematics as well as to improve his/her understanding of mathematics language and his/her ability to communicate mathematics. Of particular interest is the effect of such projects/ assignments/presentations throughout the course on the student's understanding of mathematics, his/her communication of mathematics, and his/her attitude toward mathematics.

My Favorite Demo: Innovative Strategies for Mathematics Instructors (MAA CP B1), Wednesday morning and Thursday afternoon; **David R. Hill***, Temple University (`hill@math. temple.edu`), and **Lila F. Roberts**, Georgia College and State University. Mathematics instructors use a myriad of innovative techniques for teaching mathematical concepts. Technology readily available in colleges and universities has provided a means to boost creativity and flexibility in lesson design. Tools an instructor utilizes may include specialized computer applications, animations and other multimedia tools, java applets, physical devices, games, etc. This contributed paper session will focus on novel demos that mathematics instructors have successfully used in their classrooms. Rather than focus on projects or student group activities, this contributed paper session will focus on the instructor's activities to facilitate learning. Mathematical content areas will include precalculus, calculus, elementary probability, and selected postcalculus topics. This session invites 1) demos that introduce a topic, 2) demos that illustrate how concepts are applicable, 3) demos that tell a story or describe the development of a procedure, and 4) demos that lead to an activity that involves the class. Presenters of demos are encouraged to give the demonstration, if time and equipment allow, and to discuss how to use it in a classroom setting. Proposals should describe how the demo fits into a course, the use of technology or technology requirements, if any, and the effect of the demo on student attitudes toward mathematics.

Courses below Calculus: A New Focus (MAA CP C1), Wednesday morning and Friday afternoon; **Mary Robinson***, University of New Mexico-Valencia Campus (`maryrobn@ unm.edu`); **Florence S. Gordon**, New York Institute of Technology; **Laurette B. Foster**, Prairie View A&M University; **Arlene H. Kleinstein**, Farmingdale State University of New York; **Norma M. Agras**, Miami Dade Community College; and **Linda Martin**, Albuquerque T-VI. An unprecedented collaborative effort has been developed among members of the MAA, AMATYC, and NCTM to launch a national initiative to refocus courses below calculus. The goal of the initiative is to encourage development and implementation of courses that place greater emphasis on conceptual understanding and realistic applications of the mathematics. Courses that better motivate students and prepare them to take subsequent mathematics courses, including calculus, statistics, and quantitative methods, are needed to better serve the needs of the quantitative disciplines and prepare students to function effectively in today's workplace, as well as function effectively as citizens in today's increasingly quantitative society. Accordingly, for this session we specifically seek to address all of the college-level courses below calculus, with particular emphasis on offerings in college algebra and precalculus. We seek proposals for presentations that offer new visions for such courses, discuss implementation issues (such as faculty training, placement tests, introduction of alternative tracks for different groups of students, transferability problems, etc.) related to offering such courses, present results of studies on student performance and tracking data in both traditional and new versions of these courses and in follow-up courses, discuss the needs of other disciplines and the workplace from courses at this level, discuss connections to the changing school curricula and implications for teacher education. This session is cosponsored by the CRAFTY, the Committee on Two Year Colleges, and the Committee on Service Courses.

Mathematics and Sports (MAA CP D1), Wednesday morning and Friday afternoon; **Douglas Drinen***, University of the South (ddrinen@sewanee.edu); **Sean L. Forman**, St. Joseph's University; **Howard L. Penn**, U.S. Naval Academy. When applied to the sporting arena, mathematics can provide both compelling classroom examples and interesting research problems. Baseball has long been mined for interesting statistics examples, ranging from regression and probability to the game theoretic aspects of in-game strategy. Recent books on jai alai, football, and a few other sports have studied those sports through a mathematical lens. The economics of sports is now covered by its own journal and the statistics publication *Chance* routinely discusses statistical examples from sporting events. This session invites papers describing interesting classroom examples utilizing examples from sports and papers discussing the application of mathematics to sporting events.

Mathematics in the Islamic World (MAA CP E1), Wednesday afternoon; **Glen Van Brummelen***, Bennington College (gvanbrum@bennington.edu), and **Victor J. Katz**, University of the District of Columbia. This session solicits presentations on all facets of the history of the mathematical sciences in the Islamic world, including the relationship of Islamic mathematics to Western mathematics and to Indian or Chinese mathematics. We hope to elaborate both the unity and diversity of Muslim contributions to both pure and applied mathematical disciplines.

Mathlets for Teaching and Learning Mathematics (MAA CP F1), Wednesday afternoon; **David M. Strong***, Pepperdine University (David.Strong@pepperdine.edu); **Thomas E. Leathrum**, Jacksonville State University; and **Joe Yanik**, Emporia State University. This session seeks to provide a forum in which presenters may demonstrate mathlets and related materials that they have created or further developed. Mathlets are small computer-based (but ideally platform-independent) interactive tools for teaching math, frequently developed as World Wide Web materials such as scripts or Java applets, but there may be many other innovative variations. Mathlets allow students to experiment with and visualize a variety of mathematical concepts, and they can be easily shared by mathematics instructors around the world. The session is sponsored by the MAA Committee on Computers in Mathematics Education (CCIME).

Drawing on Our Students' Thinking to Improve the Mathematical Education of Teachers (MAA CP G1), Wednesday afternoon; **Dale R. Oliver***, Humboldt State University (dale.oliver@humboldt.edu), and **Mary Kay Abbey**, Montgomery College. The MET document (*The Mathematical Education of Teachers*, CBMS, 2001) and the PMET project (*Preparing Mathematicians to Educate Teachers*, MAA, 2003–2006) call for mathematics faculty to reexamine what they teach and how they teach in mathematics courses for prospective teachers. A key component of this reexamination is careful consideration of the mathematical understanding and thinking of the prospective teachers in our courses. Doing so informs faculty decisions about curriculum and pedagogy, and directs their instructional effort toward the individuals in the course. This session invites papers on the mathematical preparation of teachers in which what is taught and how it is taught is being informed by the understanding and thinking of the prospective teachers. This session is sponsored by COMET, the MAA Committee on the Mathematical Education of Teachers.

History of Undergraduate Mathematics in America, 1900–2000 (MAA CP H1), Thursday morning; **Jack Winn***, SUNY Farmingdale (winnja@farmingdale.edu); **Walter J. Meyer**, Adelphi University; **Joseph Malkevitch**, York College of CUNY; and **Amy E. Shell-Gellasch**, Grafenwoehr, Germany. This session will sketch how the last hundred years or so have led us to today's state of undergraduate mathematics. Questions that are appropriate to discuss include: what curricular changes occurred, how the changes depended on changes in mathematical knowledge, other reasons why changes in teaching occurred, what effects flowed from the changes, and how changes affected student learning. Papers may focus on: important individuals; important movements involving curriculum or styles of instruction, the evolution or disappearance of particular courses, case studies of particular institutions, the history and role of important organizations such as the NSF and the MAA, key events or circumstances external to the mathematical community, etc. The speaker's personal views about the best way to teach certain topics are discouraged, unless those views are part of or help explain historical issues.

Initializing and Sustaining Undergraduate Research Projects and Programs (MAA CP I1), Thursday morning, **Margaret M. Robinson***, Mount Holyoke College (robinson@mtholyoke.edu), and **Suzanne M. Lenhart**, University of Tennessee. Papers are requested describing undergraduate research projects, courses, and programs. Of particular interest will be descriptions of innovative ways to get administrative support or other support that creates a sustainable program. Also of interest will be papers indicating where to find appropriate problems and how to gauge the right level. Also, descriptions of courses with undergraduate research as the main goal will be included. This session is sponsored by the CUPM Subcommittee on Undergraduate Research.

Projects and Demonstrations That Enhance a Differential Equations Course (MAA CP J1), Thursday morning; **Richard J. Marchand***, Slippery Rock University (Richard.Marchand@SRU.edu), and **Shawnee L. McMurran**, California State University, San Bernardino. Differential equations is a diverse mathematical field that affords educators a great deal of flexibility in terms of content. The course can be highly theoretical, applied, or a combination of both. This session invites novel projects or demonstrations that enhance a differential equations course either through the facilitation of mathematical theory or exposure to interdisciplinary fields. New and interesting case studies are encouraged, especially those that require computational or qualitative techniques. Demonstrations may be virtual, physical, or mathematical. Examples include, but are not limited to, novel proofs, mathlets, or physical demonstrations.

Countering "I Can't Do Math"; Strategies for Teaching Underprepared, Math-Anxious Students (MAA CP K1),

Thursday morning, **Suzanne Dorée***, Augsburg College (doree@augsburg.edu); **Bonnie Gold**, Monmouth University; and **Richard J. Jardine**, Keene State College. How can we create a comfortable learning environment for under-prepared or math-anxious students, and, in particular, how can we constructively assess student learning? What classroom practices are especially effective with such students, and how does research on student learning inform those practices? How might the recommendations of the 2004 CUPM Curriculum Guide influence our approach in teaching developmental or introductory courses to better reach these students? This session invites papers on all aspects of "what works" in teaching underprepared, math-anxious students.

Using Real-World Data to Illustrate Statistical Concepts (MAA CP L1), Thursday afternoon and Friday morning; **Thomas L. Moore***, Grinnell College (mooret@grinnell.edu), and **John D. McKenzie Jr.**, Babson College. Guidelines in statistical education emphasize the use of real data instead of the small, contrived data sets that appear in some textbooks. Faculty who have used real-world data to illustrate statistical concepts are invited to submit proposals that describe the data set, its location on the Web, and their use of the data set to teach ideas related to an introductory course in statistics: (1) data collection (sampling, design of experiments, potential biases); (2) data description (numerical summaries, graphical displays); (3) sampling distributions; (4) elementary inference (interval estimation and hypothesis testing); (5) other applications, such as ANOVA, regression, and chi-square tests.

Environmental Mathematics and the Interdisciplinary (MAA CP M1), Friday morning; **Karen Bolinger***, Clarion University (kbolinge@mail.clarion.edu); **Ben Fusaro**, Florida State University; and **William Stone**, New Mexico Institute of Mining & Technology. We seek presentations that deal with all aspects of the pedagogy and the modeling of environmental problems suitable for general education, calculus, and above. Readers are invited to take up the challenge of searching the natural sciences, as well as economics, environmental science, and environmental education for problems that can be clarified, extended, or solved by undergraduate mathematics. We encourage contributions that emphasize computational, visual, or qualitative approaches.

Teaching Visualization Skills (MAA CP N1), Friday morning; **Mary L. Platt***, Salem State College (mplatt@salemstate.edu); **Catherine A. Gorini**, Maharishi University of Management; and **Sarah J. Greenwald**, Appalachian State University. The ability to understand, use, and create diagrams, graphs, and illustrations is essential for students in every area of mathematics. Computers have made graphics of every form widely available, so there is an increasing need to help students develop their ability to handle visual information. This session invites papers on all aspects of visualization in the college classroom: which skills are needed for success in mathematics, how to train students to use visual information, examples of classroom activities that help develop visualization skills, and ways to assess a student's visualization skills.

Teaching and Assessing Problem Solving (MAA CP 01), Friday morning; **Alex J. Heidenberg***, U.S. Military Academy (alex.heidenberg@usma.edu), and **Michael Huber**, U.S. Military Academy. Developing problem-solving skills in the modeling sense is a central component in refocusing courses to emphasize process, conceptual understanding, and student growth. Universities and colleges are now writing institutional goals that address the capabilities of their graduates. How do we measure success in teaching our students to be effective problem solvers? This session invites presentations about courses that focus on the process of problem solving as a vehicle to learning mathematics at the precalculus/introductory calculus levels, with special emphasis on modeling. These presentations can include course composition, philosophy, teaching ideas, and/or past projects, examinations, or other successful methods of assessment where students have become competent and confident problem solvers. Each presentation should address the specific goals in developing problem solvers as well as the assessment techniques used to measure attainment of those goals. In addition, presenters should address how technology (calculators, computer algebra systems, etc.) is incorporated into the teaching plan.

Philosophy of Mathematics (MAA CP P1), Friday afternoon; **Charles R. Hampton***, The College of Wooster (Hampton@wooster.edu), and **Bonnie Gold**, Monmouth University. This session, sponsored by the SIGMAA on the Philosophy of Mathematics, invites papers on any topic in the philosophy of mathematics except logic and set theory. Possible topics include the nature of mathematics, the nature of mathematical objects, the nature of mathematical knowledge, the relation between mathematics and the physical world, the role of esthetics in the development of mathematics.

Using Handheld Technology to Facilitate Student-Centered Teaching/Learning Activities at the Developmental Algebra Level (MAA CP Q1), Friday afternoon; **Ed Laughbaum***, The Ohio State University (elaughba@math.ohio-state.edu), and **Maria DeLucia**, Middlesex County College. Lecture is the predominate method of choice for teaching remedial-level algebra, but handheld graphing devices are often integrated by faculty. However, in many cases the teaching/learning is still instructor centered. Handheld devices offer the flexibility of enhancing teaching and learning through student-centered activities, which can be used outside of class or during class through group work. Anecdotal evidence shows developmental algebra teachers often supplement textbook materials with "graphing calculator" activities because even "reform" textbooks do not offer appropriate ancillary packages. Therefore, we invite developmental algebra faculty to submit proposals on creative teaching/learning activities that are student centered, provide a diverse learning environment, offer options for learning and teaching, and use handheld devices.

My Three Favorite Original Calculus Problems (MAA CP R1), Saturday morning; **J. D. Phillips***, Wabash College (phillipj@wabash.edu), and **Timothy J. Pennings**, Hope College. This session is for those who, while teaching single and

multivariable calculus over the years, have thought of a few clever or novel problems with solid pedagogical value that they would like to share with others. In particular, we are looking for original problems suitable for homework assignments or challenging test questions. (We are not looking for extended modeling projects and open-ended problems, since good collections of these already exist.) We hope to organize these into a booklet for publication, which could be used as a resource for calculus courses. Thus, we ask that each submission adhere to the following template: (i) statement of the problem, (ii) brief explanation of why it is interesting and pedagogically valuable, (iii) complete solution leading to an answer in closed form. Submissions may include from two to four problems. Participants should bring copies of their problems to the session for distribution. Each problem should begin on a new page. To include as many as possible, each participant will be given 10 minutes for presentation of the problems.

Meeting the Challenge: Relationship between Mathematics and Biology in the 21st Century (MAA CP S1), Saturday morning; **Catherine M. Murphy***, Purdue University Calumet (murphycm@calumet.purdue.edu); **G. Elton Graves**, Rose Hulman Institute of Technology; and **David A. Smith**, Duke University. "Biology as Information", the title of the 2004 Gibbs Lecture by Eric S. Lander, professor of biology at MIT, emphasizes the fundamental changes that the science of biology is undergoing, especially in the connections between biology and mathematics that are of necessity becoming broader and deeper. This contributed paper session will provide a forum for mathematicians with experience working at the interface of mathematics and biology to present papers that discuss the mathematics needed by contemporary biologists, the opportunities for mathematicians and biologists to collaborate in teaching, curriculum development, student research projects, or professional research. Talks especially valued are those that make practical suggestions concerning how to establish fruitful communication between mathematicians and biologists and how to stimulate mathematics and biology students to prepare themselves to participate in this swiftly changing field. This session is sponsored by the Subcommittee on Mathematics Across the Disciplines.

Mathematics Experiences in Business, Industry and Government (MAA CP T1), Saturday morning; **Philip E. Gustafson***, Mesa State College (pgustafs@mesastate.edu), and **Michael G. Monticino**, University of North Texas. This contributed paper session will provide a forum for mathematicians with experience in Business, Industry and Government (BIG) to present papers or discuss projects involving the application of mathematics to BIG problems. BIG mathematicians, as well as faculty and students in academia who are interested in learning more about BIG practitioners, projects, and issues, will find this session of interest. This session is sponsored by the MAA Business, Industry and Government Special Interest Group (BIG SIGMAA).

Mathematical Experiences for Students outside the Classroom (MAA CP U1), Saturday afternoon; **Kay B. Somers***, Moravian College (somersk@moravian.edu), and **Jody M. Sorensen**, Grand Valley State University. Mathematics "happens" both inside and outside the classroom, and, in fact, many mathematics majors are drawn to the subject through a special event sponsored by a student chapter or math club. This session seeks presentations by academic, industrial, business, and/or student mathematicians so that the audience will be encouraged to organize and run special events for their students. Descriptions of nonclassroom activities could include, but are not limited to, special lectures, workshops for students, math days, math fairs, research projects for students, math career days, student conferences, recreational mathematics activities, problem-solving activities and contests, general community-building activities, and student consulting projects. Information on how such activities are organized and carried out, what activities especially grab students' interests, how students are contacted and encouraged to participate, and how the events are funded will be especially helpful. This session is organized by the MAA Committee on Undergraduate Student Activities and Chapters.

Research on the Teaching and Learning of Undergraduate Mathematics (MAA CP V1), Saturday afternoon; **William O. Martin***, North Dakota State University (william. martin@ndsu.nodak.edu); **Barbara E. Edwards**, Oregon State University; and **Draga D. Vidakovic**, Georgia State University. Research papers that address issues concerning the teaching and learning of undergraduate mathematics are invited. Appropriate for this session are theoretical or empirical investigations conducted within clearly defined theoretical frameworks, using either qualitative or quantitative methodologies. Of highest priority are proposals that report on completed studies that further existing work in the field.

In-Service Training Programs for K–12 Mathematics Teachers (MAA CP W1), Saturday afternoon; **Zsuzsanna Szaniszlo***, Valparaiso University (zsuzsanna.szaniszlo@ valpo.edu); **Judith L. Covington**, Louisiana State University, Shreveport; and **Tamas Szabo**, Weber State University. All over the country many small- and large-scale projects exist to provide in-service training for K–12 mathematics teachers. The directors of these projects will share their experiences developing and implementing the projects, including both mathematical and organizational issues. Mathematicians contemplating starting similar projects will be able to learn about successful strategies and potential pitfalls for these outreach activities. The session invites talks that showcase successful in-service training programs for K–12 mathematics teachers. The talks should reflect on every aspect of the program, including funding sources, organizational details, information on cooperation with the school districts, mathematical content and methodology, follow-up, evaluation and dissemination. Programs that are easily replicable will be given priority.

General Contributed Paper Session (MAA CP X1), Wednesday, Thursday, Friday, Saturday mornings and afternoons; **Daniel E. Otero***, Xavier University (otero@xavier. xu.edu). Papers may be presented on any mathematical topic. Papers that fit into one of the other sessions should be sent to that organizer, not to this session.

Submission Procedures for MAA Contributed Papers

Send your abstract directly to the AMS. At the same time, send a detailed one-page summary of your paper directly via email to the organizer, indicated with an asterisk (*). To enable the organizer to evaluate the appropriateness of your paper, include as much detailed information as possible within the one-page limitation. The summary need not duplicate the information in the abstract. Participants may speak in at most two MAA contributed paper sessions. If your paper cannot be accommodated in the session for which it was submitted, it will be automatically considered for the general session. Speakers may give only one presentation in the general session because of time/space limitations. A proposal should not be sent to more than one organizer. The summary must reach the organizer by Tuesday, September 14, 2004. Abstracts must reach the AMS by Tuesday, October 5, 2004.

The AMS will publish abstracts for the talks in the MAA sessions. Abstracts must be submitted electronically to the AMS. No knowledge of LaTeX is necessary; however, LaTeX and $\mathcal{A}_{\mathcal{M}}\mathcal{S}$-LaTeX are the only typesetting systems that can be used if mathematics is included or special formatting is desired. The abstracts submission page is at `http://www.ams.org/cgi-bin/abstracts/abstract.pl`. Simply fill in each field as instructed. Submitters will be able to view their abstracts before final submission.

Here are the codes you will need: Meeting Number: 1003; Event Code: the seven characters appearing after the title of the sessions shown above, e.g., MAA CP A1; and Subject Code: the last two-character letter/number combination from the event code list, i.e., A1.

All questions concerning the submission of abstracts should be addressed to `abs-coord@ams.org`.

Bowling Green, Kentucky

Western Kentucky University

March 18–19, 2005

Friday – Saturday

Meeting #1004

Southeastern Section
Associate secretary: John L. Bryant
Announcement issue of *Notices*: To be announced
Program first available on AMS website: To be announced
Program issue of electronic *Notices*: To be announced
Issue of *Abstracts*: To be announced

Deadlines

For organizers: July 19, 2004
For consideration of contributed papers in Special Sessions:
    To be announced
For abstracts: To be announced

Newark, Delaware

University of Delaware

April 2–3, 2005

Saturday – Sunday

Meeting #1005

Eastern Section
Associate secretary: Lesley M. Sibner
Announcement issue of *Notices*: To be announced
Program first available on AMS website: To be announced
Program issue of electronic *Notices*: To be announced
Issue of *Abstracts*: To be announced

Deadlines

For organizers: September 2, 2004
For consideration of contributed papers in Special Sessions:
    To be announced
For abstracts: To be announced

Special Sessions

Homotopy Theory (in Honor of Donald M. Davis's and Martin Bendersky's 60th Birthdays) (Code: SS 1A), **Kenneth G. Monks**, University of Scranton, and **W. Stephen Wilson**, Johns Hopkins University.

Lubbock, Texas

Texas Tech University

April 8–10, 2005

Friday – Sunday

Meeting #1006

Central Section
Associate secretary: Susan J. Friedlander
Announcement issue of *Notices*: To be announced
Program first available on AMS website: To be announced
Program issue of electronic *Notices*: To be announced
Issue of *Abstracts*: To be announced

Deadlines

For organizers: September 9, 2004
For consideration of contributed papers in Special Sessions:
    To be announced
For abstracts: To be announced

Invited Addresses

Nikolai Ivanov, Michigan State University, *Title to be announced*.

Mattias Jonsson, University of Michigan, *Title to be announced*.

Nicolas Monod, University of Chicago, *Title to be announced*.

Hee Oh, California Institute of Technology, *Title to be announced*.

Special Sessions

Classical and Differential Galois Theory (Code: SS 3A), **Lourdes Juan** and **Arne Ledet**, Texas Tech University, and **Andy R. Magid**, University of Oklahoma.

Differential Geometry and Its Applications (Code: SS 2A), **Josef F. Dorfmeister**, Munich University of Technology, **Magdalena D. Toda**, Texas Tech University, and **Hongyou Wu**, Northern Illinois University.

Homological Algebra and Its Applications (Code: SS 4A), **Alex Martsinkovsky**, Northeastern University, and **Mara D. Neusel**, Texas Tech University.

Topology of Continua (Code: SS 1A), **Wayne Lewis**, Texas Tech University.

Santa Barbara, California

University of California Santa Barbara

April 16–17, 2005
Saturday – Sunday

Meeting #1007
Western Section
Associate secretary: Michel L. Lapidus
Announcement issue of *Notices*: To be announced
Program first available on AMS website: To be announced
Program issue of electronic *Notices*: To be announced
Issue of *Abstracts*: To be announced

Deadlines
For organizers: September 16, 2004
For consideration of contributed papers in Special Sessions: To be announced
For abstracts: To be announced

Invited Addresses

Mei-Chu Chang, University of California Riverside, *To be announced.*

Mischa Kapovich, University of California Davis, *To be announced.*

Mihai Putinar, University of California Santa Barbara, *To be announced.*

James Sethian, University of California Berkeley, *To be announced.*

Special Sessions

Dynamical Systems in Neuroscience (Code: SS 1A), **Eugene M. Izhikevich**, The Neurosciences Institute.

History of Mathematics (Code: SS 2A), **Shawnee L. McMurran**, California State University, San Bernardino, and **James J. Tattersall**, Providence College.

Recent Advances in Combinatorial Number Theory (Code: SS 3A), **Mei-Chu Chang**, University of California Riverside, and **Van Ha Vu**, University of California San Diego.

Mainz, Germany

June 16–19, 2005
Thursday – Sunday

Meeting #1008
Joint International Meeting with the Deutsche Mathematiker-Vereinigung (DMV) and the Oesterreichische Mathematische Gesellschaft (OMG)
Associate secretary: Susan J. Friedlander
Announcement issue of *Notices*: To be announced
Program first available on AMS website: To be announced
Program issue of electronic *Notices*: To be announced
Issue of *Abstracts*: To be announced

Deadlines
For organizers: To be announced
For consideration of contributed papers in Special Sessions: To be announced
For abstracts: To be announced

Invited Addresses

Helene Esnault, University of Essen, *Title to be announced.*

Richard Hamilton, Columbia University, *Title to be announced.*

Michael J. Hopkins, Massachusetts Institute of Technology, *Title to be announced.*

Christian Krattenthaler, University of Lyon, *Title to be announced.*

Frank Natterer, University of Muenster, *Title to be announced.*

Horng-Tzer Yau, New York University and Stanford University, *Title to be announced.*

Special Sessions

Algebraic Geometry, **Yuri Tschinkel**, Georg-August-Universität Göttingen, and **Brendan E. Hassett**, Rice University.

Discrete Geometry, **Jacob Eli Goodman**, The City College of New York, CUNY, **Emo Welzl**, Eidgen Technische Hochschule, and **Gunter M. Ziegler**, Technical University of Berlin.

Functional Analytic and Complex Analytic Methods in Linear Partial Differential Equations, **R. Meise**, University of Dusseldorf, **B. A. Taylor**, University of Michigan, and **Dietmar Vogt**, University of Wuppertal.

Homotopy Theory, **Paul G. Goerss**, Northwestern University, **Hans-Werner Henn**, Institut de Recherche Mathématique Avancée, Strasbourg, and **Stefan Schwede**, Universität Bonn.

Hopf Algebras and Quantum Groups, **Susan Montgomery**, University of Southern California, and **Hans-Jurgen Schneider**, University of Munich.

Mathematics Education, **Gunter Torner**, Universität Duisburg-Essen.

Nonlinear Waves, **Herbert Koch**, University of Dortmund, and **Daniel I. Tataru**, University of California Berkeley.

Stochastic Analysis on Metric Spaces, **Laurent Saloff-Coste**, Cornell University, **Karl-Theodor Sturm**, University of Bonn, and **Wolfgang Woess**, Graz Technical University.

Annandale-on-Hudson, New York

Bard College

October 8–9, 2005
Saturday – Sunday

Meeting #1009
Eastern Section
Associate secretary: Lesley M. Sibner
Announcement issue of *Notices*: To be announced
Program first available on AMS website: To be announced
Program issue of electronic *Notices*: To be announced
Issue of *Abstracts*: To be announced

Deadlines

For organizers: March 8, 2005
For consideration of contributed papers in Special Sessions: To be announced
For abstracts: To be announced

Invited Addresses

Persi Diaconis, Stanford University, *Title to be announced* (Erdős Memorial Lecture).

Johnson City, Tennessee

East Tennessee State University

October 15–16, 2005
Saturday – Sunday

Meeting #1010
Southeastern Section
Associate secretary: John L. Bryant
Announcement issue of *Notices*: To be announced
Program first available on AMS website: To be announced
Program issue of electronic *Notices*: To be announced
Issue of *Abstracts*: To be announced

Deadlines

For organizers: March 15, 2005
For consideration of contributed papers in Special Sessions: To be announced
For abstracts: To be announced

Lincoln, Nebraska

University of Nebraska in Lincoln

October 21–22, 2005
Friday – Saturday

Meeting #1011
Central Section
Associate secretary: Susan J. Friedlander
Announcement issue of *Notices*: August 2005
Program first available on AMS website: To be announced
Program issue of electronic *Notices*: To be announced
Issue of *Abstracts*: To be announced

Deadlines

For organizers: March 22, 2005
For consideration of contributed papers in Special Sessions: To be announced
For abstracts: To be announced

Special Sessions

Algebraic Geometry (Code: SS 1A), **Brian Harbourne**, University of Nebraska-Lincoln, and **Bangere P. Purnaprajna**, University of Kansas.

Eugene, Oregon

University of Oregon

November 12–13, 2005
Saturday – Sunday

Meeting #1012
Western Section
Associate secretary: Michel L. Lapidus
Announcement issue of *Notices*: To be announced
Program first available on AMS website: To be announced
Program issue of electronic *Notices*: To be announced
Issue of *Abstracts*: To be announced

Deadlines

For organizers: April 12, 2005
For consideration of contributed papers in Special Sessions: To be announced
For abstracts: To be announced

San Antonio, Texas

Henry B. Gonzalez Convention Center

January 12–15, 2006

Thursday – Sunday

Joint Mathematics Meetings, including the 112th Annual Meeting of the AMS, 89th Annual Meeting of the Mathematical Association of America, annual meetings of the Association for Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association for Symbolic Logic (ASL).

Associate secretary: John L. Bryant

Announcement issue of *Notices*: October 2005

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: January 2006

Issue of *Abstracts*: To be announced

Deadlines

For organizers: April 12, 2005

For consideration of contributed papers in Special Sessions: To be announced

For abstracts: To be announced

For summaries of papers to MAA organizers: To be announced

New Orleans, Louisiana

New Orleans Marriott and Sheraton New Orleans Hotel

January 4–7, 2007

Thursday – Sunday

Joint Mathematics Meetings, including the 113th Annual Meeting of the AMS, 90th Annual Meeting of the Mathematical Association of America (MAA), annual meetings of the Association for Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association for Symbolic Logic (ASL).

Associate secretary: Susan J. Friedlander

Announcement issue of *Notices*: October 2006

Program first available on AMS website: To be announced

Program issue of electronic *Notices*: January 2007

Issue of *Abstracts*: To be announced

Deadlines

For organizers: April 4, 2006

For consideration of contributed papers in Special Sessions: To be announced

For abstracts: To be announced

For summaries of papers to MAA organizers: To be announced

San Diego, California

San Diego Convention Center

January 6–9, 2008

Sunday – Wednesday

Joint Mathematics Meetings, including the 114th Annual Meeting of the AMS, 91st Annual Meeting of the Mathematical Association of America (MAA), annual meetings of the Association for Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association for Symbolic Logic (ASL).

Associate secretary: Michel L. Lapidus

Announcement issue of *Notices*: October 2007

Program first available on AMS website: November 1, 2007

Program issue of electronic *Notices*: January 2008

Issue of *Abstracts*: Volume 29, Issue 1

Deadlines

For organizers: April 6, 2007

For consideration of contributed papers in Special Sessions: To be announced

For abstracts: To be announced

For summaries of papers to MAA organizers: To be announced

Washington, District of Columbia

Marriott Wardman Park Hotel and Omni Shoreham Hotel

January 7–10, 2009

Wednesday – Saturday

Joint Mathematics Meetings, including the 115th Annual Meeting of the AMS, 92nd Annual Meeting of the Mathematical Association of America (MAA), annual meetings of the Association for Women in Mathematics (AWM) and the National Association of Mathematicians (NAM), and the winter meeting of the Association for Symbolic Logic (ASL).

Associate secretary: Lesley M. Sibner

Announcement issue of *Notices*: October 2008

Program first available on AMS website: November 1, 2008

Program issue of electronic *Notices*: January 2009

Issue of *Abstracts*: Volume 30, Issue 1

Deadlines

For organizers: April 7, 2008

For consideration of contributed papers in Special Sessions: To be announced

For abstracts: To be announced

For summaries of papers to MAA organizers: To be announced