Southern California Section
The Mathematical Association of America
NEWSLETTER

Volume XLIII, Number 1   September 2001

FROM THE SECTION CHAIR

During the new Academic year it is my pleasure and honor to serve as Section Chair. For more than forty years I have been a member of the Caltech Faculty. All those years I have enjoyed and benefited from the activities of our Local Section promoting mathematics and mathematical education. But I never thought that I would one day serve as Section Chair.

My first pleasant task is to thank Bob Stein on behalf of our membership for his outstanding contributions and guidance over the years as Section Officer and last year as the Section Chair. Through his efforts we may soon realize the expressed wish of the membership of the Southern Nevada Section to join our Section and at the same time to accommodate our San Luis Obispo membership to join the Northern California Section. Of course the Newsletter will keep you informed about these proposed boundary changes.

A very special THANK YOU to our outgoing Newsletter Editor Jennifer Quinn for her fine editorial work and for her unrelenting efforts to get the Newsletter out in time.

The Fall 2001 Meeting will be held at the Loyola Marymount University on Saturday October 13. It offers an exciting Program brought

to you by a group of outstanding mathematicians in their fields. We hope, or rather count, on a large turn-out. Please don't forget to bring your undergraduate and graduate students with you. The Fall meeting offers us a fine opportunity to start the new academic year, to catch up on what is going on in mathematics, and to meet old friends and colleagues.

It is also the time of the year to welcome to Southern California new faculty members. We urge you to let them know of our existence, inform them about our Fall meeting, and possibly entice them to come along to the meeting.

Finally, for past Newsletters go online to: http://www.maa.org/socal.

—Wilhelmus A. J. Luxemburg
Section Chair, (lux@its.caltech.edu).

From the President: The MAA and National Affairs

The MAA actively participates in two umbrella organizations of societies in the mathematical sciences. The first is the Joint Policy Board for Mathematics (JPBM), which meets two or three times a year. JPBM was formed in 1984 and consists of representatives from the MAA, the AMS, and SIAM. Up until last January, these three societies sponsored a common lobbyist in Washington. At the request of the AMS, this joint lobbying effort was discontinued. It has been difficult to decide on the right person and the right structure for the MAA's efforts, especially since our contribution to the joint lobbying was relatively small and would not buy much of a mathematician's or a lobbyist's time. Further, we need to decide how to divide our available funds between lobbying and public awareness.

Our Science Policy Committee, chaired by former president Lida Barrett, discusses issues such as these and makes recommendations about the MAA's relations with governmental

agencies and about public relations in general. You may visit its website by starting at www.maa.org.

Although JPBM no longer does joint lobbying, two primary ongoing jobs remain: give a yearly Communications Award and organize Mathematics Awareness Month. These jobs rotate among the three member societies. The Communications Award was established to "reward and encourage journalists and other communicators who, on a sustained basis, bring accurate mathematical information to non-mathematical audiences." Mathematics Awareness Month in April 2002 is the responsibility of the AMS. JPBM selected the topic of Mathematics and the Genome.

The second umbrella organization in which we participate actively is the Conference Board of the Mathematical Sciences (CBMS), which has its headquarters in the MAA building in Washington, DC. CBMS consists of sixteen profes-

The Student's Column

Plan to attend the Fall 2001 Meeting at Loyola Marymount University!

Student admission to the Fall Meeting Saturday, October 13, 2001, at Loyola Marymount is half price at $10, and lunch for students is only $8. See the registration form on page 7 of this newsletter. The Fall Meeting will include several talks of interest to students, including dynamic speaker and mathematician Marc Chamberland's "A Dynamical Systems Approach to the 3x+1 Problem" and 2001 MAA Southern California Section Distinguished Teaching Award winner Jennifer Quinn's "Proofs that Really Count." Students will also enjoy the special session of short talks on the history of mathematics.

Organize a group of students from your school to attend the Fall Meeting, and encourage your Mathematics Department Chairperson to pay for your registration and lunch!

Spring 2002 Meeting Student Poster Session at Caltech

Begin preparing a poster NOW for the Spring Meeting at the California Institute of Technology (Caltech), Saturday, March 16, 2002! Posters may feature the results of any individual or group mathematics project, including:
1. Results of honors, senior, or other independent study projects;
2. Results of classroom projects or modeling contests;
3. Results of REUs or other summer workshops or research programs;
4. Historical investigations in pure or applied mathematics;
5. Solutions of problems from the Putnam Exam or from the *Monthly* or other journals.

The 2001 student poster session featured 26 posters with topics ranging from mathematical modeling of cancer treatments and of water on Mars to investigations in combinatorics and number theory. 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:
- 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 1-year subscription to an MAA journal (or free MAA book if you already are an MAA member);
- Chance to win great door prizes during lunchtime drawing;
- Great resume entry.

Questions? Contact Prof. Janet L. Beery, Dept. of Mathematics, Univ. of Redlands, 1200 E. Colton Ave., Redlands, CA 92373, PHONE: (909)793-2121, ext. 3118, E-MAIL: janet_beery@redlands.edu or beery@uor.edu Submit a title and brief abstract to Prof. Beery at the address or e-mail address above by Wednesday, March 6, 2002. Be sure to include your name, the name of your school, and your advisor's name.

January 2002 Student Poster Session in San Diego

Plan to present a poster during the Undergraduate Student Poster Session at the American Mathematical Society - Mathematical Association of America Joint Meetings, to be held this year on January 6-9, 2002, in San Diego. The poster session takes place on Tuesday, January 8, 2002, from 4:30 to 7:30 p.m. Students from across the United States will present posters describing their mathematical research projects.

Professor Mario Martelli of Claremont McKenna College is the organizer for the poster session. Students who wish to apply to participate should send a title and a (no more than) one half-page abstract to Mario Martelli, Mathematics Department, Claremont McKenna College, 850 Columbia Ave., Claremont, CA 91711, by December 10, 2001. Questions? Visit the San Diego Student Poster Session website at http://math.academic.claremontmckenna.edu/SanDiego.htm or contact Professor Martelli at mario.martelli@claremontmckenna.

sional societies in the mathematical sciences. Its purpose is to promote understanding and cooperation among these organizations so that they work together and support each other in their efforts to promote research, improve education, and expand the uses of mathematics. Formally incorporated in 1960, CBMS traces its roots back to a War Policy Committee formed in 1942 by the AMS and the MAA. CBMS officers and the presidents of its sixteen member organizations convene twice annually at the MAA. Ongoing CBMS activities include regional research conferences, a survey of mathematical sciences departments, and a book series on issues in mathematics education. A recent book of interest is *One Field, Many Paths: U.S. Doctoral Programs in Mathematics Education*, edited by Robert Reys and Jeremy Kilpatrick, which examines issues such as how much mathematics should be required of people receiving a degree in mathematics education. This fall, CBMS will release the Mathematical Education of Teachers report.   The final report is now available at www.maa.org/cbms.

The MAA also participates in the Coalition for National Science Funding (CNSF) and the Council of Scientific Society Presidents, which alert their member societies to public policy issues and organize various lobbying efforts. See www.cnsfweb.org/ and www.mdsg.umces.edu/CSSP/home.html.

Finally, the most visible national activity of the MAA is our American Mathematics Competitions (AMC). Last year, nearly 300,000 secondary school students participated in this

News of the Section

From *Grossmont College*: Peg Hovde is the new mathematics department chair for 2001 to 2003. Peg reports that they had three retirements last year: David Lunsford, Winston Dean and Jim Hilton. Jennifer Vanden Eynden is the newest tenure track faculty member. They plan to hire at least one more tenure track faculty member who will start in Fall 2002.

The Mathematics Department at *Pepperdine University* is delighted to welcome David Strong as a new Assistant Professor. In 1997 David received his Ph.D. in Applied Mathematics from UCLA, and he has several years experience as a PIC Assistant Adjunct Professor at UCLA and as a staff scientist for Science Data Processing Systems at the Jet Propulsion Laboratory. While at UCLA, David was the recipient of the Robert Sorgenfrey Distinguished Teaching Award and the GAANN Fellowship. David and the other Pepperdine mathematics faculty are enjoying the opportunity to teach in some new "technology rich" classrooms that are part of the recently completed Keck Science Center.

California State University, Northridge welcomes three new assistant professors, Bernardo Abrego, Silvia Fernandez, and Katherine Stevenson (starting January 2002), to its faculty. Bernardo and Silvia have both been accepted as Project NExT fellows for this year. Michael Neubauer has been granted tenure. Carol Shubin and Ramin Vakilian have been promoted to full professors.

At the *University of La Verne* (Math/Physics/C.S. Department) this past spring, Xiaoyan Liu was granted tenure, and Michael Frantz was promoted to full professor.

News from *Caltech:* Prof. Thomas Y. Hou from Caltech and Prof. Eitan Tadmor from UCLA are co-organizing the Ninth International Conference on Hyperbolic PDEs: Theory, Numerics and Applications, to be held at Caltech from March 25th to 29th, 2002. More information can be found in the website: www.acm.caltech.edu/hyp2002 . Prof. Emmanuel Candes from Caltech Applied Mathematics has won the Popov prize in the Approximation Theory at the 10th International Conference on Approximation Theory. Prof. Thomas Y. Hou from Caltech Applied Mathematics has won the 2001 James H. Wilkinson Prize in Numerical Analysis and Scientific Computing. The Wilkinson prize, established in 1979, is given every four years for "research in, or other contributions to, numerical analysis and scientific computing during the six years preceding the award."

The latest news from *Bakersfield College* is that they have a new one-year temporary Math faculty, Rick Brantley who comes from Alabama. He joins the other two new fulltime faculty Carol Smith and Thomas Mieh. In other news, several *Bakersfield College* and *CSU Bakersfield* math faculty met for dinner and discussion with the new math faculty in the Kern High School District

on August 20th in an event sponsored by the Kern Educational Partnership, *CSU Bakersfield* Math Dept, Kern High School District, and Kern County Superintendent of Schools Office.

Additional new from *CSU Bakersfield*: Dr. Leland Webb has just retired, having been on the faculty of the math department since 1971.

At *Pomona College*, Erica Flapan is the new chair and Shahriar Shahriari was promoted to the rank of Professor. Their statistician, Don Bentley, has retired and they have hired Sandy Ganzell and Adam Nyman on 3-year contracts, as well as Mark Logan and John Brown on 1-year contracts.

Santa Monica College reports that Andrew Nestler is a Project NExT Fellow for 2001-2002, Salli Takenaka is retiring, and the department has recently created Math 41, "Mathematics for Elementary School Teachers."

UCSB reports that they've hired two excellent faculty, Stephen Bigelow in low-dimensional topology and Carlos

Send news from your institution to Lars Kjeseth at lkjeseth@socal.rr.com *or send it to him at El Camino College, Division of Mathematical Sciences, 16007 Crenshaw Blvd, Torrance, CA 90506.*

Let us publicize your honors, events, and milestones.

(National Affairs continued from page 2)
series of contests. See www.unl.edu/amc. In June, the MAA honors the 12 winners of our USA Mathematical Olympiad at a ceremony at the National Academy of Sciences followed by a reception and banquet at the Diplomatic Reception Rooms of the U.S. Department of State. This is a very elegant affair, attended by the presidents and executive directors of the fifteen other mathematical sciences organizations that help sponsor our AMC and a large number of other VIPs. This year we welcomed the Akamai Foundation as the AMC's "Presenting Sponsor." Akamai gave scholarships to the top three students. The Clay Mathematics Institute presented a monetary award to the student with the most creative solution on the USAMO and various societies gave all twelve students various gifts. This year the international competition was held in the United States and the U.S. team tied for second, so the AMC received a large amount of very positive national publicity on television, radio, and in leading newspapers.

—Ann E. Watkins
California State University, Northridge
President, Mathematical Association of America

The URL for the Section Web page is easy to remember:
<http://www.maa.org/socal>.
Visit YOUR Section's Web Page frequently!

Southern California Section of the Mathematical Association of America (MAA)

Fall 2001 Meeting
Saturday, October 13
at
Loyola Marymount University
<u>Tentative Schedule</u>

8:15 – 12:00   Registration
8:15 – 10:30   Refreshments
8:15 – 2:30   MAA Book Sale

9:00 – 9:50   INVITED ADDRESS *A Dynamical Systems Approach to the 3x + 1 Problem,*
               Marc Chamberland, Grinell College

10:00 – 11:45 CONTRIBUTED PAPER SESSION
               Three parallel sessions:
               - General Mathematical Interests
               - Innovations in Undergraduate Mathematics Education
               - History of Mathematics

12:00 – 2:00   LUNCHEON PROGRAM
               Food service followed by acknowledgements and welcome
               from **Wilhemus Luxemburg**,
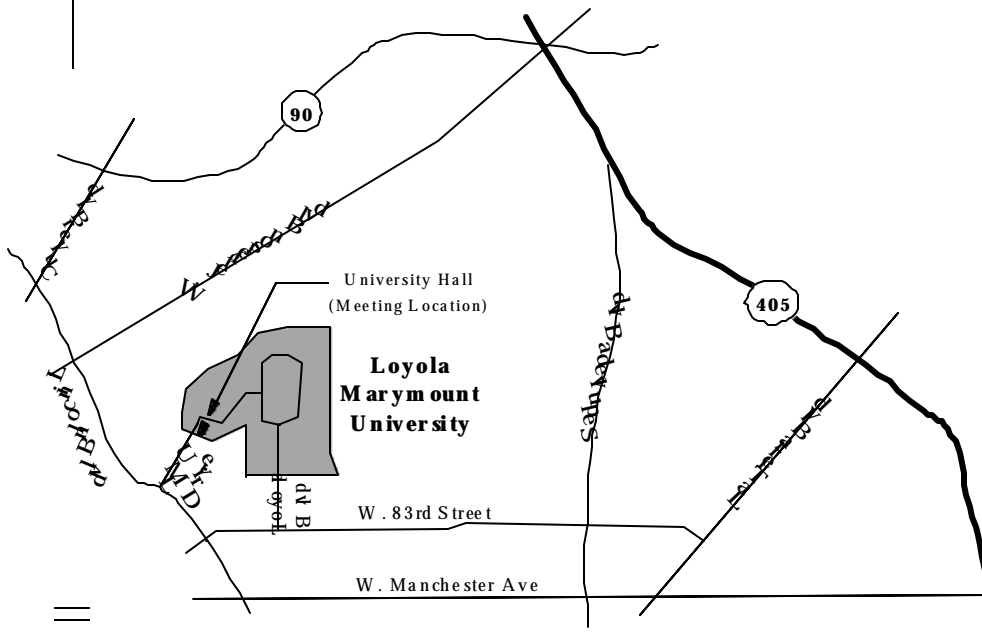   California Institute of Technology
               MAA Section Chair

1:00 – 2:00   INVITED ADDRESS *Proofs that Really Count,* **Jennifer J. Quinn**, Occidental College,
               2001 MAA Southern CA Section *Distinguished Teaching Award* Winner

2:15 – 3:05   INVITED ADDRESS *By Popular Request: What Are Other Disciplines Asking of
               Mathematics?,* **Deborah Hughes-Hallett**, University of Arizona

> Complete the registration form on page 7 and and send it with payment to:
>
> Ernie Solheid
> Dept. of Mathematics
> CSU Fullerton
> 800 N. State College Blvd.,
> Fullerton, CA 92834
>
> Registration deadline is Friday, October 5, 2001.

3:15 – 4:15
PANEL DISCUSSION
The Impact of Computer Algebras on the Teaching of Mathematics

- **Deborah Hughes-Hallett**, University of Arizona
- **Ronald Miech,** UCLA
- **Ernie Solheid**, CSU Fullerton
- Other panelist not known at time of printing

ABSTRACTS

A Dynamical Systems Approach to the 3x + 1 Problem
Marc Chamberland, Grinell College

Abstract: The 3x+1 Problem (also known as the Collatz Conjecture) is a very easily-stated number theory problem which has withstood a solution for fifty years. Take a positive integer n. If n is even, it maps to $n/2$, while if it is odd, it maps to $3n$ +1. After repeating this process long enough, the conjecture is that you will eventually reach 1. In this talk I will give an overview of the work done on this problem. While most attempts have used number theory, it seems that a fresh approach is needed. I will highlight a dynamical systems approach which recasts the problem on the real line instead of on the integers. The talk will be accessible to a general audience.

Proofs that Really Count
Jennifer J. Quinn, Occidental College

Abstract: Counting leads to beautiful, often elementary, and very conc rete proofs. As human beings we learn to count from a very early age. A typical 2 year old will proudly count to 10 for the coos and applause of adoring parents. Although many adults readily claim ineptitude in mathematics – no one ever owns up to an inability to count. Counting is one of our first tools, and it is time to appreciate its full mathematical power. I have selected some of my favorite identities involving binomial coefficients, Fibonacci numbers, Stirling numbers, harmonic numbers (and more) that have elegant counting proofs. They require no special training to be appreciated. Hopefully when you encounter identities in the future, the first question to pop into your mind will not be "Why is this true?" but "What does this count?"

By Popular Request: What Are Other Disciplines Asking of Mathematics?
Deborah Hughes-Hallett, University of Arizona

Abstract: This talk will report on the results of the Curriculum Foundations Project. As part of the current MAA Undergraduate Curriculum Review, the Curriculum Foundations Project invited faculty in other fields to disciplinary workshops to write reports on what they wanted in the undergraduate mathematics courses. The reports are informative, sometimes surprising, and overall, a cause for optimism. There was a striking level of agreement between other fields, as well as between the goals of mathematics and of other fields. This talk will outline the main themes in our colleagues' requests and delineate the areas in which fields differ; we will also discuss suggest possible responses.

Parking Information: The meeting will be held in University Hall on the LMU campus. Enter campus on LMU Drive (formerly Hughes Terrace) off of Lincoln Boulevard. University Hall is on the right immediately after turning onto LMU Drive. Turn right at the first entrance into the underground parking structure below the building and park in any space. Take the elevator to the first floor lobby, where the registration desk will be located.

Governor's Report

On August 1, 2001, I attended my first Board of Governors meeting in Madison, Wisconsin, one day before the MathFest. Below, I highlight those items I feel will be of particular interest for members of our section.

Ron Graham, from UC San Diego, will be the next MAA President. It is a distinct honor for the Southern California Section that two of our member will serve as consecutive presidents of the MAA, this year with Ann Watkins, from Cal State Northridge, and next year with Ron.

The budget raised some concerns, due to the volatility of the voluntary contributions, which dropped dramatically from last year. A top priority for Tina Straley, the MAA Executive Director, will be to achieve financial stability for the MAA through carefully monitoring expenses and increasing revenues. We were informed that the present Treasurer, Gerald Porter, is stepping down from his position. Gerald served as Treasurer for about ten years. The President will appoint a Committee to search for a replacement. If you know Porter drop him a thank-you note for so many years of invaluable service.

Don Albers, Director of Publications and Electronic Services, gave us an upbeat panoramic view of this section. Look for many exciting and outstanding titles of new books at our Fall Meeting at Loyola Marymount University and purchase as many as you and your department's wallet will let you. There is a quadruple advantage: you get excellent books, you support the MAA, you get a good discount, and you help our section financially.

Don informed us that the Mathematical Science Digital Library is now enriched with the second issue of JOMA (the On-line Journal of Mathematics and Applications). Take full advantage of this service. The benefits for your professional activities will be invaluable.

Treasurer's Report
August 1, 2001

Balance on August 1, 2000	**15007.38**
PFF Money Market	2322.50
PFF Spring CD	2144.05
PFF Fall CD	10540.83
Expenditures	**9186.85**
Whittier Meeting	585.87
CSUF Meeting	4684.78
Newsletter	2550.37
Teaching Award	81.71
Income	**9427.98**
2001-2002 Subvention	1900.00
Whittier Meeting	1838.00
CSUF Meeting	3548.00
Book Sales	439.46
Interest	1116.61
UCLA Meeting (deferred)	500.00
Miscellaneous	85.91
Balance on August 1, 2001	**15248.51**
PFF Money Market	3026.90
PFF Spring CD	1054.71
PFF Fall CD	11166.90

Respectfully submitted,
—Art Benjamin
Secretary-Treasurer
Harvey Mudd College

Call for Nominations
for the Southern California Section Award for Distinguished College or University Teaching

The Distinguished Teaching Award Committee of the Southern California Section of the MAA is seeking nominations for the 2002 Distinguished College or University Teaching Award. The committee asks you to submit the name(s) of faculty from your department who in your opinion have a distinguished teaching record. The winner of the award will be recognized at the Spring Meeting of the MAA on March 16, 2002 at Caltech and will become the Section's official representative for the national award. The act of nomination itself honors the nominee; those selected for the award are, of course, especially honored. Nominations are effective for two years.

Art Benjamin, Secretary-Treasurer of the Section, can provide you with all details needed to submit a nomination. He can be reached at benjamin@hmc.edu or (909) 621-8688. He will mail you all nomination materials that you need. Besides your supporting letter, two more letters from faculty and two from students are allowed. Letters must be no longer than a page. In addition, an outline of no more than three pages should list the nominee's activities related to the award. Art will be more than happy to help you with the nomination process, as will the Committee Chair, Magnhild Lien. She can be reached at (818) 677-2721 or by email at magnhild.lien@csun.edu.

The Committee members are:

    Magnhild Lien, CSU Northridge (Chair)
    Wilhelmus Luxemburg, CalTech
    John T. Hallett, CSU San Bernardino
    Richard Zucker, Irvine Valley College

Past recipients of the Southern California Section Award are:

2001 *Jennifer J. Quinn*
Occidental College

2000 *Tom O'Neil*
Cal Poly San Luis Obispo

1999 *Arthur Benjamin*
Harvey Mudd College

1998 *Ali Zakeri*
CSU Northridge

1997 *Lukasz Pruski*
University of San Diego

1996 *Katherine Yoshiwara*
LA Pierce College

1995 *Kuen Lee*
Los Angeles Trade Tech

1994 *Mario Martelli*
CSU Fullerton

1993 *David Cohen*
UCLA

1992 *Harris Shultz*
CSU Fullerton

We were given an extensive report on the 42nd International Mathematical Olympiad, which took place in Washington, DC, July 1-14, 2001. The MAA sponsors and supports this activity. I will bring with me to the Fall Meeting the booklet we received. Ask me to see it if you are interested. The USA team ranked second ex-equo with Russia.

(Governor's Report continued from page 6)

I had the distinct honor and pleasure to introduce the second Hedrick Lecture on Wavelets by Ingrid Daubechies; I enjoyed the invited address of Judith Grabiner (from Pitzer College, Claremont) on "Newtonianism in Action"; I was very please to see Francis Edward Su (from Harvey Mudd College, Claremont) receive the Merten M. Hasse Prize; and I particularly cherished the moments I spent with our previous governor Barbara Beechler. Despite her recent difficult period Barbara came to Madison, and I was extremely pleased to see her enthusiasm and willingness to help with our section life and activities.

—Mario Martelli, Claremont McKenna College, mario.martelli@mckenna.edu

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REGISTER FOR THE FALL MEETING!

Complete the form below and send it with payment to:

Ernie Solheid
Dept. of Mathematics
CSU Fullerton
800 N. State College Blvd., Fullerton, CA 92834

Registration deadline is Friday, October 5, 2001.

(News of the Section continued from page 3)

Garcia-Cervera in applied mathematics. In addition, Dietmar Bisch has received an invitation to give an address at the International Congress of Mathematicians (ICM) in Beijing in Summer 2002 and Ken Millett was elected a fellow of the prestigious American Association for the Advancement of Science (AAAS).

Paul Yun and Bob Lewis at *El Camino College* spent the summer designing Mathematica labs for their first semester calculus courses. Judy Kasabian has roped in four of El Camino College's recent fulltime hires (Jeff Cohen, Lars Kjeseth, Trudy Meyer and Susie Tummers) to help student leaders plan the fifth annual Future Teachers Conference, which takes place at Santa Monica College on October 20, 2001. This day-long conference, designed as a first professional development experience for students considering a career in teaching, has been endorsed by the NSF and its structure has been adopted by Temple University in Philadelphia, Green River Community College in Auburn, WA, the University of Maine Orono and J. Sergaent Reynolds Community College in Richmond, VA.

Pre-Registration/Luncheon Reservation Form
Fall Meeting at Loyola Marymount University
October 13, 2001

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

Name_____

Affiliation_____

Address _____

E-mail Address_____

Attention new members of the MAA: You are qualified for free registration at your first section meeting.

	Nonmember	MAA Member	New MAA Member First Meeting	Student
Registration Only	____ @ $22	____ @ $20	____ @ FREE	____ @ $10
Registration and Luncheon	____ @ $37	____ @ $35	____ @ $15	____ @ $18
Registration and Vegetarian Lunch	____ @ $37	____ @ $35	____ @ $15	____ @ $18

Total Enclosed $ _____

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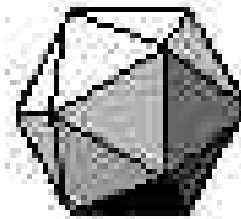Ernie Solheid, Email: esolheid@fullerton.edu,
phone: (714) 278-7023

Recognize an excellent teacher from your institution. Nominate them for the *Southern California Section Award for Distinguished College or University*

See what's happening at Southern California colleges and universities. Read *News of the Section* on page 3 and be sure to share your news in the next issue of our Newsletter.

Plan to attend the Fall Meeting at Loyola Marymount University on Saturday, October 13, 2001!

- **Program and directions on pages 4-5; Registration form on page 7.**
- **Registration is only $10 for students.**
- **Registration is free for *new* MAA members attending their first Southern California Section Meeting.**

Newsletter

Mathematical Association of America
Southern California Section
Lars Kjeseth, Newsletter Editor
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