



Southern California Section
The Mathematical Association of America
NEWSLETTER

Volume XLI, Number 3

June 2000

Dates to Remember:

August 3-5, 2000

Mathfest

Los Angeles, CA

August 7-12, 2000

**Mathematical Challenges
of the 21st Century
UCLA**

October 7, 2000

**Fall Meeting
Whittier College**

January 10-13, 2001

**Joint Math Meeting
New Orleans, LA**

California's the Place for Mathematics!

Where will the country look for innovations in mathematics teaching and research? Why Los Angeles of course! This summer we will be in the center of all the activity as Mathfest heads west. So set aside August 3-5 to learn more about Chaos Theory, animation in *Toy Story 2*, historical examples of infinite series and improper integrals, the prospects of mathematics in the 21st century, and so much more. For the complete program at a glance, visit pages 4-5.

Don't forget about our own section meeting. The Fall meeting of the Southern California Section will be held on Saturday, October 7 at Whittier College. We have an exciting program with three invited speakers, including this year's recipient of the Distinguished Teaching Award, **Thomas O'Neil** from Cal Poly, San Luis Obispo and **Underwood Dudley**, College Mathematics Journal Editor, from DePauw University. There will be a lunch and several contributed paper sessions — one focusing on Mathematical Modeling. The afternoon program will conclude with the game show *Who Wants to be a Mathematician?* More details about the meeting and registration information will appear in the next newsletter.

Call for Contributed Papers

Individuals are invited to submit an abstract for a 15 – 20 minute talk at the fall meeting. A broad spectrum of mathematical topics will be considered. One session will be devoted to mathematical modeling. Other talks may be devoted, but are not limited to,

new research results in any mathematical field, reports on teaching innovations, and reports on successful partnerships between universities and K-12 institutions.

The paper on which the presentation is based should be self-contained. Papers accessible to undergraduate students are particularly solicited. For the Mathematical Modeling Session we are looking for papers from students who have been on MCM teams, faculty who teach modeling classes and want to share results from modeling projects, and/or faculty who have prepared successful MCM teams.

Submissions for all contributed papers should contain the following.

- 1 Title
- 2 Information regarding the source of the paper, if not independent work, and the desirable mathematical background of the audience.
- 3 An abstract, not to exceed one-half page, suitable for inclusion in the conference program.

Authors are encouraged to create handouts for distribution at the conference.

Please send your submission to:

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From the Section Chair

The past year has been a fine one for our section. The meetings were well attended and featured outstanding presentations, and we saw our own **Art Benjamin**, winner of the distinguished teaching award in our section a year ago, honored nationally for his teaching. The success of our section is the result of the hard work of people who made it happen. On behalf of the entire section, let me thank those who arranged meetings (**Ernie Solheid**, our tireless meetings coordinator, especially), spoke at them, hosted them, and helped out with the many activities that make them special, such as book sales and student poster sessions. Special thanks to the Distinguished Teaching Award Committee, to **Ken Cooke** (retiring as chair), and **Bruce Rothschild** (retiring as program chair). Also, special thanks to **Jennifer Quinn** for editing our newsletter.

The present year, too, is a special one for our section. In August the national spotlight will be on our section, as we host the Mathfest for the first time.

Last June at the Advanced Placement Calculus reading, it struck me how many of those teaching advanced courses in high schools would enjoy membership in the MAA and benefit from it. This past year I tested that idea, using grant money to bring some high school teachers to the UCLA meeting and help them join our section. They had a wonderful time. I am sure that many more high school teachers, as well as many now teaching in community colleges, would welcome a similar opportunity. If you know people who you think would like to be MAA members, encourage them to take advantage of the offer that the national MAA sent out recently: One year's MAA membership for \$49.95 (1 journal), \$59.95 (2 journals), or \$69.95

(3 journals) and free registration at one of our local meetings. Such a deal!

Finally, let me encourage you to play an active role in the section. It is, after all, your section. If you know of a distinguished teacher, nominate him/her for our section award. If you know someone who would be a good speaker (including yourself) at a section meeting, let us know. If you are interested in serving in a leadership capacity, let us know that as well. We can always use the help.

I look forward to a fine year, and to seeing you at Whittier October 7.

Bob Stein

New Officers for 2000-2001

The Secretary-Treasurer, who would like to express his appreciation to all participating members, received the ballots for the election of the new officers of the Southern California Section. The officers for 2000-2001 are listed below. The position of Secretary-Treasurer was not up for election. The nominees that were proposed by the board for all remaining positions received unanimous approval. Full addresses, email, and phone numbers for the officers may be found on page 7 of this newsletter.

Section Chair: Bob Stein

Section Vice-Chair: Wilhemus Luxemburg

Program Chair: Magnhild Lien

1st Program Vice-Chair: Herbert Medina

2nd Program Vice-Chair: Mario Martelli

Secretary-Treasurer: Arthur Benjamin

Meetings Secretary: Ernie Solheid

Newsletter Editor: Jennifer Quinn

Student Chapters Chair: Janet Beery

Distinguished Teaching Award

Committee: Wilhelmus Luxemburg

(Caltech), Joan T. "Terry" Hallett (CSU San Bernardino), Jim Friel (CSU Fullerton), and Richard Zucker (Irvine Valley College).

Your ideas are important! Please take every opportunity to contact the Section Chair Bob Stein and help shape the future of the Southern California MAA.

bstein@wiley.csusb.edu



News of the Section

This fall **California State University Northridge** welcomes two new faculty members: **Albert Candel** and **Chad Sprouse**. **Maria Helena Noronha** will be on leave for two years to work as a program director in Geometric Analysis for the NSF. **Carol Shubin** has received a \$1.2 million grant from NASA designed to prepared students for graduate study in fields requiring computational skills through research partnerships with JPL and Huntington Medical Research Institute.

The **Loyola Marymount** Mathematics Department is excited about moving into a new space in University Hall. The move more than doubles their usable square footage and includes 4 dedicated classrooms, 2 large computer labs, three student areas and a mathematics library. Additionally, they will be hiring someone to occupy the Clarence J. Wallen Endowed Chair in Mathematics to create and direct programs that will engage their undergraduates in scholarly activities. More information is available on-line at the LMU website <www.lmu.edu/math>.

California State University San Marcos reports that Drs. **Wayne Aitken** and **Tejinder Neelon** will be on sabbatical leave for academic year 2000-2001. Dr. **Amber Puha** will be on leave as an N.S.F. Postdoc at UCSD. Dr. **Andrew Kundgen**, a graph theorist, will join the Mathematics Faculty as an Assistant Professor in January 2001. Visitors for academic year include **Franz Lemmermeyer** from the Max-Planck Institute for Mathematics in Bonn and **Sally Picciotto**, a combinatorialist who completed her Ph.D. at UCSD.

Claremont McKenna College announces two great additions to its faculty: **Mario Martelli** (at the rank of full professor coming from CSUF) and **Mike O'Neill** (at the rank of assistant

professor coming from U. Texas, El Paso.)

Fred Feldon, Math Department Chair at **Coastline Community College** and **Hoa Nguyen**, Instructor at **Saddleback College** have been awarded a grant from the California Virtual College (CVC) to develop an online liberal arts math class. They plan on using the WebCT course management system and, for course materials, the Bennett and Briggs textbook *Using and Understanding Mathematics: A Quantitative Reasoning Approach*, along with the PBS *Life By the Numbers* video series.

Hearty congratulations go out to **Michael Leen** for receiving tenure and promotion to associate professor at **Whittier College**, **Art Benjamin** for promotion to full professor at **Harvey Mudd College**, and **Richard Murray** on becoming chair of the Engineering Division at **Caltech**.

Thanks everyone who responded to the recent request for information and updates. Be sure that your institution is included by updating our Chairs and MAA liaisons webpage at <<http://www.jquinn.oxy.edu/MAA>> — or — directly send your news to Jennifer Quinn at jquinn@oxy.edu or Occidental College, Mathematics Dept, 1600 Campus Road, Los Angeles, CA 90041. Let us publicize your honors, events, and milestones.

1999 Distinguished Teaching Award

The Southern California Section of the Mathematical Association of America has named Professor **Tom O'Neil** to receive the Section's award for Distinguished College and University Teaching for 1999-2000. The award was announced at the Section's meeting at UCLA on March 4, 2000.

Professor O'Neil, who teaches at Cal Poly San Louis Obispo, is particularly noted for his ability to stimulate students to high levels of achievement, often in settings beyond the classroom. Professor O'Neil is known for bringing vanloads of his students to present posters at the MAA section meetings, and his students have often turned in outstanding results in problem solving competitions.

As winner of the Distinguished Teaching Award for this section, Tom O'Neil will be entered as the section nominee for the national Distinguished Teaching Award. Good luck, Tom.

This year's selection committee consisted of Bob Stein (CSU San Bernardino, Chair), Kuen Lee (LA Trade Tech College), Bill Lucas (Claremont Graduate University), Victor Shapiro (UC Riverside), and Art Benjamin (Harvey Mudd College, ex officio). To avoid any conflict of loyalties, committee members do not participate in discussion of the merits of colleagues at their own campuses.



TUESDAY 8/1

WEDNESDAY 8/2

THURSDAY 8/3

Invited Addresses	Special Sessions	Contributed Paper Sessions	Minicourses	Student Activities	General Activities
	 Mathfest 2000 Program-At-A-Glance Register on-line at www.maa.org				9:00 am-5:00 pm The 2-Day Short Course Introduction to Error Correcting Codes Vera Pless W.Cary Huffman
8:30 pm Opening Banquet The Alternative Life of E.T. Bell Constance Reid				5:30 pm - 6:30 pm MAA /Pi Mu Epsilon Student Reception	9:00 am-5:00 pm The 2-Day Short Course Introduction to Error Correcting Codes Vera Pless W.Cary Huffman 9:00 am - 2:00 pm "Lights, Camera, Los Angeles" 6:30 pm - 7:30 pm Opening Reception 7:30 pm - 10:00 pm Opening Banquet Master of Ceremonies: Arthur Benjamin
8:30 am - 9:20 am MAA Invited Address: Profound Understanding of Fundamental Mathematics; What An Elementary Mathematics Teacher Should Know in Order to Teach It Li Ping Ma 9:30am - 10:20am Hedrick-Lecture How Mathematicians Study Chaos? Hedrick Lecture 1: Chaos and Disorder Yakov Sinai 10:30 am - 11:20am MAA Invited Address The Mathematics of "Toy Story 2" Edwin Catmull	1:00 pm - 2:50 pm Math and Science Summer Enrichment Programs for Girls Julie Glass Kathy Hann 3:00 pm - 5:00 pm Special Session for Chairs of Mathematics Departments in Comprehensive Universities, 4-Year Liberal Arts and Two-Year Colleges Gerald Alexanderson	1:00 pm - 3:00 pm Mathematics Across the Disciplines Maya Kiehl Rich Marchand 1:00 pm - 3:00 pm Technology Based Modeling in Mathematics Courses Howard Lewis Penn Rebecca Hill 1:00 pm - 5:00 pm General Contributed Paper Session Robert G. Stein 3:15 pm - 5:15 pm Reading to Learn Mathematics Bonnie Gold Janet Andersen	1:00 pm - 3:00 pm Transforming Anxiety into Hatred: Rethinking This Standard Model of Reaching Liberal Arts Students and The General Public Edward B. Burger Michael Starbird 1:00 pm - 3:00 pm Discrete Dynamical Systems: Mathematics Methods and Models David C. Arney Frank R. Giordano John Robertson Maury Weir 3:15 pm - 5:15 pm A Dynamical Systems Approach to the Differential Equations Course Paul Blanchard 3:15 pm -5:15 pm Polyhedral Models and Methods of Proof in Group Theory and Graph Theory Raymond F. Tennant	1:00 pm - 5:00 pm MAA and Pi Mu Epsilon Student Papers Sessions 5:30 pm-6:30 pm Graduate Student Reception	9:00 - 5:00 pm Exhibit Hall Noon - 2:00 pm & 3:30 pm - 5:30 pm Teaching Workshop for Graduate Students and New Faculty Thomas W. Rishel 6:15 pm - 8:00 pm Barbeque 8:15 pm - 9:15 pm AWM Reception



Invited Addresses	Special Sessions	Contributed Paper Sessions	Minicourses	Student Activities	General Activities
8:30 am - 9:20 am AWM-MAA Invited Addresses: Finite Quantum Chaos Audrey Terras 9:30 am - 10:20 am Hedrick-Lecture 2: Chaos as Dynamical Disorder Yakov Sinai 10:30 am - 11:20 am James R. C. Leitzel Lecture Mathematics Departments in the 21st Century: Role, Relevance, and Responsibility William Kirwan 8:00 pm - 9:00 pm PI MU EPSILON J. Sutherland Frame Lecture The Mathematics of Computers John Ewing	1:00 pm - 2:50 pm To Reform or Not Reform: Where Do We Stand Now? Jennifer Beineke Lisa Lister K. Renee Fister 3:00 pm - 5:00 pm Developing Effective Teaching Assistants Solomon Friedberg 3:15 pm - 5:15 pm Developing Mathematical Research Skills: Mentoring High School Students in Mathematics Al Cuoco	1:00 pm - 3:00 pm Mathematics Across the Disciplines Maya Kiehl Rich Marchand 1:00 pm - 3:00 pm Student Active Learning Donna Beers 1:00 pm - 5:00 pm General Contributed Paper Session Robert G. Stein 3:15 pm - 5:15 pm Innovative Uses of Technology in Teaching Mathematics Mary L. Platt Marcelle Bessman 3:15 pm - 5:15 pm Mathematics Courses to Prepare K-12 Teachers for the 21st Century-Promising Teaching Strategies and Content M. Kathleen Heid	1:00 pm - 3:00 pm Transforming Anxiety Into Hatred: Rethinking This Standard Model of Reaching Liberal Arts Students and the General Public Edward B. Burger Michael Starbird 1:00 pm - 3:00 pm Discrete Dynamical Systems: Mathematics Methods and Models David C. Arney Frank R. Giordano John Robertson Maury Weir 3:15 pm - 5:15 pm Interrelations for Undergraduate Mathematics Courses: Capstone and Others Simon R. Quint 3:15 pm - 5:15 pm A Hands-On Approach to Geometry Colm Mulcahy Jeffrey Ehme	1:00 pm - 5:00 pm MAA and Pi Mu Epsilon Student Papers Sessions 6:15 pm - 7:15 pm PME BANQUET 8:00 pm - 9:00 pm PI MU EPSILON J. Sutherland Frame Lecture "The Mathematics of Computers" John Ewing	9:00 am-5:00 pm Exhibit Hall
8:30 am - 9:20 am NAM-MAA David Blackwell Lecture Singularity Theory and Gravitational Lensing Arlie Petters 9:30 am - 10:20 am Hedrick-Lecture3: Chaos as Dynamical Disorder Yakov Sinai 10:30 am - 11:20 am MAA Invited Address The "3x + 1" Problem Jeffrey Lagarias 1:00 pm - 2:50 pm MAA Student Workshop V. Frederick Rickey 3:00 pm - 3:50 pm MAA Student Lecture Michael O'Fallon	1:00 pm - 2:50 pm Programs For Minority Students William A. Hawkins, Jr. 1:00 pm - 2:50 pm Calculus Renewal: Issues for Undergraduate Mathematics Education in the Next Decade Susan L. Ganter 1:00 pm - 2:50 pm Mathematics and Mathematical Sciences in 2010: What Should Graduates Know? A Business View Patrick Dale McCray	1:00 pm - 3:00 pm Student Active Learning Donna Beers 4:00 pm - 6:00 pm Mathematics Courses to Prepare K-12 Teachers for the 21st Century-Promising Teaching Strategies and Content M. Kathleen Heid 4:00 pm - 6:00 pm Mathematics Day: A Tool in Teaching, Guiding, and Encouraging Students in Mathematics Sarah L. Mabrouk	1:00 pm - 3:00 pm A Dynamical Systems Approach to the Differential Equations Course Paul Blanchard 1:00 pm - 3:00 pm Polyhedral Models and Methods of Proof in Group Theory and Graph Theory Raymond F. Tennant 3:15 pm - 5:15 pm Interrelations For Undergraduate Mathematics Courses: Capstone and Others Simon R. Quint 3:15 pm - 5:15 pm A Hands-On Approach to Geometry Colm Mulcahy Jeffrey Ehme	1:00 pm - 2:50 pm MAA Student Workshop Fun, Interesting, and Historical Examples of Infinite Series and Improper Integrals V. Frederick Rickey 3:00 pm - 3:50 pm MAA Student Lecture Attributable Risk Estimation: A Tale of Mathematical/ Statistical Modeling Michael O'Fallon 4:00 pm - 4:50 pm Student Problem Solving Competition Richard Neal 5:00 pm - 5:50 pm MAA Mathematical Contest in Modeling (MCM) Winners	9:00 - 3:00 pm Exhibit Hall 11:30 am - 12:00 noon MAA Business Meeting 6:30 pm - 9:00 pm MAA 25-Year Member Banquet Some Curiosities About Mathematical Problems Basil Gordon
4:00 pm - 5:00 pm AMS-MAA Presidents' Lecture MATHEMATICS IN THE 21ST CENTURY: PROBLEMS AND PROSPECTS Ronald L. Graham					10:00 am - 3:00 pm Tour of the Getty Museum

FRIDAY 8/4

SATURDAY 8/5

SUNDAY 8/6



The Student's Column

Report on the Spring 2000 Meeting

Student Poster Session

Thanks to all students who presented posters, to their faculty advisors, and to the faculty members who served as judges. Forty-three students presented 31 posters during the Student Poster Session at the Southern California Section's 75th Anniversary Meeting Saturday, March 4, at UCLA. Throngs of curious meeting attendees kept student poster presenters busy answering questions about their posters throughout the one-hour session. A team of judges, headed by Professor **Mario Martelli** of Cal State Fullerton, awarded "Best Poster" and "Best Project" prizes to University of Redlands student **Janelle Smith's** *Parasitic Infestations of the Stickleback Species *Gasterosteus aculeatus**, and Point Loma Nazarene University student **Keith Hubbard's** *An Investigation of Random Number Generation*, respectively. Janelle and Keith each received a TI-89 graphing calculator. All poster presenters received a free one-year MAA membership, including a subscription to one of the MAA journals, or, for those who already were MAA members, a free MAA book.

The two schools best represented during the poster session were those whose contingents traveled farthest to attend the meeting. A group of nine students from Cal Poly San Luis Obispo, led by this year's Southern California Section Distinguished Teaching Award winner Professor **Thomas O'Neil**, presented five posters in all. Professors **Rebecca Head** and **Janet Tarjan** of Bakersfield College accompanied a group of seven students, who presented six posters in all. Bakersfield College was also the *only* two-year college represented during this year's poster session.

Faculty advisors for award winners **Janelle Smith** and **Keith Hubbard** were Professors **Richard Cornez** and **James Malcolm** of the University of Redlands and Professor **Maria Zack** of Point Loma Nazarene University, respectively.

Careers for Math Majors Panel

The Careers for Math Majors Panel at the Spring 2000 Meeting at UCLA featured three recent graduates of Southern California universities presently pursuing exciting and rewarding mathematics-related careers. Panelists **Sean Chasworth**, Pension Analyst at Louis Kravitz and Associates; **Kristan Evans**, Mission Assurance Manager at NASA's Jet Propulsion Laboratory; and **Olympia LePoint**, Quality Assurance Statistician at Boeing's Rocketdyne Division, really made their careers come alive for the audience. After each panelist described what is most appealing about his or her career, how mathematics is used in it, and how a math major could prepare for and embark on it, the panel answered questions from audience members. The panelists generated so much interest in their careers that several students stayed afterwards to ask additional questions. Thank you to Professors **James Friel** and **Ernie Solheid** of CSUF and to Professor **Magnhild Lien** of CSUN for recruiting panelists.

Plan to attend the Fall 2000 Meeting at Whittier College!

The Fall Meeting, October 7, 2000 at Whittier College will include several talks and activities that students would enjoy. Student admission to the Fall Meeting will be FREE, and lunch will be provided at a reasonable rate. Organize a group of students from your school to attend the Fall Meeting, and encourage your Mathematics Department Chairperson to buy your lunch!

Spring 2001 Meeting Student Poster

Session. Begin preparing a poster NOW for the Spring Meeting at UC Irvine in 2001! Posters may feature the results of any individual or group mathematics projects.

Questions? Contact Prof. Janet L. Beery, Dept. of Mathematics, Univ. of Redlands.



Student Poster Session in New Orleans

An *Undergraduate Student Poster Session* will take place at the 2001 Annual Joint Meeting of the AMS and MAA in New Orleans. The Session is scheduled for Friday, January 12 from 4:30 to 7 pm. At the January 2000 meeting in Washington 66 posters were presented and 15 \$100 prizes were awarded with money donated by the MAA, AMS, CUR and by an anonymous MAA supporter. The 2001 Session will be the first in the new century and it should be at least as successful as the one in Washington. Give your undergraduates the excitement and experience of participating. First year graduate students are admitted when presenting a poster on result obtained as an undergraduate. The session is announced in the AMS, MAA, and Claremont McKenna College web pages.

Send title, abstract, name(s) of presenter(s), name(s) of supervisor(s), affiliation and e-mail to Mario

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The celebratory 75th Anniversary cake for the Southern California Section — enjoyed at the Spring 2000, UCLA meeting. Thanks to photographer **Becky Head** from Bakersfield College.



Recall the last issue...

Why is this a mathematical limerick?

$$((12 + 144 + 20 + 3 \text{ Sqrt}[4]) / 7) + 5 * 11 = 9^2 + 0.$$

ANSWER:

*A dozen, a gross, and a score,
plus 3 times the square root of 4,
divided by seven,
plus five times eleven,
is nine squared and not a bit more.*

---Jon Saxton

From **Mudd Math Fun Facts**
<<http://www.math.hmc.edu/funfacts/>>



Newsletter

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