



Southern California-Nevada Section Mathematical Association of America NEWSLETTER

Volume XLVII, Number 2

March 2006

Dates to Remember:

Saturday, April 8
Spring Meeting
at Cal State -
San Bernardino

Pre-registration
deadline: Friday,
March 31, 2006

Student Poster
Session deadline:
Tuesday,
March 28, 2006

Aug. 10-12, 2006
MathFest in
Knoxville, TN

Saturday, Oct. 21
Fall Meeting
at Cal State -
Long Beach

Jan. 4-7, 2007
Joint Mathematics
Meetings in
New Orleans, LA

Southern California-Nevada Section to Meet at California State University, San Bernardino

Richard Katz, Section Chair

Spring 2006 Meeting. The spring meeting will take place at the CSU San Bernardino on Saturday, April 8. This is later than usual but will have the advantage of enabling Mike Hoffman and me to display several new books that otherwise would not have been available. It also means that we will not be competing with the various spring breaks, the real reason for the delay.

The speakers for this meeting are Jerry Marsden from Cal Tech; Deanna Haunsperger, Carleton College, Minnesota; and Lew Lefton, Georgia Tech. Marsden will talk on "**Coherent Structures in Dynamical Systems**," which sounds rather formidable, but Jerry is an excellent speaker – I have heard him speak several times – and he can make topics like this accessible and informative to a general audience. Deanna Haunsperger's title is, "**Bright Lights on the Horizon**," which is about some of the bright lights that have appeared in

Fall 2005 Meeting. The fall meeting at the CSU Channel Islands was a very pleasant but quiet one. The attendance was slightly lower than usual for a fall meeting but whether this was due to the location, more remote than usual, or to some other factor, is not clear. In any event, those of you who missed it missed some excellent talks. **Frank Morgan** gave a delightful

lecture about the double soap bubble problem, soap bubble problems in "Gauss space", and a demonstration of substantial undergraduate research. It also featured some audience participation, a brief quiz and some prizes for the high performing audience members. **Frank Farris**

told us about the Gini index, something that is too complicated to define here, but which is a measure of the distribution of wealth in a population. It seems, surprise, surprise, that the rich are getting richer and the poor aren't, at least as measured by the Gini index. Curt Bennett presented **Jacqueline (Jackie) Dewar** with the Distinguished Teaching Award and she then showed why she won it by giving an informative lecture about how undergraduate math majors view proofs. It is a problem that I am sure we have all confronted. In addition to the talks by the featured speakers, there was a contributed paper session that had a number of talks by undergraduates. A source of pride for me was the talk by CSULA undergraduate **Ronald Martinez** who spoke about his research on "Graph Pebbling" at a summer REU. This was also

(Message from the Section Chair continued on page 8)

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the *Math Horizons* magazine. This should be a quite enjoyable talk. Finally, math comedian Lew Lefton will be speaking on a substantial extension of 99 Bottles of Beer on the Wall and telling us what is so funny about mathematics. I look forward to Lew's talk.

I hope to see you all at Cal State San Bernardino on April 8.

Congratulations to 25- and 50-Year MAA Members!

Congratulations to **Jean L. Conroy**, of Westminster, CA, who is celebrating her 50th year as a member of the MAA.

Congratulations also to the following members of the Southern California-Nevada Section who have been MAA members for 25 years.

Ronald E. Bruck, University of Southern California,
Los Angeles

John C. Fay, Chaffey College, Alta Loma

Jackson N. Henry, Torrance

Jengyuan Hwang, San Diego

Lee R. Ivory, La Habra

Joseph R. Kazimir, Granada Hills

John M. Long, Long and Taylor Systems, Fallbrook

Larry E. Miller, Redondo Beach

Edie D. Morris, California City

Sean C. Matz, Brea

Brad Parsons, Placentia

Leland E. Rogers, Bingen, WA

Ross M. Rueger, Lindsay

Robert C. Simonsen, Harbor City

Albert Stralka, University of California, Riverside



The Students' Column

Cynthia Wyels, Student Chapters Coordinator

Plan to attend the Spring 2006 Meeting April 8 at Cal State San Bernardino

Get a group of students and faculty together from your school and attend the Spring 2006 Meeting---where else can you hear outstanding speakers, interact with enthusiastic poster presenters, and have fun with mathematics all day? Better yet: present a poster yourself! See the details below. Student registration for the Spring Meeting Saturday, April 8, 2006, at CSU San Bernardino is only \$10, and lunch for students is only \$6. See the registration form on page 7 of this newsletter. Presenting a poster earns you free registration and lunch at the meeting, as well as a free one-year MAA membership and journal subscription.

More Spring 2005 Poster Award Winners

Praise for four students from Concordia University in Irvine was omitted from the last Student Column. Kudos go to Jennifer Bumgardner, Steve Hoffman, Becca Magee and Timothy Wutke, and to their advisor Melinda Schulteis, for their poster *Generalization of successful coverings of $n \times n$ grids with L-shaped trinomial tiles*, which took third place in the Best Poster category.

Student Poster Session at the Spring 2006 Meeting at CSU San Bernardino

Begin preparing a poster NOW for the Spring Meeting at CSU San Bernardino on April 8, 2006! The Student Poster Session has become a highlight of the Spring Meetings. Posters may feature the results of any individual or group mathematics project, including:

- Results of honors, senior, or other independent study projects;
- Results of classroom projects or modeling contests;
- Results of REUs or other summer workshops or research programs;
- Historical investigations in pure or applied mathematics;
- Solutions of problems from the Putnam Exam or from the *American Mathematical Monthly* or other journals.

The 2005 Student Poster Session featured 53 students presenting 34 posters with topics including epidemiological modeling, scheduling issues, engineering problems, mathematical perspectives on art, and investigations in combinatorics, number theory, algebra, topology, and mathematics education. If you don't already have a project in mind, ask one of your professors for a project to present. Besides the challenge of working on the project, benefits to you include:

- the opportunity to share your work with other students and with mathematicians from both academia and industry in a friendly environment;
- free meeting registration and free lunch;

- free 1-year MAA membership, including a 1-year subscription to an MAA journal (or a free MAA book if you are already an MAA member);
- the chance to win awards;
- a great resume entry.

To submit a poster, send: 1) the name(s) of the poster creator(s), 2) the title, 3) a brief abstract, 4) the name of your institution, 5) your class year (frosh, soph, junior, senior, masters student), 6) the name of your advisor(s).

Submission deadline: Tuesday, March 28, 2006. Electronic submission preferred. Put "student poster" somewhere in the subject header of your e-mail. Send to Prof. Cindy Wyels via cindy.wyels@csuci.edu or (via mail) to Dr. Wyels, Mathematics, CSU Channel Islands, One University Drive, Camarillo, CA 93012.

Southern California-Nevada Students Present Posters in San Antonio

Thirteen students attending undergraduate institutions in Southern California and Nevada traveled to San Antonio for the 2005 Joint Mathematics Meetings and presented posters in the national MAA Undergraduate Poster Session Jan. 14. Professor Mario Martelli of Claremont McKenna College and Professor Diana Thomas of Montclair State University organized the session, which included 133 posters on every topic imaginable. Congratulations to all the So Cal-Nevada students and their advisors: we hope to see your work at CSU San Bernardino on April 8!

Attend the first ever Pacific Coast Undergraduate Math Conference

The first annual Pacific Coast Undergraduate Math Conference will be held on Saturday, March 25, 2006, from 8 a.m. to 5 p.m., at Occidental College in Los Angeles. Featuring keynote speaker Jennifer Quinn of Occidental College and the University of Puget Sound, the conference is designed for undergraduate math majors and others interested in math. The conference also will feature:

1. FREE registration for everyone (includes FREE lunch!).
2. 15 minute talk sessions for undergraduate students.
3. Special sessions for freshmen and sophomores---talks about math history and recreational mathematics are encouraged for these sessions.
4. Panel discussions about summer opportunities and about career opportunities for math students.
5. Math club photography contest with fabulous prizes.

For more information and to register, visit: www.math.pepperdine.edu/~killpat/PCUMC/PCUMC.htm
Questions? Contact Dr. Kendra Killpatrick at Kendra.Killpatrick@pepperdine.edu

Registration deadline: Friday, March 10, 2006

Deadline to register to give a talk: Friday, March 10, 2006



Governor's Report from January Meetings in San Antonio

Art Benjamin, Section Governor

MAA So Cal-Nev Section Members Speak, Win Prizes at San Antonio JMM

San Antonio was great fun. I enjoyed running into members of our Section in the exhibit hall, at talks (some of which they were giving), and receiving awards.

It was great to hear **Francis Su** (Harvey Mudd College) give one of the invited MAA addresses. I had the pleasure of seeing **Jacqueline Dewar** (right, Loyola Marymount U) receive the Haimo Award for Distinguished Teaching (awarded to just three mathematicians each year) then hear her give a talk about the secrets of her success. I sat beside **Jennifer Quinn** (Occidental College) on stage as we received the Beckenbach



Book Prize for our MAA book, *Proofs that Really Count: The Art of Combinatorial Proof*. Incidentally, Jenny is the new Executive Director of the Association for Women in Mathematics. (Jenny and Art are pictured at left.)



The American Mathematical Society created two new awards this year for effective mathematics programs. Congratulations to the **Harvey Mudd College Math Department** for receiving the first ever AMS Award for an Exemplary Program or Achievement in a Mathematics Department. Congratulations also to the Summer Institute in Mathematics for Undergraduates at the Universidad de Puerto Rico, Humacao, of which **Herbert Medina** (Loyola Marymount University) is co-director, for winning the new AMS Award for Mathematics Programs that Make a Difference.

Board of Governors Honors Martelli for Creating JMM Student Poster Session

The most noteworthy decision at the Board of Governors Meeting was the establishment of a new structure for MAA dues. The new dues structure will be simpler than the old one. But the high point of the meeting for me was when the Board unanimously endorsed a proclamation thanking **Mario Martelli** (Claremont McKenna College) for all of his years of service to the Undergraduate Poster Session at the joint meetings. Single-handedly, Mario grew the Poster Session from a small session to become one of the Joint Meetings' most popular events. Throughout his tenure as organizer, Mario gathered submissions, communicated with the students, organized and printed the session abstracts, and convinced colleagues from across the country to serve as judges. It was very touching to watch Mario, overcome with emotion, as MAA Associate Executive Director Michael Pearson presented him with the following citation:



Be it resolved, on behalf of the Board of Governors of the Mathematical Association of America, that Mario Umberto Martelli be recognized for his outstanding service to the many students who have been given the extraordinary opportunity to share their work through the MAA Undergraduate Poster Session, the faculty who have had the pleasure to serve as judges, and the Association whose meetings have been so enriched.

NSF Renews Grant for Cal State LA's National Curve Bank

The National Science Foundation has renewed California State University, Los Angeles, Mathematics Professor Shirley Gray's grant for the National Curve Bank. This is an international database for all kinds of curves. If you have a favorite curve, you are welcome to make a deposit. Visit the National Curve Bank at <http://curvebank.calstatela.edu/>

Each March 31, on the birthday of René Descartes, the National Curve Bank announces the winner of the *Renie Award* for best mathematics web deposit of the year. This year the Board narrowed the candidates to the following three finalists:

< <http://curvebank.calstatela.edu/brach/brach.htm> >

< <http://curvebank.calstatela.edu/pursuit/pursuit.htm> >

< <http://curvebank.calstatela.edu/javatrig2/javatrig2.htm> >

Pop-down screens must be unlocked to see any feedback. Also, the third candidate requires a special JAVA download. For the first time, all candidates are students or recent graduates.

More News of the Section

At Cal Poly Pomona, **Patricia Hale**, **Laurie Riggs**, and **Stephen Wirkus** were promoted to associate professor with tenure, and **Randall Swift** was promoted to full professor.

Cal State Los Angeles welcomes two new tenure track faculty members, **Michael Krebs** (Johns Hopkins University, algebra, algebraic geometry) and **Anthony Shaheen** (UC San Diego, algebra, number theory).

Loyola Marymount University has promoted **Lily Khadjavi** to Associate Professor.

Kendra Killpatrick, Associate Professor of Mathematics at Seaver College, **Pepperdine University**, has received the university-wide Howard A. White Award for Teaching Excellence.

Kenneth Millett, of the **University of California, Santa Barbara**, traveled to Washington, D.C., last month to receive the 2006 Giants in Science Award from the Quality Education for Minorities / Mathematics, Science, and Engineering Network.



Southern California-Nevada Section of the Mathematical Association of America

Spring 2006 Meeting Schedule

Saturday, April 8, California State University, San Bernardino

8:15—noon **Registration**—Jack Brown Hall

8:15—10:30 **Refreshments**—Jack Brown Hall

8:30—2:30 **MAA Book Sale and Publisher Exhibits**—Jack Brown Hall
Book Sale organized by Richard Katz, Michael Hoffman, Cal State Los Angeles

9:00—10:00 **Invited Address by Jerrold E. Marsden**—Jack Brown Hall
California Institute of Technology

Coherent Structures in Dynamical Systems

This talk is about how simple ideas of stretching rates in dynamical systems lead to a powerful computational method for revealing structure. These "Lagrangian Coherent Structures" appear both as barriers in flow as well as providing mechanisms for transport. These new theoretical and computational tools will be illustrated with the dynamics of ocean flows---specifically the flow in Monterey Bay and in the flow around jellyfish. Additional applications to flow over airfoils, pollution release, and vortex rings will also be given.

10:15-11:15 **Student Poster Session**—Jack Brown Hall
Organized by Cynthia Wyels, California State University, Channel Islands

11:30-12:45 **Luncheon**—Location to be announced

12:45-1:15 **Business Meeting**—Jack Brown Hall
Presentation of Section Distinguished Teaching Award
Recognition of 25- and 50-year MAA members
Presentation of Student Poster Session prizes

1:15—2:15 **Invited Address by Deanna Haunsperger**—Jack Brown Hall
Carleton College, Northfield, Minnesota

Bright Lights on the Horizon

What do a square-wheeled bicycle, a 17th-century French painting, and the Indiana legislature all have in common? They appear among the many bright stars on the mathematical horizon, or perhaps, more correctly, in the *Math[ematical] Horizons*. *Math Horizons*, the undergraduate magazine started by the MAA in 1994, publishes articles to introduce students to the world of mathematics outside the classroom. Some of mathematics' best expositors have written for *MH* over the years; here are some of the highlights from the first ten years of *Horizons*. But let's be honest, the magazine isn't just for students, we all enjoy gazing at the stars as we look to the *Horizon[s]*.

2:15—2:30 **Refreshments**—Jack Brown Hall

2:30—3:30 **Invited Address by Lew Lefton**—Jack Brown Hall
Georgia Institute of Technology, Atlanta, Georgia

Infinity Bottles of Beer on the Wall or What's So Funny About Mathematics?

In addition to being a mathematician, Dr. Lefton has worked as a standup and improv comedian. He's funny... and he can prove it! WARNING: Certain portions of this presentation are suitable only for mathematically mature audiences!



Exciting Line-up of Speakers to Present at MAA Southern California-Nevada Section Meeting at Cal State San Bernardino

The Spring Meeting of the Southern California-Nevada Section of the MAA will feature three exciting speakers, applied mathematician Jerrold Marsden of Caltech, MAA Second Vice-President Deanna Haunsperger of Carleton College, and mathematics comedian Lew Lefton of Georgia Tech. The meeting also will feature the Student Poster Session, organized by Cynthia Wyels of California State University, Channel Islands; and the MAA Book Sale, run by Richard Katz and Michael Hoffman of Cal State Los Angeles. The MAA Book Sale, offered throughout the day, will have a larger-than-usual selection of new MAA books, along with almost all of the other titles in the MAA booklist.

Even the Business Meeting promises to be exciting, with the highly anticipated presentation of the 2005 Section Distinguished Teaching Award and recognition of our section's 25- and 50-year MAA members. The Southern California-Nevada Section NExT (New Experiences in Teaching) will not run a parallel program of activities for its members at the Spring Meeting, but does encourage its members to attend the meeting.

See you at Cal State San Bernardino!

Spring Meeting Speakers

Jerrold E. Marsden is Carl F. Braun Professor of Engineering and Control and Dynamical Systems at Caltech. He has done extensive research in the area of geometric mechanics, with applications to rigid body systems, fluid mechanics, elasticity theory, plasma physics, as well as to general field theory. His work in dynamical systems and control theory emphasizes how it relates to mechanical systems and systems with symmetry. He was one of the original founders in the early 1970s of reduction theory for mechanical systems with symmetry, which remains an active and much studied area of research today. In 2005, Marsden won SIAM's von Neumann Prize and delivered the von Neumann Lecture. He earned his B.S. at the University of Toronto in 1965, and his Ph.D. at Princeton University in 1968.



Deanna Haunsperger, Associate Professor of Mathematics at Carleton College in Northfield, Minnesota, is the newly elected MAA Second Vice-President. Her mathematical research interests include statistical decision procedures and applied systems analysis, voting theory and nonparametric statistics. In 1995, she founded the Carleton and St. Olaf



Colleges Summer Mathematics Program for Women, a very successful NSF-funded program designed to encourage and support women in their study of mathematics, and she has directed the program ever since. From 1999 to 2003, Haunsperger and her husband, mathematician Stephen Kennedy, served as inaugural editors of the MAA's lively student magazine, *Math Horizons*. Haunsperger earned her Ph.D. at Northwestern University.

Lew Lefton is a faculty member in the School of Mathematics at the Georgia Institute of Technology in Atlanta, where he also serves as Director of Information Technology. His main research interests are in nonlinear differential equations (both ODEs and PDEs) and the numerical approximation of the solutions to these equations. His main hobby is comedy, and he performs both improvisational comedy (he is a member of an improvisational comedy group called "Brown!") and standup comedy. As a mathematics comedian, Lefton claims that he is funny and he can prove it! Lefton earned his Ph.D. in 1987 from the University of Illinois, then was a faculty member in the Mathematics Department at the University of New Orleans before joining the faculty at Georgia Tech.



Great Books, Great Bargains at MAA Book Sale!

The 2006 Spring Meeting at Cal State San Bernardino will include the ever-popular MAA Book Sale. Book prices at the meeting will be about 10% less than the already discounted MAA member prices. Almost all of the books in the MAA Catalog will be on display, including a number of brand new titles. Among the new MAA "books" are *Martin Gardner's Mathematical Games*, a CD containing Gardner's entire collection of *Scientific American* columns, and Keith Kendig's *Conics*, a book and disk combination. Recent MAA books by Southern California-Nevada Section authors include *Proofs That Really Count*, by Art Benjamin of Harvey Mudd College and Jenny Quinn of Occidental College, and *777 Mathematical Conversation Starters*, by John dePillis of UC Riverside. Again, prices of books bought at the Spring Meeting are about 10% less than the already discounted member prices in the MAA Catalog. Book Sale organizers are Michael Hoffman and Richard Katz of California State University, Los Angeles.

**REGISTER FOR
THE SPRING
MEETING!**

Complete the form at right and send it with payment to:

Ernie Solheid,
Department of
Mathematics,
California State
University-Fullerton,
800 N. State College
Blvd., Fullerton, CA,
92834

**Registration deadline
is Friday, March 31,
2006.**

VOTE!!!**FOR
SECTION
OFFICERS**

on page 8

Please return
ballot to
Ernie Solheid,
Department of
Mathematics,
California State
University-
Fullerton,
800 N. State
College Blvd.,
Fullerton, CA,
92834

by Friday,
March 31, 2006.

Pre-Registration/Luncheon Reservation Form

***Spring Meeting at California State University, San Bernardino
Saturday, April 8, 2006***

Enter the number of registrations of each type in the appropriate blank in the table below. Make checks payable to **Southern California-Nevada MAA**. (Attach a separate page for multiple registration information.)

Name _____

Affiliation _____

Address _____

E-mail address _____

	Nonmember	MAA Member	New MAA Member First Meeting	Student
Registration Only	_____ @ \$30	_____ @ \$25	_____ @ FREE	_____ @ \$10
Registration and Luncheon	_____ @ \$45	_____ @ \$40	_____ @ \$15	_____ @ \$16
Registration and Vegetarian Luncheon	_____ @ \$45	_____ @ \$40	_____ @ \$15	_____ @ \$16

Total Enclosed \$ _____

On-site registration will be available at the meeting for \$5 more than pre-registration.

Questions? Contact Ernie Solheid, Meeting Coordinator
Email: esolheid@fullerton.edu, phone: (714) 278-7023

The MAA national office has requested the following information. Please check all boxes that apply to you—or enter appropriate numbers for multiple registrations.

_____ MAA member	_____ MAA non-member
_____ 2-year college faculty	_____ 4-year college/university faculty
_____ High school teacher	_____ Business/industry/government
_____ Undergraduate student	_____ Graduate student



BALLOT FOR SECTION OFFICERS: PLEASE VOTE!!!

Position	Candidate	Write-in Alternative
Section Vice-Chair	Mario Martelli Claremont McKenna College	
Second Program Vice-Chair	Perla Myers University of San Diego	
Treasurer	Michael Hoffman Cal State Los Angeles	

Please return ballot to
Ernie Solheid,
Department of Mathematics,
California State University-
Fullerton,
800 N. State College Blvd.,
Fullerton, CA, 92834

by Friday,
March 31, 2006.

Plan to attend the Spring Meeting at CSU
San Bernardino Saturday, April 8, 2006!

Message from Section Chair Richard Katz—continued from page 1

a demonstration of substantial undergraduate research. Local organizers for the Fall Meeting were *Ivona Grzegorzcyk* and *Cindy Wyels* of Cal State Channel Islands and Section Meetings Coordinator *Ernie Solheid* of Cal State Fullerton.

The **2006 National Meeting** was held in San Antonio, TX, from January 12-15. The section was well represented at the meeting with most of the board attending. In addition, *Francis Su*, Harvey Mudd College, delivered a MAA Invited Address – *Preference Sets, Graphs and Voting in Agreeable Societies* – and *Jackie Dewar*, our Distinguished Teaching Award winner, received national recognition as one of the Deborah and Franklin Haimo Award winners. Her talk was the same one that she gave at the fall meeting at CSUCI. On a somewhat lighter note, *Art Benjamin*, our governor, spent a morning autographing copies of his and Jennifer Quinn's book, *Proofs that Really Count*. The book is a delightful one and, to put in a plug for the MAA Book Sale, Mike Hoffman and I will be selling it at the spring meeting. I expect Art to be there so there is a chance to get your own autographed copy. As usual, all books will be discounted about 10% from the member's price.

On a personal note, I enjoyed *Hendrik Lenstra's* Colloquium Lectures - *Entangled Radicals* – the best set of colloquium lectures that I have heard in a while, and the many lectures on the history of mathematics. How many of you have heard the story of *J. L. Lagrange* starting to present a proof of the parallel postulate but stopping in the middle of his lecture with the comment, "I must think further on this." According to *Judy Grabiner* of Pitzer College, the story is false. Lagrange finished the lecture, basing his proof on the principle of "sufficient reason". It would be interesting to see a transcript of the lecture since it seems surprising that a mathematician of Lagrange's caliber

would attempt such a proof. One lecture that I was sorry to miss was the *π vs. e* debate. It conflicted with the MAA section officers meeting; nothing exciting to report there. Perhaps someone can tell me which number won.

Thank you. I am looking forward to seeing you at Cal State San Bernardino as I close out my term as chair. It has been a pleasure working on your behalf. Our vice chair, Rebecca Head from Bakersfield College, will continue her excellent work on our behalf as she becomes chair of our section this summer. Thank you all for your support. It has been an honor and a pleasure to serve as your chair.

Section Welcomes Two New REUs

The Research Experiences for Undergraduates (REU) programs at California State University, San Bernardino, and California Lutheran University finally have company in Southern California. Two new REU programs were offered for the first time during the summer of 2005 and will continue during the summer of 2006. Both new programs are offered jointly by local colleges and universities, one by the Claremont Colleges and the other by Cal Poly Pomona and Loyola Marymount University. Claremont REU directors are Jim Hoste (Pitzer College) and Mario Martelli (Claremont McKenna College). LMU-Cal Poly directors are Erika Camacho and Ed Mosteig of LMU, and Randall Swift and Stephen Wirkus of Cal Poly. The REU formerly at Cal Lutheran will move to California State University, Channel Islands, beginning in summer of 2006. Its director is Cindy Wyels. The Cal State San Bernardino program is directed by Rollie Trapp and Joe Chavez. REU programs are sponsored by the National Science Foundation.