



Southern California Section
The Mathematical Association of America
NEWSLETTER

Volume XLIII, Number 2

February 2002

Dates to Remember:

*Spring 2002 Meeting,
 March 16, 2002 at
 Caltech*

**REGISTER NOW*(Deadline
 for Preregistration March 1,
 2002)*

*Mathfest
 August 1-3, 2002
 Burlington, VT*

*Fall 2002 Meeting
 October 12, 2002 at Cerritos
 College*

*Spring 2003 Meeting at Harvey
 Mudd College*

Get Your Piece of the Cake!

Register NOW for the Spring 2002 Meeting Saturday, March 16th at Caltech

This spring's meeting at the California Institute of Technology (Caltech) promises to be a *Kawanbunga* of a day.

Put the date in your calendar now so that you don't have to *juggle* your schedule at the last minute in order to attend.

Register now. After all, we don't want to have to put out "Wanted" posters in order to see you there. We are certain that if you asked for anybody's opinion, they would give you a "Yes" vote on attending the meeting. We've got great speakers, a terrific undergraduate poster session and much more. One might say, there is enough *cake* for everyone.

Intrigued? For more information, see p.4.

We hope to see you on March 16!

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VOTE!

Mario Martelli — Juggling Three Reports from San Diego

Governors Meeting Report

The Board of Governors meeting took place on Saturday, January 5, from 9 AM to 5 PM at the Annual Meeting in San Diego. Many decisions were made during the day regarding all aspects of the organization. The four most important decisions/information are summarized below.

- Gerald Porter resigned as Secretary-Treasurer after serving in this capacity for 10 years. A search committee

*(Governors Meeting Report
 continued on page 6)*

MAA National Student Poster Session

The Undergraduate Student Poster Session took place on Tuesday, January 8, from 4PM to 6.30PM at the Annual Meeting in San Diego. A record 82 posters were presented by about 150 students from all over the country. Some 99 professional mathematicians evaluated the posters. Each poster was evaluated by three judges, and each

*(Student Poster Session in San Diego
 continued on page 3)*

Section Officers Meeting

The Section Officers Meeting took place on Sunday, January 6, from 4.30 to 6.30 PM at the Annual Meeting in San Diego. Three issues discussed seemed most relevant for us. First, Bernard Madison talked about the MAA Assessment Project. The MAA has money to send a specialist on assessment to the local meetings to run a workshop for about 90 minutes on this important

*(Section Officers Meeting
 continued on page 6)*



The Student's Column

Plan to attend the Spring 2002 Meeting at Caltech!

Student admission to the Spring Meeting Saturday, March 16, 2002, at the California Institute of Technology (Caltech) is half price (\$10), and lunch for students is only \$8. See the registration form on page 7 of this newsletter. In addition to four exciting talks on the mathematics of juggling, cake-cutting, voting, and the Simpsons, the Spring Meeting will feature the annual Student Poster Session. If you present a poster at the Spring Meeting, you'll receive free registration and lunch at the meeting, and a free one-year MAA membership and journal subscription. See Spring Meeting Student Poster Session, below.

Organize a group of students from your school to attend the Spring Meeting, and encourage your Mathematics Department Chairperson to pay for your registration and lunch! See you at Caltech!

Spring 2002 Meeting Student Poster Session at Caltech

Share your mathematical work with others by presenting a poster at the Spring Meeting Saturday, March 16, at the California Institute of Technology (Caltech)! 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 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 a graphing calculator for "Best Poster" or "Best Project";
- Chance to win great door prizes during lunchtime drawing;
- Great resume entry.

Questions about the Student Poster Session?

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.

Southern California student presenters win big at national meetings!

The following eight Southern California mathematics students won \$100 prizes for posters presented during the Undergraduate Student Poster Session Tuesday, Jan. 8, 2002, at the AMS-MAA National Meetings in San Diego. Only Southern California research advisors are listed.

Sarah Awad, Claremont-McKenna College,
Statistical Analysis of Combined Deterministic and Random Changes (Advisor: Janet Myrhe, Claremont-McKenna College)

Rodolfo De La Cruz, UC Santa Barbara, and Elden Krause, Loyola Marymount University, *Binomial Ideals from Graphs*

Ryan Hernandez, Pitzer College, and Tomas Voden, UC Riverside, *A Model of b-Cell Mass, Insulin, Glucose, and Reception Dynamics with Applications to Diabetes* (Advisor: Steven Wirkus, Cal Poly Pomona)

Cameron Pinckney and Carolyn Staples, Claremont-McKenna College, *The Flat Roof Problem* (Advisor: Mario Martelli, Claremont-McKenna College)

Marco Sanchez, Cal Poly Pomona, *The Role of Time Delay in the Fitzhugh-Nagumo Equations: The Impact of Alcohol in Neuron Firing*

Professor Mario Martelli of Claremont-McKenna College organized the Undergraduate Student Poster Session, which included 82 posters presented by 150 students from almost every state in the U.S. (See his report on page 1.)

—Janet Beery



News of the Section

David Hunter has taken over the task as the web master for the SoCal Section of the MAA. It has been transferred to *Westmont College*, and is linked up through MAA so that the same address <http://www.maa.org/> social works. David has updated the list of Board Members. If you want anything posted on the web site please send the information to David at dhunter@westmont.edu.

Bakersfield College Math Department is participating in an Eisenhower grant received by the college, working with Delano High School and several Bakersfield area high schools to provide staff development for the math faculty there. **Janet Tarjan** is working with the Delano High School faculty, meeting with them to determine what kind of staff development activities they would like, and then Janet is coordinating and planning those activities. **Donna Starr** is working with math faculty at Highland High School and East High School here in Bakersfield. Both are coordinating their efforts with *Cal State Bakersfield* math faculty as well. The Eisenhower grant helped to fund four new temporary positions for the Spring 2002 semester, and they would like to welcome **Jenny Jung, Gurpreet Singh, Justin Dunham, and Joe Seberger** to their faculty for this semester.

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.

Caltech will host the *Ninth International Conference on Hyperbolic PDEs: Theory, Numerics and Applications* from March 25 to 29, 2002. So far, they have received enthusiastic responses for the conference. They have an excellent list of invited speakers and plenary speakers. More information can be found from our conference website www.acm.caltech.edu. Other news from Caltech: **Thomas Y. Hou**, Professor and Executive Officer of Applied and Computational Mathematics, received the 2001 SIAM Wilkinson Prize in Numerical Analysis and Scientific Computing.

News from *Harvey Mudd College*: Professors **Weiqing Gu** and **Francis Su** were promoted to Associate Professor with tenure.

At *Pomona College*, **James Pommersheim** was awarded tenure and promoted to Associate Professor.

(Student Poster Session in San Diego continued from page 1)

judge evaluated at most three posters. 22 judges were from the Southern California Section. I would like to mention the contribution of Harvey Mudd College, with four judges: Arthur Benjamin, Hank Krieger, Michael Moody, and Michael Orrison; and California State University Fullerton with three judges: Friel James, Vuryl Klassen and Ernie Solheid.

The authors and/or co-authors of 24 posters were students from colleges or universities located in the area of the Southern California Section. Fifteen of these posters were done exclusively by our undergraduates.

Among the fifteen \$100 prizes awarded to the best posters, our section figured prominently. Please keep in mind that all prizes are ex-quo. However, the two posters most highly ranked by the judges were #59 and #80. The authors of poster #59 *On The Flat Roof Problem* were Cameron Pinckney and Carolyn Staples from Claremont McKenna College. I was their research advisor. The authors of poster #80 were not from our section.

Additional posters presented by students of our section and recognized with the \$100 prize were:

#4 on *Statistical Analysis of Combined Determi-*

(Student Poster Session in San Diego continued on page 6)

What's NExT?

Project NExT (New Experiences in Teaching) is an MAA program for new and recent Ph.D.'s in the mathematical sciences that addresses professional issues focused on the teaching and learning of undergraduate mathematics. It provides participants with practical information about and concrete suggestions for implementing more effective pedagogical and professional strategies, ranging from teaching methods to writing grant proposals. Since its inception in 1994, the interest in Project NExT has grown tremendously, and unfortunately, many potential NExT fellows are turned down. Because of this, sections of the MAA have been encouraged to organize regional NExT programs.

Magnhild Lien and six national NExT fellows from our section have submitted a proposal for start-up funds for the a SoCal Section NExT. They are optimistic that they will receive the funds and, when they do, they will be seeking applicants for the first So Cal Section NExT cohort. Unlike the national Project NExT, the section NExT will be open to people with either a Master's degree or a Ph.D.

A Section NExT fellow will attend the Fall and Spring Meetings of the So Cal Section of the MAA. At each meeting, there will be at least one special activity for Section NExT fellows. Some possible topics are methods for effective teaching, undergraduate research, promotion and tenure issues, maintaining an active research portfolio, grant information and grant-writing advice and the preparation of future teachers. Section NExT fellows will gather for breakfast or dinner the day of the meeting.

And this is only the beginning!

For more information, contact Magnhild Lien at magnhild.lien@csun.edu.



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

Spring 2002 Meeting
Saturday, March 16th, 2002
at the California Institute of Technology

Meeting Program

- 8:15 — 12:00 Registration — Beckman Institute Courtyard
 8:15 — 10:30 Refreshments — Beckman Institute Courtyard
 8:15 — 2:30 MAA Book Sale — Beckman Institute Courtyard
 9:00 — 10:00 **INVITED ADDRESS** — Beckman Institute Auditorium

The Mathematics of Juggling

William Murray, California State University, Long Beach

- 10:00 — 11:00 **STUDENT POSTER SESSION** — Beckman Institute Courtyard

- 11:00 — 12:00 **INVITED ADDRESS** — Beckman Institute Auditorium

Voting can be a Chaotic Mess

Donald Saari, University of California, Irvine

- 12:15 — 1:45 Lunch — Chandler Dining Hall

- 2:00 — 3:00 **INVITED ADDRESS** — Beckman Institute Auditorium

Francis Su, Harvey Mudd College

Fair Division: Perspectives from Combinatorial Topology

- 3:00 — 3:15 Afternoon Refreshments — Beckman Institute Courtyard

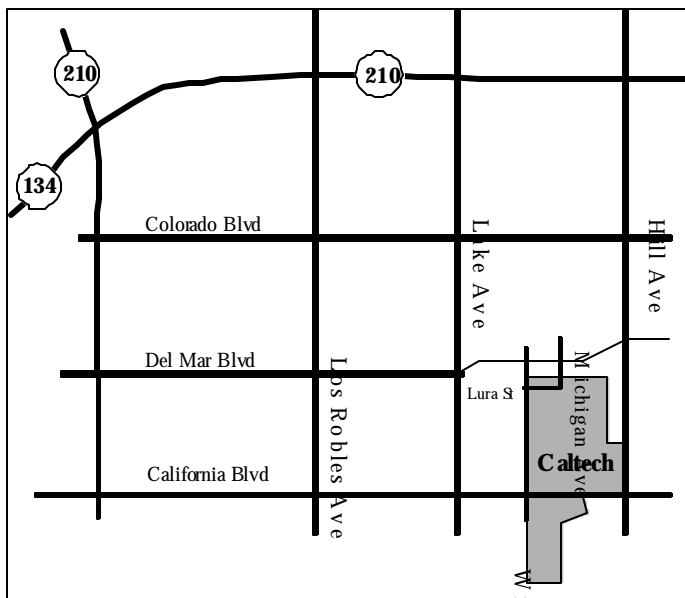
- 3:15 — 4:15 **INVITED ADDRESS** — Beckman Institute Auditorium

Sarah J. Greenwald, Appalachian State University and

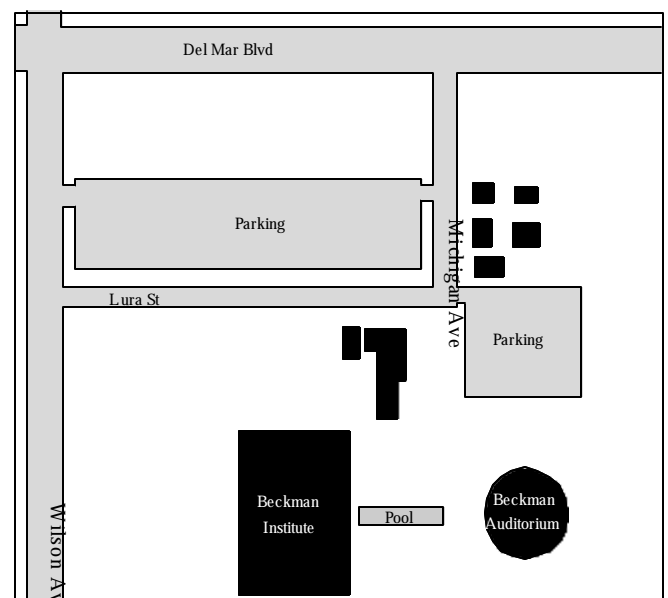
Andrew Nestler, Santa Monica College

The Simpsons Rule: Mathematical Morsels from "The Simpsons"

Titles and abstracts for the Student Poster Session must be submitted to Janet Berry by March 6, 2002. See page 2 for details.



CALTECH AREA MAP



CALTECH MEETING PARKING

**ABSTRACTS****9:00 – 10:00***The Mathematics of Juggling***William Murray**, California State University, Long Beach

Abstract: The art of juggling has been popular for thousands of years, but the use of mathematical notation to describe juggling patterns seems to be fairly recent. Surprisingly, this notation, known as site-swap, has led to the creation of many new juggling patterns. I will describe site-swap and illustrate it with juggling clubs and balls. I will prove a deep theorem due to Ron Graham and others that the number of juggling patterns of period n with at most b balls is b^n . This theorem admits many possible variations that could serve as the basis for future research projects. The material here most properly falls under the heading of discrete mathematics, and an undergraduate course in that subject is more than enough background to understand the talk.

Complete the registration form on page 7 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, March 1, 2002.

11:00 – 12:00*Voting can be a chaotic mess***Donald Saari**, University of California, Irvine

Abstract: Ignore “chads” and “dimpled ballots.” On its own, voting and voting procedures constitute a surprisingly fascinating and complicated mathematical issue. In this expository talk, unexpected outcomes will be described; outcomes which should cause you to worry about any election where the outcome made a difference to you -- departmental, MAA, AMS, state, national. Some of the mathematical approaches developed to analyze these concerns, which include notions from “chaotic” dynamics, will be indicated.

2:00 – 3:00*Fair Division: Perspectives from Combinatorial Topology***Francis Su**, Harvey Mudd College

Abstract: The classical cake-cutting question of Steinhaus--- how to cut a cake fairly?--- and other “fair division” problems provide excellent examples of questions in which mathematics meets the social sciences in the modeling of preferences. In this talk, we explain how combinatorics and topology can be used to address an old class of problems in new ways, and conversely, how problems in the social sciences can motivate new mathematics. A host of combinatorial fixed point theorems provide the basis for this connection, and recent work by undergraduates plays a role.

3:00 – 4:00*The Simpsons Rule: Mathematical Morsels from “The Simpsons”***Sarah J. Greenwald**, Appalachian State University and**Andrew Nestler**, Santa Monica College

Abstract: Now in its 13th season, “The Simpsons” is an award-winning global pop culture phenomenon. But did you know that “The Simpsons” also contains over one hundred mathematical moments, with material ranging from arithmetic to calculus to Riemannian geometry? There’s even a resident mathematician/inventor, Professor Frink. Join us as we present some of our favorite mathematical excerpts from “The Simpsons,” and explore the related mathematical content, accuracy and pedagogical value.



(Governors Meeting Report continued from page 1)

composed of Barbara Fairs (Chair), Ronald Graham, and Barbara Osofsky recommended John W. Kenelly, from Clemson University, as the new Secretary-Treasurer. This recommendation was unanimously approved by the board.

- A new membership matrix was approved. For most of us, dues will increase by 4%. The minimum will be \$136 with a subscription to one journal and the maximum will be \$219 with subscriptions to all three journals. Also, a new Life Membership schedule was approved. For a member in the 62-66 years old range it will cost \$1710 to obtain a life membership. The total need not be paid all at once. For a modest fee it can be spread over a period of four years. The payment each year will be \$462 which is 27% of \$1710. The life membership comes with subscription to one journal. Each added journal will cost \$305 except for Math Horizon which will cost \$163.
- We were informed that the Mathematical Association of America and its Committee on Professional Development seek proposals for offering a workshop, seminar, short course, distance learning course or other learning activity - hereafter called a program - to be included among the offerings of the MAA Professional Enhancement Programs (PREP). Approximately seven on-site programs and two or three distance-learning programs will be offered each calendar year. Proposals will be accepted for up to \$35,000, although most awards will be between \$20,000 and \$25,000. Funding is usually given only once. PREP is a comprehensive, professional career enhancement project of the MAA funded by DUE grant #0089005 of the National Science Foundation. PREP is designed to offer a full range of enrichment experiences. The primary audience is from all types of institutions, including two-year colleges, liberal arts colleges, minority-serving institutions, comprehensive universities and research universities. PREP programs are equally open to all faculty, independent of whether or not they are members of the MAA or any other professional organization. Specifically, PREP targets individuals from underrepresented groups and faculty who teach large numbers of students from these groups, and individuals who have not previously participated in professional development activities. Although most of the programs in PREP are for faculty in the mathematical sciences, those from other disciplines are welcome and some programs may specifically encourage communication among mathematics faculty and those from other disciplines. To get more information please visit the web site at www.maa.org/pfdev/prep/prep.html
- Finally, the schedule of Annual and Summer meetings for the next two years are as follows:
 - * 2002 Burlington, Vermont, August 1-3. 2002 (Thursday-Saturday)
 - * 2003 Baltimore, Maryland, January 15-18 (Wednesday-Saturday)

(Section Officers Meeting continued from page 1)

issue. We have asked that our section be added to Bernard's list for either the Fall of this year or the Spring of next year. Therefore, in the near future, we will have a workshop on AUM Assessment in Undergraduate Mathematics) conducted by an expert in this area.

We were informed by Brie Danner that the association is working on preparing a Management Software program. When the project is completed the local sections Newsletter Editors and Secretary-Treasurer will be able to send the newsletter and other information to all members of the section in the list. Some concerns were raised by several officers regarding security and possible abuses of the software. The various issues are not decided yet, but, most likely, only some designated individuals from each section will have access to the e-mail list.

Nancy Baxter and Ed Dubinski spoke about the PREP program, which I mention in my Governors Meeting Report (see page 1).

—Mario Martelli

(Student Poster Session in San Diego continued from page 3)

nistic and Random Changes by Sarah Awad from Claremont McKenna College (research advisor: Prof. Janet Myrhe of Claremont McKenna College)

#15 on *Binomial Ideals from Graphs* by Rodolfo De La Cruz from UC Santa Barbara and Elden Krause from Loyola Marymount University with a third author from Georgia Tech (research advisor : Prof. Reinhard Laudenbacher of New Mexico State University)

29 on *A Model of b-Cell Mass, Insulin, Glucose, and Reception Dynamics with Applications to Diabetes* by Ryan Hernandez from Pitzer College, Tomas Voden from UC Riverside and two additional authors not from our section (research advisor: Prof. Steven Wirkus from Cal Poly Pomona)

68 on *The Role of Time Delay in the Fitzhugh-Nagumo Equations: the Impact of Alcohol in Neuron Firing* by Marco Sanchez of Cal Poly Pomona and three additional authors not from our section (research advisor: Prof. Fiana Berezovsky from Georgia Tech) .

—Mario Martelli

- * 2003 Boulder, Colorado, July 31-August 2 (Thursday-Saturday)
- * 2004 Phoenix, Arizona, January 7-10 (Wednesday-Saturday)

—Mario Martelli



BALLOT FOR SECTION OFFICERS

I wish to vote for the slate of nominees.

Position	Candidate	Write-in Alternative
Section Vice-Chair	<input type="checkbox"/> Claudia Pinter-Locke (Cal Poly Pomona)	<input type="checkbox"/> _____
Secretary—Treasurer	<input type="checkbox"/> Art Benjamin (Harvey Mudd College)	<input type="checkbox"/> _____
Second Program Vice-Chair	<input type="checkbox"/> Francis Bonahon (University of Southern California)	<input type="checkbox"/> _____

MAA Members!

Voting may be chaotic sometimes, but not if you use the form on the left.

Once again it is time to vote on our section governance. Your voice is important. Send your votes together with your meeting registration form to Ernie Solheid at the address given below. Votes must be received by March 1. Thank you.

Pre-Registration/Luncheon Reservation Form

*Spring Meeting at Caltech
March 16, 2002*

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	Student
Registration Only	_____ @ \$22	_____ @ \$20	_____ @ FREE	_____ @ \$10
Registration and Luncheon	_____ @ \$37	_____ @ \$35	_____ @ \$15	_____ @ \$18
Registration and Vegetarian	_____ @ \$37	_____ @ \$35	_____ @ \$15	_____ @ \$18

Total Enclosed \$ _____

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

Complete the form and send it with payment to:

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

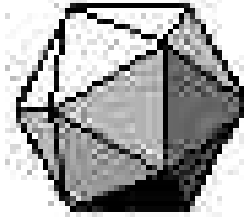
Preregistration forms should be received by Friday, March 1.



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



Plan to attend the Spring Meeting
at Caltech on Saturday,
March 16, 2002!



- 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
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