

Meetings & Conferences of the AMS

IMPORTANT INFORMATION REGARDING MEETINGS PROGRAMS: AMS Sectional Meeting programs do not appear in the print version of the *Notices*. However, comprehensive and continually updated meeting and program information with links to the abstract for each talk can be found on the AMS website. See <http://www.ams.org/meetings/>. Programs and abstracts will continue to be displayed on the AMS website in the Meetings and Conferences section until about three weeks after the meeting is over. Final programs for Sectional Meetings will be archived on the AMS website in an electronic issue of the *Notices* as noted below for each meeting.

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), the winter meeting of the Association of Symbolic Logic (ASL), with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).

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:
Expired

For abstracts: Expired

For summaries of papers to MAA organizers: Expired

For the latest information on this meeting, see www.ams.org/amsmtg/2091_intro.html.

AMS Program Updates

Is It a Proof Yet?, Wednesday, 4:00 p.m.–5:30 p.m., organized by Allyn Jackson, AMS. When is a proof a proof? What makes a proof believable or not? When is a gap or a lack of detail considered serious enough to threaten a proof's reliability? When is it acceptable to use computers in proofs? How can extremely long and complex proofs be evaluated? When can probabilistic proofs be considered mathematical proofs? This panel discussion will explore these questions, making reference to some specific examples in recent mathematical developments, such as the proof of the four-color theorem, Perelman's work on the Poincaré Conjecture and Thurston's Geometrization Conjecture, and probabilistically checkable proofs. The panel will be moderated by **Keith J. Devlin**, Stanford University; panelists are **Richard DeMillo**, Georgia Institute of Technology; **Robin Wilson**, Open University; **Avi Wigderson**, Institute for Advanced Study; and **Bruce A. Kleiner**, University of Michigan, Ann Arbor.

Advances in Biomedical Research Will Depend on Help from the Mathematical Sciences, Friday, 2:30 p.m. to 4:00 p.m. This Committee on Science Policy session is intended for a general audience having interest in learning about areas in biomedical research where contributions from the mathematical sciences are critical. **Jeremy Berg**, director of the National Institute of General Medical Sciences (one of the institutes of the National Institutes of Health), will talk about the National Institutes of Health's

interest in supporting mathematical sciences research that leads to solutions of biomedical problems. In an effort to further illustrate the need for the mathematical sciences in biomedical research, **Adam Paul Arkin**, Department of Bioengineering, University of California Berkeley, will talk about the mathematical challenges in the analysis of cellular systems.

Mathematicians as Educators, Saturday, 8:30 a.m.–10:00 a.m., moderated by **William G. McCallum**, University of Arizona. Mathematicians have a crucial role to play in mathematics education at all levels. However, beyond the teaching of undergraduate classes, the role of mathematicians as educators is often not well delineated in professional practice, not at the forefront of professional consciousness, and not well described in procedures for evaluation and promotion. This panel presents three views of the role of mathematicians in education: one from a mathematician who works on education, one from a mathematics education researcher, and one from a department chair. Sponsored by the AMS Committee on Education, the panel features presentations by **Kristin L. Umland**, University of New Mexico, *A hybrid model: The role of mathematician educators in mathematics departments*; **Raven McCrory**, Michigan State University, *Undergraduate mathematics textbooks for prospective elementary teachers: Are books by mathematicians different?*; and **Steven G. Krantz**, Washington University in St. Louis, *The research mathematician looks at classroom teaching: A view from the top*.

MAA Program Updates

SIGMAA on Statistics Education Business Meeting, Active Learning Activity, and Reception, Thursday, 5:45 p.m.–7:15 p.m., organized by **John D. McKenzie Jr.**, Babson College, and **Thomas L. Moore**, Grinnell College. After the business meeting there will be an active learning activity based upon the proposed Guidelines for Assessment and Instruction in Statistics Education (GAISE) College Report. At that time attendees will discuss the report’s six recommendations for teaching the introductory statistics course (emphasize statistical literacy and develop statistical thinking, use real data, stress conceptual understanding rather than mere knowledge of procedures, foster active learning, use technology to develop conceptual understanding and analyze data, and use assessments to improve and evaluate learning). This activity and the subsequent reception will allow attendees to network with each other.

Other Organizations

The **AWM Workshop Panel Discussion** on Saturday is *Shaping a Career in Mathematics*. It will be moderated by **Dawn A. Lott**, Delaware State University; panelists include **Helen Moore**, American Institute of Mathematics, **Anne Trenk**, Wellesley College, and **Pamela Cook**, University of Delaware.

The **NAM Cox-Talbot Address** will be given at Friday’s banquet by **John W. Alexander Jr.**, Miami-Dade College, on *Intrinsically interesting mathematical intrigue (Why I love mathematics)*.

Social Events

NSA Women in Mathematics Society, Thursday, 6:00 p.m. to 8:00 p.m. Everyone is invited to this annual networking session on Thursday evening. Please stop by the NSA booth in the exhibit area for the exact location.

Registration at the Meetings

Individuals who registered by November 5 and who so elected will have their badge and the final program mailed to them before the meetings. All other registrants will receive the final program at the meetings. The additional information below is to assist those who will register at the meetings and those who registered in advance but elected not to receive their badges and final programs by mail.

Advance and on-site meeting registration fees only partially cover expenses of holding meetings. All mathematicians who wish to attend sessions are expected to register and should be prepared to show the meetings badge, if so requested. Badges are required to obtain discounts at the AMS and MAA Book Sales and to cash a check with the meetings cashier. If advance registrants should arrive too late in the day to pick up their badges, they may show the acknowledgment received from the Mathematics Meetings Service Bureau (MMSB) as proof of registration.

Registration fees may be paid at the meetings in cash; by personal or traveler’s check; or by VISA, MasterCard, American Express, or Discover. Letters verifying attendance at the meetings may be obtained from the cashier or at the Registration Assistance section of the registration desk.

Participants wishing to attend sessions for one day only may take advantage of a one-day fee. These special fees are effective daily, January 5 through 8, and are available at the meetings to both members and nonmembers. These one-day fees are not applicable to librarians; high school teachers; unemployed or emeritus participants; or high school, undergraduate, or graduate students.

Joint Mathematics Meetings Registration Fees

Member of AMS, ASL, Canadian Mathematical Society, MAA, SIAM	\$259
Emeritus Member of AMS, MAA; Graduate Student; Unemployed; Librarian; High School Teacher; Developing Countries Special Rate	49
Undergraduate Student	27
Temporarily Employed	181
Nonmember	401
High School Student	5
One-Day Member of AMS, ASL, CMS, MAA, SIAM	142
One-Day Nonmember	220
Nonmathematician Guest	10

MAA Minicourses

Minicourses #1–6 (computers)	\$95*
Minicourses #7–12, 14–16	60*
Minicourse #13	70*
*if space is available	

Employment Center

Employer (first table, computer or self-scheduled)	\$305
Employer (each additional table, computer or self-scheduled)	105
Applicants (all services)	80
Applicants (<i>Winter List</i> & message center only)	21

AMS Short Course

Member of AMS or MAA	\$115
Nonmember	140
Student/Unemployed/Emeritus	55

MAA Short Course

MAA Member	\$140
Nonmember	190
Student/Unemployed/Emeritus	60

Registration Dates, Times, and Locations**AMS and MAA Short Courses**

Hanover Hall, Grand Hall Level, Hyatt Regency
Monday, January 3 8:00 a.m. to noon

Joint Mathematics Meetings and MAA Minicourses

Outside the Grand Hall, Hyatt Regency
Tuesday, January 4 3:00 p.m. to 7:00 p.m.
Badge/program pickup only 7:00 p.m. to 8:00 p.m.
Wednesday-Friday, Jan. 5-7 7:30 a.m. to 4:00 p.m.
Saturday, January 8 7:30 a.m. to 2:00 p.m.

Employment Center

International Hall, Marriott Marquis
Wednesday, January 5
Registration for scheduled interviews, materials pickup 7:30 a.m. to 4:00 p.m.
Interview Center 9:30 a.m. to 6:00 p.m.

Thursday, January 6
Schedule distribution, interviews 7:00 a.m. to 4:40 p.m.
Interview Center 8:00 a.m. to 7:30 p.m.

Friday, January 7
Scheduled interviews 8:15 a.m. to 4:40 p.m.
Interview Center 8:00 a.m. to 7:30 p.m.

Saturday, January 8
Interview Center only 9:00 a.m. to noon
Employment Center registrants who are participating in the computer-scheduled interviews must register and fill out interview request forms on **Wednesday, January 5**. There will be no registration on Thursday and Friday; only interviews will take place on these days.

Accommodations and Travel

Participants who did not reserve a room during advance registration but who would like to obtain a room at one of the hotels listed on pages 1150-1151 in the October issue of the *Notices* should call the hotels directly after **December 15**. However, we regret that after that date the MMSB can no longer guarantee availability of rooms or the special convention rates.

Please see the October issue for special discount fare information on Delta Airlines.

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*: January 2005
Program first available on AMS website: February 3, 2005
Program issue of electronic *Notices*: March 2005
Issue of *Abstracts*: Volume 26, Issue 2

Deadlines

For organizers: Expired
For consideration of contributed papers in Special Sessions:
November 30, 2004
For abstracts: January 25, 2005

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtg/sectional.html.

Invited Addresses

Bennett Chow, University of California San Diego, *Title to be announced*.

Robert McCann, University of Toronto, *Optimal convergence rates for the fastest conservative nonlinear diffusions*.

M. Susan Montgomery, University of Southern California, *Some applications of group theory to classifying Hopf algebras*.

James J. Zhang, University of Washington, *Searching for quantum projective spaces*.

Special Sessions

Advances in the Study of Wavelets and Multiwavelets (Code: SS 5A), **Douglas P. Hardin**, Vanderbilt University, and **Bruce Kessler**, Western Kentucky University.

Commutative Ring Theory (Code: SS 11A), **Michael C. Axtell**, Wabash College, and **Joe Alyn Stickles Jr.**, University of Evansville.

Dynamic Equations on Time Scales and Applications (Code: SS 3A), **Ferhan M. Atici** and **Daniel C. Biles**, Western Kentucky University, and **Billür Kaymakçalan**, Georgia Southern University.

Geometric Topology and Group Theory (Code: SS 14A), **Jens E. Harlander**, Western Kentucky University.

Graph Theory (Code: SS 2A), **Mustafa Atici**, Western Kentucky University.

Hopf Algebras and Related Topics (Code: SS 10A), **David E. Radford**, University of Illinois at Chicago, and **Bettina Richmond**, Western Kentucky University.

Knot Theory and Its Applications (Code: SS 4A), **Yuanan Diao**, University of North Carolina, Charlotte, and **Claus Ernst**, Western Kentucky University.

L-Functions (Code: SS 9A), **Heather Russell**, **Nilabh Sanat**, and **Dominic Lanphier**, Western Kentucky University.

Nonlinear Analysis and Applied Mathematics (Code: SS 13A), **Robert J. McCann**, University of Toronto, and **Daniel P. Spirn**, University of Minnesota.

Numerical Analysis, Approximation, and Computational Complexity: Interdisciplinary Aspects (Code: SS 1A), **David Benko**, Western Kentucky University, and **Steven B. Damelin**, Georgia Southern University.

Partial Differential Equations and Their Applications (Code: SS 12A), **Zhongwei Shen** and **Changyou Wang**, University of Kentucky.

Recent Advances in Noncommutative Algebra (Code: SS 15A), **Ellen E. Kirkman**, Wake Forest University.

Representation Theory (Code: SS 6A), **Markus Hunziker**, University of Georgia.

Semigroups of Operators and Applications (Code: SS 7A), **Khristo Boyadzhiev**, Ohio Northern University, **Lan Nguyen**, Western Kentucky University, and **Quoc-Phong Vu**, Ohio University.

Topology, Convergence, and Order, in Honor of Darrell Kent (Code: SS 8A), **Gary Richardson**, University of Central Florida, and **Thomas A. Richmond**, Western Kentucky University.

Accommodations

Participants should make their own arrangements directly with a hotel of their choice as early as possible. Special rates have been negotiated with the hotels listed below. Rates quoted do not include sales tax of 10.25%. The AMS is not responsible for rate changes or for the quality of the accommodations. When making a reservation, participants should state that they are with the **American Mathematical Society (AMS) Meeting at Western Kentucky University (WKU)** group. Cancellation and early checkout policies vary; be sure to check when you make your reservation.

Best Western Motor Inn, 166 Cumberland Trace Road (I-65 South, Exit 22 & Hwy 231/Scottsville Rd.), Bowling Green, KY 42012; phone: 270-782-3800 or 800-343-2937, fax: 270-782-2384, \$79/single or double; free high-speed Internet, indoor pool, coffee in room, Denny's Restaurant next door; about 4.5 miles to the meeting site. **Deadline for reservations is February 17, 2005.** Be sure to check cancellation and early checkout policies.

Holiday Inn University Plaza, 1021 Wilkinson Trace (I-65, Exit 22 & west on Hwy 231/Scottsville Rd.), Bowling Green, KY 42103; phone: 270-745-0088, fax: 270-842-9585; \$85/single or double, coffee in room, indoor pool, in-house restaurant and lounge; about 2.4 miles to the meeting site. Free limited shuttle service to campus provided by the hotel (12-passenger van). **Deadline for**

reservations is February 15, 2005. Be sure to check cancellation and early checkout policies.

Drury Inn, 3250 Scottsville Road (I-65, Exit 22 & west on Hwy 231/Scottsville Rd.), Bowling Green, KY; phone: 270-842-7100 or 800-325-0720, or fax: 800-620-1761; \$63/single or double, complimentary full hot breakfast, indoor pool; about 5 miles to the meeting site. **Deadline for reservations is February 17, 2005.** Be sure to check cancellation and early checkout policies.

Baymont Inn, 165 Three Springs Road (I-65, Exit 22 & west on Hwy 231/Scottsville Rd.), Bowling Green, KY; phone: 270-843-3200; \$49 single or double; free high-speed Internet, complimentary continental breakfast, coffee in room; about 4.5 miles to the meeting site. **Deadline for reservations is February 15, 2005.** Be sure to check cancellation and early checkout policies.

Food Service

Information will be available at the meeting.

Local Information

The math department's webpage is located at <http://www.wku.edu/Dept/Academic/Ogden/Math/>; the university's homepage is <http://www.wku.edu/>.

Other Activities

Book Sales: Examine the newest titles from the AMS! Many of the AMS books will be available at a special 50% discount available only at the meeting. Complimentary coffee will be served courtesy of AMS Membership Services.

AMS Editorial Activity: An acquisitions editor from the AMS book program will be present to speak with prospective authors. If you have a book project that you would like to discuss with the AMS, please stop by the book exhibit.

Parking

Parking will be available in several student parking lots near Mass Media and Technology Hall, with access from University Boulevard or from Normal Drive. Signs identifying the designated lots will be posted prominently on the days of the meetings. There is no fee.

Registration and Meeting Information

The meeting is on the main campus of Western Kentucky University in Bowling Green, Kentucky. Sessions and Invited Addresses will take place in Mass Media and Technology Hall and the Academic Complex.

The registration desk will be in Mass Media and Technology Hall and will be open Friday, March 18, 7:30 a.m.–4:00 p.m., and Saturday, March 19, 8:00 a.m.–noon. Fees are \$40 for AMS or CMS members, \$60 for nonmembers, and \$5 for students/unemployed/emeritus, payable on site by cash, check, or credit card.

Social Event

All participants are invited to a reception on Friday evening from 6:00 p.m. to 7:00 p.m. The reception will be held in Mass Media and Technology Hall. The AMS thanks the university for its hospitality.

Travel and Campus Map

Western Kentucky University is located in downtown Bowling Green and is approximately 65 miles from Nashville and 120 miles from Louisville. A campus map may be found at <http://www.wku.edu/Tour/campusmap.html>; for an area map see <http://www.wku.edu/Tour/directions.html>.

The closest airport is Nashville International Airport (BNA), which is serviced by all major airlines. **Delta Air Lines** has been selected as the official airline for this meeting because of economical rates and convenient schedules. The following specially negotiated rates are available for this meeting exclusively for mathematicians and their families for the period March 15, 2005, through March 22, 2005. Other restrictions/discounts may apply, and seats are limited.

Delta Air Lines is offering:

- A 5% discount off Delta's published round-trip fares within the continental United States, excluding A, D, I, U, and T classes of service.
- A 10% discount off Delta's domestic published unrestricted round-trip coach fares (Y06/YR06) rates. No advance reservations or ticketing is required.
- An additional 5% bonus discount if you purchase your ticket 60 days or more prior to your departure through Meeting Network Reservations or your travel agent; online not applicable.

To take advantage of these discounts and make immediate reservations, visit <http://www.delta.com> or call Delta Meeting Network at 1-800-241-6760 between 8:00 a.m. and 11:00 p.m. Eastern Standard Time, Monday through Sunday, referencing **File Number 205779A**.

Shuttle service between the Nashville Airport and Bowling Green can be arranged through Airport Shuttle of Bowling Green (phone: 1-877-479-5483) for \$70 round-trip for individuals. Ask for the **WKU corporate rate**. For prescheduled groups of 6 to 14, the rate is \$40 per person round-trip. To be considered for a group, please contact ferhan.atnici@wku.edu before February 18, 2005.

Getting to WKU from North and South I-65

Take Exit 22 off Interstate 65. Turn toward Bowling Green onto Highway 231/Scottsville Road. Continue straight for several miles to traffic light #1, and turn left onto 31W By-Pass. At the second traffic light, turn right onto University Boulevard. At the next traffic light (one block), turn right onto Normal Drive. After the first traffic light on Normal Drive, look for Mass Media and Technology Hall on the left.

Car Rental

Avis is the official car rental company for the sectional meeting in Bowling Green, Kentucky. All rates include unlimited free mileage. Special rates for this meeting are effective March 11–29, 2005, and begin at \$25.99/day for a subcompact car at the weekend rate (available from noon Thursday through Monday at 11:59 p.m.). Should a lower qualifying rate become available at the time of booking, Avis is pleased to offer a 5% discount off the lower qualifying rate or the meeting rate, whichever is lower. Rates

do not include any state or local surcharges, tax, optional coverages, or gas refueling charges. Renters must meet Avis's age, driver, and credit requirements. Reservations can be made by calling 1-800-331-1600 or online at <http://www.avis.com>. Avis's Meeting Discount Number is **B159266**.

Weather

Weather conditions in Bowling Green during March are usually cool, with lows of about 40°F and highs around 55°–60°F.

Newark, Delaware

University of Delaware

April 2–3, 2005

Saturday – Sunday

Meeting #1005

Eastern Section

Associate secretary: Lesley M. Sibner

Announcement issue of *Notices*: February 2005

Program first available on AMS website: February 17, 2005

Program issue of electronic *Notices*: April 2005

Issue of *Abstracts*: Volume 26, Issue 2

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions:
December 14, 2004

For abstracts: February 8, 2005

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtgs/sectional.html.

Invited Addresses

Xiuxiong Chen, University of Wisconsin, *Title to be announced*.

Anna Gilbert, AT&T Labs Research, *Title to be announced*.

Alex Lubotzky, Hebrew University of Jerusalem, *Title to be announced*.

Lorenz Schwachhoefer, University of Dortmund, *Title to be announced*.

Special Sessions

Arithmetic Groups and Related Topics (Code: SS 9A), **Alex Lubotzky**, Hebrew University of Jerusalem, and **Andrei Rapinchuk**, University of Virginia.

Asymptotic Behavior of Evolution Equations (Code: SS 4A), **Gaston M. N'Guerekata**, Morgan State University, and **Nguyen Van Minh**, James Madison University.

Designs, Codes, and Geometries (Code: SS 5A), **James A. Davis**, University of Richmond, **Keith E. Mellinger**, Mary Washington College, and **Qing Xiang**, University of Delaware.

Frontiers on Complex Fluid Flows: Analytic and Computational Methods (Code: SS 7A), **L. Pamela Cook** and **Louis F. Rossi**, University of Delaware.

Geometric Analysis (Code: SS 12A), **Xiuxiong Chen**, University of Wisconsin, Madison, **Pengfei Guan**, McMaster University, **Zhiqin Lu**, University of California Irvine, and **Jeff A. Viaclovsky**, Massachusetts Institute of Technology.

High Dimensional Probability (Code: SS 6A), **Wenbo Li**, University of Delaware, and **Joel Zinn**, Texas A&M University.

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.

Integral and Operator Equations (Code: SS 13A), **Charles W. Groetsch**, University of Cincinnati, and **M. Zuhair Nashed**, University of Central Florida.

Mathematical Biology (Code: SS 8A), **David A. Edwards**, University of Delaware.

Mathematical Methods for Efficient Simulation of Stochastic Nonlinear Optical Systems (Code: SS 15A), **Richard O. Moore**, New Jersey Institute of Technology, and **Tobin A. Driscoll**, University of Delaware.

Mathematical Methods in Electromagnetic Wave Propagation (Code: SS 3A), **Fioralba Cakoni** and **Peter B. Monk**, University of Delaware.

Probabilistic Paradigms in Combinatorics (Code: SS 16A), **Joshua N. Cooper**, Courant Institute of Mathematics, NYU, and **Jozef Skokan**, Universidade de Sao Paulo.

Recent Progress in Thin Fluid Flows (Code: SS 11A), **Richard J. Braun**, University of Delaware.

Singular Analysis and Spectral Theory of Partial Differential Equations (Code: SS 2A), **Juan B. Gil**, Pennsylvania State University, Altoona, and **Gerardo A. Mendoza**, Temple University.

Spectral and High-Order Discretization Methods for Partial Differential Equations (Code: SS 14A), **Tobin A. Driscoll**, University of Delaware.

Symmetry Methods for Partial Differential Equations (Code: SS 10A), **Philip Broadbridge**, University of Delaware, and **Danny Arrigo**, University of Central Arkansas.

Lubbock, Texas

Texas Tech University

April 8–10, 2005

Friday – Sunday

Meeting #1006

Central Section

Associate secretary: Susan J. Friedlander

Announcement issue of *Notices*: February 2005

Program first available on AMS website: February 24, 2005

Program issue of electronic *Notices*: April 2005

Issue of *Abstracts*: Volume 26, Issue 3

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions:
December 21, 2004

For abstracts: February 15, 2005

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtg/sectional.html.

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.

Discrete Groups, Homogeneous Spaces, Rigidity (Code: SS 15A), **Alex Gorodnik**, University of Michigan, Ann Arbor, **Hee Oh**, California Institute of Technology, and **Nicolas Monod**, University of Chicago.

Extinction, Periodicity, and Chaos in Population and Epidemic Models (Code: SS 10A), **Linda J. S. Allen**, Texas Tech University, **Sophia Ruey-Jen Jang**, University of Louisiana at Lafayette, and **Lih-Ing W. Roeger**, Texas Tech University.

Future Directions in Mathematical Systems and Control Theory (Code: SS 11A), **David Gilliam** and **W. P. Dayawansa**, Texas Tech University.

Graph Theory (Code: SS 12A), **John C. George**, Eastern New Mexico University, and **Walter D. Wallis**, Southern Illinois University at Carbondale.

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

Invariants of Links and 3-Manifolds (Code: SS 8A), **Mieczyslaw Krzysztof Dabkowski**, University of Texas at Dallas, **Razvan Gelca**, Texas Tech University, and **Jozef Henryk Przytycki**, George Washington University.

Partial Differential Equation and Its Application in Biomedical Study (Code: SS 16A), **Jay R. Walton**, Texas A&M University, and **Padmanabhan Seshaiyer** and **Akif Ibragimov**, Texas Tech University.

Real Algebraic Geometry (Code: SS 6A), **Anatoly Korcha-gin** and **David Weinberg**, Texas Tech University.

Recent Advances in Complex Function Theory (Code: SS 5A), **Brock Williams, Roger W. Barnard**, and **Kent Pearce**, Texas Tech University.

Statistical Image Processing and Analysis and Applications (Code: SS 13A), **Victor Patrangenaru**, Texas Tech University.

Theory and Application of Stochastic Differential Equations (Code: SS 9A), **Edward J. Allen**, Texas Tech University, and **Armando Arciniega**, University of Texas at San Antonio.

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

Topology of Dynamical Systems (Code: SS 7A), **Brian Raines**, Baylor University.

Undergraduate and Graduate Student Research (Code: SS 14A), **Ali Khoujmane, Edward W. Swim, Edward J. Allen**, and **Padmanabhan Seshaiyer**, 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*: February 2005

Program first available on AMS website: March 3, 2005

Program issue of electronic *Notices*: April 2005

Issue of *Abstracts*: Volume 26, Issue 3

Deadlines

For organizers: Expired

For consideration of contributed papers in Special Sessions:
December 28, 2004

For abstracts: February 22, 2005

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtg/sectional.html.

Invited Addresses

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

Mischa Kapovich, University of California Davis, *Title to be announced.*

Mihai Putinar, University of California Santa Barbara, *Positive polynomials.*

James Sethian, University of California Berkeley, *Title to be announced.*

Special Sessions

Algebraic Geometry and Combinatorics (Code: SS 14A), **Alexander Yong** and **Allen Knutson**, University of California Berkeley.

Arithmetic Geometry (Code: SS 13A), **Adebisi Agboola**, University of California Santa Barbara, and **Cristian Dumitru Popescu**, University of California San Diego.

Automorphisms of Surfaces (Code: SS 4A), **Anthony Weaver**, Bronx Community College of the City University of New York, and **Peter Turbek**, Purdue University Calumet.

Complexity of Computation and Algorithms (Code: SS 10A), **Mark Burgin**, University of California Los Angeles.

Curvature in Group Theory and Combinatorics (Code: SS 11A), **Laura M. Anderson**, State University of New York at Binghamton, **Noel Patrick Brady**, University of Oklahoma, **Robin Forman**, Rice University, and **Jonathan P. McCammond**, University of California Santa Barbara.

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

Function Theory (Code: SS 12A), **Mihai Putinar** and **Stephan R. Garcia**, University of California Santa Barbara.

Geometric Methods in Three Dimensions (Code: SS 6A), **Daryl Cooper, David Darren Long**, and **Martin G. Scharlemann**, University of California Santa Barbara.

Geometry and Physics (Code: SS 8A), **Xianzhe Dai**, University of California Santa Barbara, and **Zhiqin Lu**, University of California Irvine.

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

Noncommutative Geometry and Algebra (Code: SS 5A), **Kenneth R. Goodearl**, University of California Santa Barbara, **J. T. Stafford**, University of Michigan, and **J. J. Zhang**, University of Washington.

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.

Representation Theory of Algebras (in Honor of Claus Michael Ringel) (Code: SS 7A), **Alex Martsinkovsky**, Northeastern University, **Dan Zacharia**, Syracuse University, and **Birge K. Huisgen-Zimmermann**, University of California Santa Barbara.

Ricci Flow/Riemannian Geometry (Code: SS 9A), **Guofang Wei** and **Rugang Ye**, University of California Santa Barbara.

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*: February 2005

Program first available on AMS website: Not applicable

Program issue of electronic *Notices*: Not applicable

Issue of *Abstracts*: Not applicable

Deadlines

For organizers: To be announced

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

For abstracts: To be announced

The scientific information listed below may be dated. For the latest information, see [www.ams.org/amsmtg/internmtgs/html](http://www.ams.org/amsmtg/internmtgs.html).

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-I, *Title to be announced.*

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

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

Special Sessions

Affine Algebraic Geometry, **Shreeram Abhyankar**, Purdue University, **Hubert Flenner**, Fakultät für Mathematik, and **Makar Limanov**, Wayne State University.

Algebraic Combinatorics, **Patricia Hersh**, University of Michigan, **Christian Krattenthaler**, University of Lyon-I, and **Volkmar Welker**, Philipps University, Marburg.

Algebraic Cryptography, **Dorian Goldfeld**, Columbia University, **Martin Kreuzer** and **Gerhard Rosenberger**, Universität Dortmund, and **Vladimir Shpilrain**, The City College of New York.

Algebraic Cycles, **Eric Friedlander** and **Marc Levine**, Northwestern University, and **Fabien Morel**, Université Paris.

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

Dirac Operators, Clifford Analysis and Applications, **Klaus Gürlebeck**, University of Weimar, **Mircea Martin**, Baker University, **John Ryan**, University of Arkansas, and **Michael Shapiro**, IPN Mexico.

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.

Function Spaces and Their Operators, **Ernst Albrecht**, Universität des Saarlandes, **Raymond Mortini**, Université de Metz, and **William Ross**, University of Richmond.

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.

Geometric Analysis, **Victor Nistor**, Pennsylvania State University, and **Elamr Schrohe**, Universität Hannover.

Geometric Topology and Group Theory, **Cameron McA. Gordon**, The University of Texas at Austin, **Cynthia Hog-Angeloni**, Johann Wolfgang Goethe-Universität, and **Wolfgang Metzler**, University of Frankfurt.

Group Theory, **Luise-Charlotte Kappe**, SUNY at Binghamton, **Robert Fitzgerald Morse**, University of Evansville, and **Gerhard Rosenberger**, University of Dortmund.

Hilbert Functions and Syzygies, **Uwe Nagel**, University of Kentucky, **Irena Peeva**, Cornell University, and **Tim Römer**, Universität Osnabrück.

History of Mathematics: Mathematics and War, **Thomas W. Archibald**, Acadia University, **John H. McCleary**, Vassar College, **Moritz Epple**, University of Stuttgart, and **Norbert Schappacher**, Technische Universität Darmstadt.

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-Jürgen Schneider**, University of Munich.

Mathematics Education, **Gunter Torner**, Universität Duisburg-Essen, and **Alan Schoenfeld**, School of Education, Berkeley.

Modules and Comodules, **Sergio López-Permouth**, Ohio University, and **Robert Wisbauer**, University of Düsseldorf.

Multiplicative Arithmetic of Integral Domains and Monoids, **Scott Chapman**, Trinity University, San Antonio, **Franz Halter-Koch**, University of Graz, and **Ulrich Krause**, Universität Bremen.

Nonlinear Elliptic Boundary Value Problems, **Thomas Bartsch**, Universität Giessen, and **Zhi-Qiang Wang**, Utah State University.

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

Ordinary Differential, Difference, and Dynamic Equations, **Werner Balsler**, Universität Ulm, **Martin Bohner**, University

of Missouri-Rolla, and **Donald Lutz**, San Diego State University.

Quantum Knot Invariants, **Anna Beliakova**, Universität Zürich, and **Uwe Kaiser**, Boise State University.

Representations and Cohomology of Groups and Algebras, **Dave Benson**, University of Georgia, and **Henning Krause**, Universität Paderborn.

Set Theory, **Joel Hamkins**, City University of New York, **Peter Koepke**, Universität Bonn, and **Benedikt Löwe**, Universiteit van Amsterdam.

Spectral Analysis of Differential and Difference Operators, **Evgeni Korotyaev**, Humboldt-University Berlin, **Boris Mityagin**, The Ohio State University, and **Gerald Teschl**, University of Vienna.

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

Topics in Applied Mathematics and Mechanics: Mathematical Control Theory and Numerical Methods, **Peter Benner**, Fakultät für Mathematik.

Topics in Applied Mathematics and Mechanics: Mechanics, **Friedrich Pfeiffer**, Technical University of Munich.

Topics in Applied Mathematics and Mechanics: Multiscale Problems, Oscillations in PDEs, and Homogenization, **Alexander Mielke**, University of Hannover.

Topics in Applied Mathematics and Mechanics: Numerical PDEs, Equations with Inherent Conditions, **Rolf Jeltsch**, Eidgen Technische Hochschule, **Maria Lukacova**, Technical University of Brno, and **Mac Hyman**, Los Alamos National Laboratory.

Topics in Applied Mathematics and Mechanics: Algebraic Approaches to Preconditioning, **Heike Fassbender**, Technical University of Braunschweig, and **Andreas Frommer**, University of Wuppertal.

Topology of Manifolds, **Matthias Kreck**, University of Heidelberg, and **Andrew Ranicki**, University of Edinburgh.

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*: August 2005

Program first available on AMS website: August 25, 2005

Program issue of electronic *Notices*: October 2005

Issue of *Abstracts*: Volume 26, Issue 4

Deadlines

For organizers: March 8, 2005

For consideration of contributed papers in Special Sessions: June 21, 2005

For abstracts: August 16, 2005

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtg/section1.html.

Invited Addresses

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

Harold Rosenberg, University of Paris VII, *Title to be announced*.

Alice Silverberg, University of California Irvine, *Title to be announced*.

Christopher Sogge, Johns Hopkins University, *Title to be announced*.

Benny Sudakov, Princeton University, *Title to be announced*.

Special Sessions

Geometric Group Theory (Code: SS 1A), **Sean Cleary**, The City College of New York, and **Melanie I. Stein**, Trinity College.

Geometric Transversal Theory (Code: SS 3A), **Richard Pollock**, Courant Institute, New York University, and **Jacob Eli Goodman**, The City College of New York.

The History of Mathematics (Code: SS 2A), **Patricia R. Allaire**, Queensborough Community College, CUNY, **Robert E. Bradley**, Adelphi University, and **Jeff Suzuki**, Bard College.

Homological Aspects of Commutative Algebra (Code: SS 4A), **Alexandre Tchernev**, University of Albany, SUNY, and **Janet Vassilev**, University of Arkansas.

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*: August 2005

Program first available on AMS website: September 1, 2005

Program issue of electronic *Notices*: October 2005

Issue of *Abstracts*: Volume 26, Issue 4

Deadlines

For organizers: March 15, 2005

For consideration of contributed papers in Special Sessions:
June 28, 2005
For abstracts: August 23, 2005

Lincoln, Nebraska

University of Nebraska in Lincoln

October 21–23, 2005

Friday – Sunday

Meeting #1011

Central Section
Associate secretary: Susan J. Friedlander
Announcement issue of *Notices*: August 2005
Program first available on AMS website: September 8, 2005
Program issue of electronic *Notices*: October 2005
Issue of *Abstracts*: Volume 26, Issue 4

Deadlines

For organizers: March 22, 2005
For consideration of contributed papers in Special Sessions:
July 5, 2005
For abstracts: August 30, 2005

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtgs/sectional.html.

Invited Addresses

Howard Masur, University of Illinois at Chicago, *Title to be announced.*
Alejandro Uribe, University of Michigan, *Title to be announced.*
Judy Walker, University of Nebraska, *Title to be announced.*
Jack Xin, University of Texas, *Title 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*: September 2005
Program first available on AMS website: September 29, 2005
Program issue of electronic *Notices*: November 2005

Issue of *Abstracts*: Volume 26, Issue 4

Deadlines

For organizers: April 12, 2005
For consideration of contributed papers in Special Sessions:
July 26, 2005
For abstracts: September 20, 2005

The scientific information listed below may be dated. For the latest information, see www.ams.org/amsmtgs/sectional.html.

Invited Addresses

Matthew Foreman, University of California Irvine, *Title to be announced.*
Mark Haiman, University of California Berkeley, *Title to be announced.*
Wilhelm Schlag, California Institute of Technology, *Title to be announced.*
Hart H. Smith, University of Washington, *Title to be announced.*

Taiwan

December 14–18, 2005

Wednesday – Sunday

Meeting #1013

First Joint International Meeting between the AMS and the Taiwanese Mathematical Society.
Associate secretary: John L. Bryant
Announcement issue of *Notices*: May 2005
Program first available on AMS website: Not applicable
Program issue of electronic *Notices*: Not applicable
Issue of *Abstracts*: Not applicable

Deadlines

For organizers: To be announced
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), the winter meeting of the Association for Symbolic Logic (ASL), with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).

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

Durham, New Hampshire

University of New Hampshire

April 22–23, 2006

Saturday – Sunday

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

San Francisco, California

San Francisco State University

April 29–30, 2006

Saturday – Sunday

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

Special Sessions

History of Mathematics (Code: SS 1A), **Shawnee L. McMurran**, California State University, San Bernardino, and **James J. Tattersall**, Providence College.

Fayetteville, Arkansas

University of Arkansas

November 3–4, 2006

Friday – Saturday

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: April 3, 2006
 For consideration of contributed papers in Special Sessions:
 To be announced
 For abstracts: 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), with sessions contributed by the Society for Industrial and Applied Mathematics (SIAM).

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

Oxford, Ohio

Miami University

March 16–17, 2007

Friday – Saturday

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: To be announced

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

For abstracts: 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

San Francisco, California

Moscone West Center Convention

January 6–9, 2010

Wednesday – Saturday

Joint Mathematics Meetings, including the 116th Annual Meeting of the AMS, 93rd 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: John L. Bryant

Announcement issue of *Notices*: October 2009

Program first available on AMS website: November 1, 2009

Program issue of electronic *Notices*: January 2010

Issue of *Abstracts*: Volume 31, Issue 1

Deadlines

For organizers: April 5, 2009

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 5–8, 2011

Wednesday – Saturday

Joint Mathematics Meetings, including the 117th Annual Meeting of the AMS, 94th 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: Susan J. Friedlander

Announcement issue of *Notices*: October 2010

Program first available on AMS website: November 1, 2010

Program issue of electronic *Notices*: January 2011

Issue of *Abstracts*: Volume 32, Issue 1

Deadlines

For organizers: April 2, 2010

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

Crossword Puzzle

Number 1 (page 63)

Answers

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	26
27	28	29	30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49	50	51	52
53	54	55	56	57	58	59	60	61	62	63	64	65
66	67	68	69	70	71	72	73	74	75	76	77	78

DELA CARTE SPAM
 AXIS OLEUM DRNO
 BESSELFUNCTIONS
 OCTAVOS FEER JUT
 MER KREISEL
 ARI RIPE SPEC
 IONS NORALETBE
 DIVERGENTSERIES
 ALAMO TEMP SOAP
 RIMS LOLA NUN
 BISECTS INB
 ALA ROE OTTUMWA
 CONTOURINTEGRAL
 ECCE TRACE LENO
 SHED SANER EDGE