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Saint Mary's College

Section website
sections.maa.org/golden

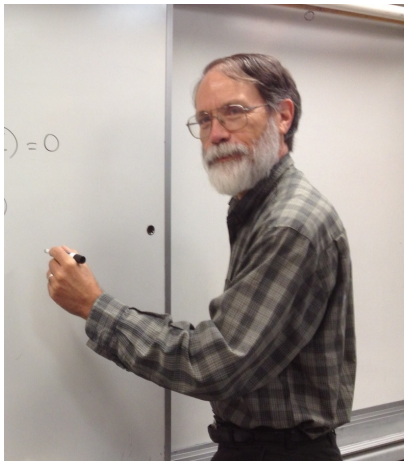
MINI-FOCUS

THE NEWLETTER OF THE NORTHERN CALIFORNIA, NEVADA, AND HAWAII SECTION, MAA
THE GOLDEN SECTION

Steve Blasberg Wins Section Teaching Award

Steve Blasberg, of West Valley College, was the winner of the Section Award for Distinguished Teaching of Mathematics for 2013. The award was presented at the annual section meeting at the University of the Pacific on February 24th, 2013. The following is adapted from the citation presented to Professor Blasberg (see website for complete citation).

Steve Blasberg earned master's degrees in mathematics, computer science, and mathematics education from Stanford University and has been at West Valley College since 1975.



Steve Blasberg

Steve is widely recognized as an extraordinarily successful teacher. The hallmark of his teaching is the clarity of his explanations and the depth of his knowledge, both mathematically and pedagogically. A dynamic communicator with a gift for making complex topics seem clear, Steve is always ready with several explanations of every concept. Mathematics faculty members also go to Steve with mathematical or pedagogical questions across the broad spectrum of courses and mathematical topics.

Students flock to Steve's classes, and often eagerly take another, with student evaluations saying "Steve Blasberg is the best math teacher I've ever had!" Steve is also known in the department for spending extended time with students in office hours. According to one colleague of over thirty years, "He literally leaves his half-eaten lunch in the staff break room to help a student in his office."

A big part of Steve's career has been his involvement in student mathematics competitions. He has developed tests and chaired committees for several competitions, such as the AMATYC Student Mathematics League, that are too many to fully list here. Steve also coaches students for competitions, including the Putnam Competition. He believes that students of all levels can benefit from the creative problem-solving skills they learn from that experience.

We are proud to present this year's Section Award for Distinguished College or University Teaching of Mathematics to an extraordinarily effective, inspiring teacher, Steven Blasberg.

Report on the UOP 2013 Meeting

Venturing out from our center to a meeting at the University of the Pacific in Stockton turned out to be a great choice for the 2013 meeting. Not only was ordinary attendance quite respectable (the official total of 183 ranks only behind our two MSRI meetings and Stanford and the student total of 99 is second only to the 2012 MSRI meeting) but during the Math Wrangle we were pleasantly overwhelmed by nearly 100 additional high school students, parents and teachers from Stockton's own Lincoln High School.

Katherine Socha, about to diagram

The first talk of the day was given by **Katherine Socha** from Math for America. She started us off with some intriguing math for diagramming sentences. Who knew our English teachers from long ago were actually doing category theory! She finished with some very interesting connections between the Cantor set and Godel's incompleteness argument.

Inez Fung, warming to her subject

Inez Fung from UC Berkeley gave us a great overview of climate modeling. (A similar but expanded version of the talk was delivered in South Africa at the 10th anniversary of the African Institute of mathematics – see YouTube's *Climate Math by Inez Fung*) It was amazing to learn that climate modeling was perceived as early as 1922 when all the "computers" were people sitting in a huge multi-level stadium like array and each group was responsible for the weather data in a small region of earth. There are currently many models emphasizing all kinds of atmospheric and surface data, and which model you want depends on the kind of data both in time and space that you need. All models point to the increase of greenhouse gases causing dramatic change. That change involves not only average temperature growth but also a growth in variability and abrupt chaotic transitions between climate patterns.

For lunch **Robert Mathews**, professor of Music at Yuba College, gave us just a tiny view of the many wonderful connections he makes between music and mathematics. By the end, when he performed a marvelous duet with Guitar and Sonicare toothbrush, we were all wishing his talk would have been at least two hours long!

Robert Mathews, Duet with Toothbrush

Steve Abbot from Middlebury College (and co-editor of Math Horizons) gave an amazing history of the integral. This is but a small portion of his Springer Book *Understanding Analysis*. From our modern perspective it is hard but useful to try and understand the many different approaches that were taken to integration – some which produced anti-derivatives, and some which find areas or work with power series. It took a while to find just the right approach – would something else have been even better?

The last lecture of the day was by **Robert L. Devaney** (from Boston College and President of the MAA) on the Mandelbrot set. Dr. Devaney is probably one of the world's foremost experts on the history and progress made in studying this absolutely beautiful and mysterious mathematical object. (Go to math.bu.edu/DYSYS/ to see his Mandelbrot tutorial explorer pages). We were led on a marvelous adventure where we found the Farey tree and Fibonacci sequence among other marvelous highlights.

Steve Abbot, pointing to an area

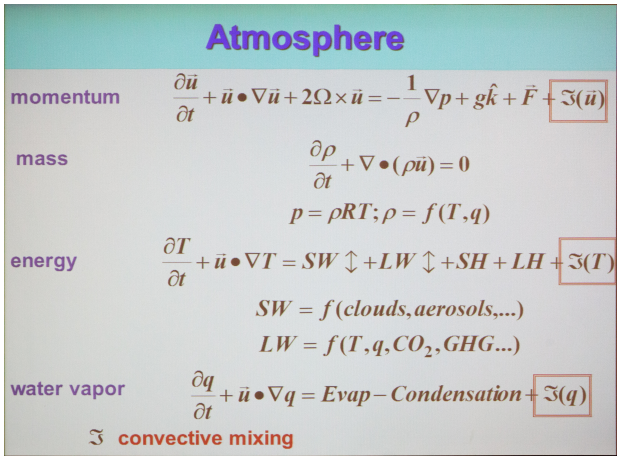
Our poster presentations were, as always, diverse and intriguing. The section is quite proud of all the great work and the many applications considered!

- **Elaina Aceves** and **Jennifer Elder** of California State University, Fresno showed how to apply knot theory to analyze three-dimensional graphs.
- **Elaina Aceves** and **David Heywood** of California State University, Fresno and **Ashley Klahr** of University of California, San Diego showed how to embed an n-cyle in a finite projective plane.
- **Peter Chang** and **Jiahui Guan** of University of California, Davis computed the area of the largest p-hexagon inscribed in a regular pentagon and used this to find the least density of a p-hexagon covering of regular pentagons.

- **Derik Birdsall**, **Michael Campbell**, **Jason Elwood**, **Max Garica** and **Dana Hipolite** all from California Polytechnic State University, San Luis Obispo did some differential geometry by looking at the Ricci flow on manifolds. These flows produce smooth metrics in a way that is analogous to heath dissipation on surfaces.
- **Kevin Martin** of Simpson University examined the theory of perfect card shuffling and when this can actually reduce entropy..
- **Rachel Bayless**, **Michael Cardoso**, and **Robin Decker** of Sonoma State University went way beyond on this problem from the mathematical modeling competition to model population growth and freshwater use. They used a dynamic type of logistic model where the carrying capacity and demand become variable and they analyzed related issues such as economic impact via linear programming and other tools from the theory of optimization.

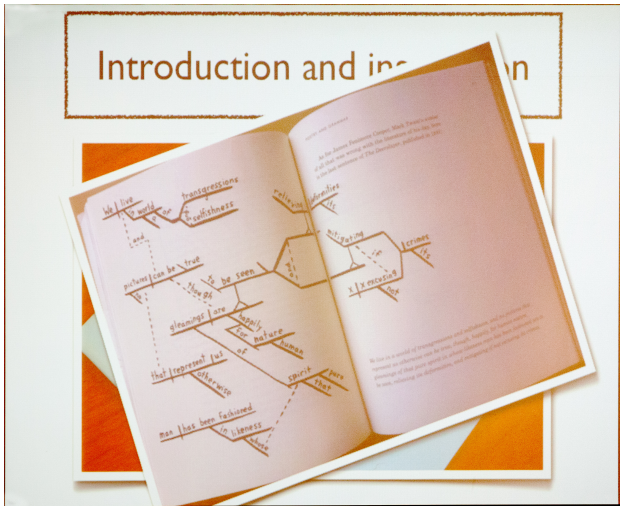
Robert L. Devaney, happily counting

- **Shelby Burnett** of California Polytechnic State University, San Luis Obispo looked at some aspects of the numerical range of 4 by 4 matrices A. This involves looking at the image of complex vectors of magnitude 1, (specifically Av•v) and has been studied completely in the 3 by 3 case.

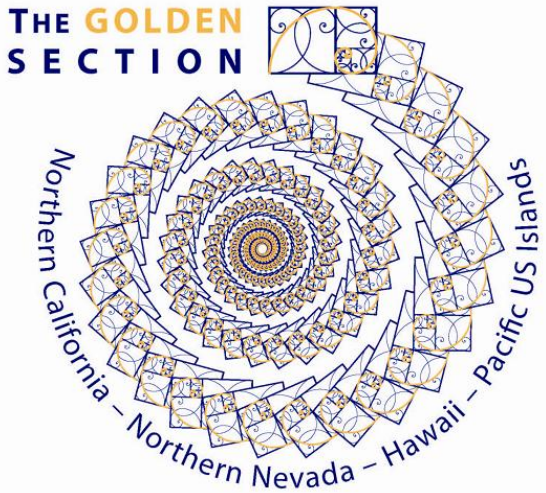


- **Federico Castillo** of University of California, Davis and **Mike Henley** of San Francisco State University presented work on the computation of Tutte polynomials. These general invariants are useful to compute all kinds of invariants for graphs and hyperplane arrangements Federico has applied these to hypertoric arrangements. Their work is at math.sfsu.edu/federico/Talks/arithmetictutte.pdf
- **Kevin Martin** of Simpson University examined the theory of perfect card shuffling and when this can actually reduce entropy..
- **Brandynne Cho** from Saint Mary's College of California looked at the binary representations of primes and used their adjacency (i.e. when only one digit changes) graphs to make all sorts of interesting observations.
- **Gabrielle Chwalik**, **Connor Duthie**, **Victor Fuentes**, and **Sachin Salgaonkar** of University of Calfornia, Davis used the Gale-Shapley algorithm to implement an algorithm for assigning graduate TAs to discussion classes.

- **Matt Gagne** and **Chad Duna** of California Polytechnic State University, San Luis Obispo examined the Toeplitz-ness of compositions analytic self maps and their adjoints.



- **David Goulette**, **Neeti Mittal**, and **Valerie Sui** of San Jose State University presented algorithms for detecting parking lot speed bumps from the immense amount of information contained in point cloud data sets.
- **Emily Javan** and **Edward Studley** of University of California, Davis have developed algorithms that use adaptive integration techniques for analyzing particle flow in environments with strong heterogeneity. The method uses variations in flow curvature to maximize both speed and accuracy by adjusting time steps and methods (from Euler to many order Runge-Kutta).
- **Longphi Nguyen**, **Laila Rizvi**, and **Ying Shi** of University of California, Davis have used machine learning techniques from statistics to create an algorithm for finding connections between the work of different mathematicians thus promoting new kinds of collaborations. Four classic machine learning algorithms were combined to reduce computational time by 65% with almost no change in the results.
- **Quynh Nguyen** of Santa Clara University has extended the work of J Pedersen and Peter Hilton on 2-folding numbers (see the Cambridge Press book *A Mathematical Tapestry)* to examine 3-folding numbers. It is shown that there must be many more of these which have not yet been found and will yield new integer sequences not yet contained in the Online Encyclopedia of Integer Sequences.
- **Avineet Pannu** of Saint Mary's College of California has generalized the work of Zhi-Wei Sun on using quadratic polynomials and modular arithmetic to generate all primes.
- **Jamie Peabody** of California State University, Fresno showed that when the generators of the finite field GF(q) satisfy mild conditions, then it is possible to embed k-cycles into PG(2,q) for $3 \le k \le 1+q+q^2$. For wheel and gear graphs sharp bounds on embeddability are established.



- **Austin Tuttle** of the University of Pacific showed how the effectiveness of the classic SIR model for the spread of disease can be considered in view of a graph of people and their associations. Effective strategies for vaccinations and the accuracy of SIR are highly dependent on the distributions of degrees in these graphs – e.g. uniform, power, Binomial, and Bimodal Binomial.

Call for Nominations for the 2015 Mathematical Association of America Golden Section Distinguished College or University Teaching Award

Each year the MAA identifies outstanding teachers of college and university mathematics and recognizes their achievements at the sectional and national levels. Members of the Golden Section are encouraged to nominate their exceptional colleagues for the Golden Section Distinguished Teaching Award.

The award committee uses a two-stage approach. Initial nominations, consisting of a simple form and a statement by the nominator, are due April 30th, 2014. After reviewing the initial nominations, the award committee will ask submitters of clearly competitive nominations to complete additional documentation for the Section Award and consideration for the National Award by the first Friday of November.

The formal Call for Nominations and the Nomination Form files are available at http://sections.maa.org/golden/Teach.html. These files describe the award, eligibility requirements, and the timeline for review. The Nomination Form and statement by the nominator can be submitted via electronic or postal mail. An e-mail acknowledgment will be sent upon receipt of the nomination package. Thank you for your assistance in this important effort.

Please direct questions to Professor John Thoo, Teaching Award Committee Chair, at Mathematics Department, Yuba College, 2088 N Beale Road, Marysville CA 95901-7605, *jthoo@yccd.edu*

Previous Winners: An asterisk precedes names of winners of a national Haimo Award.

1992 **G. D. Chakerian**, University of California, Davis
1993 ***Paul R. Halmos**, Santa Clara University
1994 **Jane Day**, San José State University
1995 ***Edward M. Landesman**, University of California, Santa Cruz
1996 **G. Thomas Sallee**, University of California, Davis
1997 **Jean J. Pedersen**, Santa Clara University
1998 **Donald C. Pfaff**, University of Nevada, Reno
1999 ***Leonard F. Klosinski**, Santa Clara University
2000 ***Evelyn Silvia**, University of California, Davis
2001 **Wade Ellis, Jr.**, West Valley College
2002 ***Paul Zeitz**, University of San Francisco
2003 **Peter Tannenbaum**, California State University Fresno
2004 ***Gerald L. Alexanderson**, Santa Clara University
2005 **Russell Merris**, California State University - East Bay
2006 **Tatiana Shubin**, San José State University
2007 **William Fisher**, California State University - Chico
2008 **John B. Thoo**, Yuba College
2009 ***Allan J. Rossman**, California Polytechnic State University - San Luis Obispo
2010 **Dennis Smolarski**, Santa Clara University
2011 **Joseph Conrad**, Solano Community College
2012 ***Matthias Beck**, San Francisco State University
2013 **Steve Blaserg**, West Valley College

* NEW AWARD *

Call for Nominations for the
2015 Mathematical Association of America Golden Section
Distinguished College or University NEW Teacher of Mathematics Award

It is important that the MAA Golden Section recognizes those among us for extraordinarily successful teaching of mathematics (in the broadest sense, and not limited to the classroom), for influencing the teaching of mathematics beyond his or her own institution, and for fostering curiosity and generating excitement about mathematics among students. This is because, being not only practitioners of mathematics, but also being stewards of our discipline, we need to ensure the successful future of mathematics by bringing up new generations of outstanding mathematicians. Therefore, it is only right that we honor the very best teachers among us and, in fact, it would be wrong for us to let those great teachers go without proper recognition.

The Golden Section has been recognizing outstanding teachers of mathematics since 1992 through our Distinguished College or University Teacher of Mathematics Award. Each winner of the Section award is then nominated for the national MAA Haimo Award, and we are very proud that several of our Section's winners have also won the Haimo Award.

Beginning in 2015, the Golden Section will also recognize outstanding new teachers of mathematics through our newly established **Distinguished College or University New Teacher of Mathematics Award**. This second award will recognize those outstanding teachers who have held a full-time mathematics faculty appointment for between two and seven years since receiving a master's or Ph.D. degree. A Section winner who holds a Ph.D. would then be nominated for the national MAA Alder Award (http://www.maa.org/programs/maa-awards/teaching-awards/henry-l-alder-award).

We cannot overstate the importance of recognizing the Golden Section's outstanding teachers of mathematics. Consequently, the Teaching Award Committee would be grateful if the readers of this Newsletter would take time to reflect on the experienced, and new, teachers they know and, where appropriate, nominate those worthy of our two teaching awards. The deadlines for both Section teaching awards beginning in 2014 are April 30 for the initial (2-page) nomination and the first Friday of November for the full nomination (the latter only if requested by the committee). Please see the Section's webpage http://sections.maa.org/golden/Teach.html for details on the eligibility for each award.

* NEW AWARD *

Call for Student Posters
for the
2014 Mathematical Association of America
Northern California, Nevada, and Hawaii Section Meeting

When: Saturday, February 22nd, 2014

Where: Sonoma State University, Rohnert Park, California

What: Presentations of research, new approaches to old problems, solutions to problems from mathematics journals, results of class projects or mathematical modeling contests, historical investigations in pure and applied mathematics, mathematical topics outside the standard curriculum, or mathematical investigations arising from internship experiences.

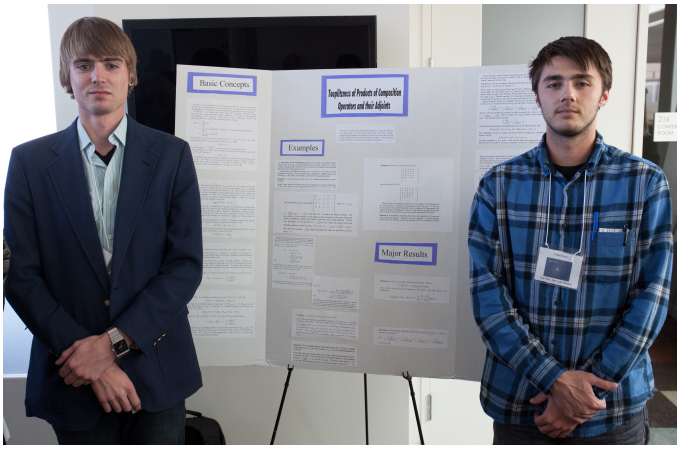
Who: All undergraduate and graduate mathematics students.

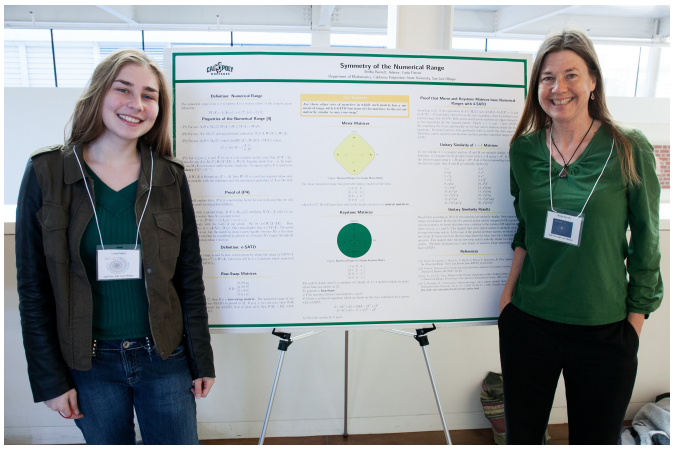
Why: The meeting provides a great opportunity to learn about interesting and entertaining areas of mathematics, as well as to network with other students and professors. Student presenters receive **complimentary registration and luncheon**, plus a **free one-year membership to the MAA** or (to those who are already members) a **free book**.

Details: All posters should be typed, illustrated, and displayed on a board 3 feet tall by 4 feet wide. Posters will be on view throughout the meeting, including the scheduled poster session.

What to do: Email your name and abstract (2 to 5 sentences), including poster title, name of institution, and name of faculty advisor (if applicable), to Professor Veomett, by Friday, February 7th, 2014. If you wish to participate or have any questions (*e.g.*, whether your idea is appropriate for presentation, what size font to use in your poster) contact Professor Ellen Veomett.

Contact: Ellen Veomett. Department of Mathematics, Saint Mary's College of California, Moraga CA 94556, (925) 631–8302 (Office), erv2@stmarys-ca.edu





Cal Poly students Matt Gagne and Chad Duna are serious about operators; Shelby Burnett and her advisor Linda Patton are symmetrically happy, both from the 2013 student poster presentation

Proposal to Amend the Bylaws of the Section

During the 2013 Annual Meeting, the Executive Committee of the Section announced its intent to revise the section bylaws so as to be more consistent with those from other sections while also reflecting our unique characteristics. According to the current bylaws, such a modification can only made at a regular meeting with the support of a majority of those present. It is the intent of the Executive Committee to ask for such a vote during the 2014 annual meeting.

For the current bylaws, please see sections.maa.org/golden/GoldenBylaws.htm, and for some of the thinking behind the changes, see sections.maa.org/golden/documents/PrimeronthebylawsoftheGoldenSection.pdf

For those not able to attend the section meeting, please cast your vote at http://tinyurl.com/lz2cpas This site, as well as the section's homepage, can also be used to make comments on the proposed bylaws.

Proposed ByLaws of the Golden Section

I. NAME.

The Golden Section of the Mathematical Association of America for Northern California, Nevada, and Hawaii. Depending on the context, either or both parts of this name (the geographical or the descriptive) may be used to denote the section although it is expected that in most situations the section shall be referred to as simply The Golden Section.

II. PURPOSES.

The purposes of the Golden Section shall be to advance the mission of the MAA on a regional level (namely within the territory defined in Article III below); to offer guidance to the MAA as it forms and fulfills its mission; to provide professional development and networking activities for section members and mathematics students in geographically accessible locations; and to promote discussion and action on issues affecting mathematics teaching, learning, and research in the region.

III. MEMBERSHIP & PARTICIPATION

1. The membership in the section shall be members of the Mathematical Association of America whose mailing addresses have the following postal codes: California: 934XX, 936XX-939XX, 940XX-961XX. Hawaii and The American Samoa: 967XX-968XX. Nevada: 893XX-898XX. The Pacific Islands including Guam, the Marshall Islands, the Federated States of Micronesia, and Palau: 969XX.
2. Exceptions may be made by the MAA membership department upon request of the affected member.
3. Other members of the MAA shall be welcome at all meetings, and persons not members may be invited to attend meetings.

IV. OFFICERS.

1. The officers of this Section shall be a Chair, a Vice-Chair, a Secretary-Treasurer, and a Program Chair.
2. The Executive Committee shall consist of the above named officers together with the Section Governor.
3. Each officer must be a member of the MAA and of the Golden Section.
4. Terms of Office: Normally the Chair shall be the Vice-Chair of the previous year and the Program Chair shall be the Chair of the previous year. The tenure of office shall be five years for the Secretary-Treasurer and one year for the Vice-Chair, Chair and Program Chair. The Secretary-Treasurer shall be appointed by the rest of the Executive Committee every five years and the Vice-Chair elected each year at the annual

section meeting. The new officers shall assume office upon adjournment of the annual section meeting.

5. Nominations for Vice-Chair may be made by a nominating committee appointed by the Chair, but this shall not prevent other nominations being made by any member at the time of the election. In order to maintain an inclusive climate within the section, every attempt will be made to secure a new vice chair from the categories in rotation of Business/Industry, 2-year schools, 4-year public research schools, and private educational institutions.
6. Vacancies in positions: Except for the Section Governor, the Executive Committee is empowered to fill any vacancy that may occur between elections, until the next scheduled meeting when elections would occur. For the Section Governor, the MAA Board of Governors elects a replacement to complete the unexpired term when a vacancy occurs between elections.
7. Other than the Secretary-Treasurer, officers shall not be eligible to succeed themselves after a full term of office.
8. Duties of the Officers:
   a) The *Chair* shall preside at each business meeting of the section and at meetings of the Executive Committee. The Chair shall appoint committees of the section and shall be an ex officio member of each such committee unless specifically barred by a vote of those present at an official business or section meeting or unless otherwise specified in these bylaws. The Chair will have the authority to reassign the duties of the other officers listed below.
   b) The *Vice-Chair* shall take minutes at the business meetings of the section and represent the section officers at all national meetings during his/her tenure. The Vice-Chair shall succeed the Chair in the event that the chair is unable or unwilling to fill his/her duties.
   c) The *Program Chair* shall assist in arrangements of the annual section meeting by working closely with the Executive Committee and persons at the event location.
   d) The *Secretary-Treasurer's* duties include preservation of records of the section, maintenance of files of official correspondence of the section, and the submission of meeting reports after each meeting of the section and an annual section report to the Committee on Sections. The Secretary-Treasurer's duties also include the collection of meeting registration and fees, the receipt of funds provided by the MAA, the arrangement for safekeeping of all section monies, and the maintenance of proper and accurate books of account of such monies, the timely payment of all debts of the section, and filing an annual financial report with the MAA.
   e) The *Section Governor's* duties (in conjunction with these bylaws as other duties would naturally be prescribed by the MAA bylaws) include serving on the section's Executive Committee, attending business and annual meetings, and keeping the section well informed of issues arising from the MAA. The Section Governor is the section's representative on policy matters of the MAA.

V. OTHER SECTION OFFICERS.

The following duties may be assumed by members of the Executive Committee or can be appointed by the chair in consultation with the Executive Committee.

a) *Section Webmaster* and *Section Officer Listserve Moderator*: Shall assure that the section maintains a timely and accurate public presence in conjunction with the MAA.
b) *Booksale Coordinator*: Shall maintain stock and the records needed to conduct the section's book sale at the annual meeting and at other locations and times as opportunities arise.
c) *Teaching Committee Chair*: Shall maintain a committee and work in conjunction with the secretary-treasurer to call for nominations and determine finalists and winner(s) of section teaching awards in alignment with the requirements of the MAA.
d) *Newsletter Editor*: Shall collect and disseminate section news at least once a year – especially prior to the section's annual meeting.

VI. MEETINGS.

1. The section normally shall hold at least one program meeting and at least two business meetings each year. In order to maintain an inclusive climate within the section the officers shall maintain the traditional rotation of meeting locations: The traditional rotation (primarily among post secondary schools) is among public 4-year research institutions (e.g. CSU or UC schools), 2-year schools, and private educational institutions. Inserted into this schedule, meetings at business or research facilities are also encouraged but this should not occur more than twice in any 6 consecutive years of section meetings.
2. An emergency business meeting or program meeting may be called at any time by a vote of the Executive Committee or by resolution of at least 15 members of the section.
3. The places, times, and programs for the meetings are to be arranged by the Executive Committee of the section in consultation with those present at the business meetings.
4. The quorum for a business meeting shall consist of not fewer than 8 members of the section including at least 3 members of the Executive Committee. No business may be validly transacted at business meetings when less than a quorum is present.
5. Each member of the Executive Committee along with other members who have previously indicated interest shall be notified at least 20 days in advance of any business meeting of the section. Each member of the section shall be notified at least 20 days in advance of the annual section meeting. All section members will be encouraged to participate in section governance.

VII. STANDING COMMITTEES.

1. The section's Teaching Award Committee will consist of at least 4 members, including a chair, who serve in staggered 3-year terms. The term of the chair may slightly exceed 3 years if needed and he/she may be appointed during or after his/her tenure as a committee member.
2. The Nominating Committee will generally consist of the section's Executive Committee.

VIII. FEES AND USE OF ASSETS.

1. The Executive Committee may request voluntary dues from members of the section.
2. The assets of the section shall be used exclusively to further the purposes of the section and, in the event of the dissolution of the section; the remaining assets shall be turned over to MAA to be used for purposes consistent with the bylaws of that organization.

IV. AMENDMENTS.

Subject to subsequent approval by the Board of Governors of the Mathematical Association of America, these bylaws may be amended by 2/3 of the votes cast by those present (or sent by mail) at an annual meeting of the section.

A panoramic view of the University of Pacific meetings

2014 Speaker Biographies

ALON AMIT is co-founder of Origami Logic, a marketing analytics company, and has previously worked at Facebook and Google. He earned a Ph.D. in mathematics from the Hebrew University in Jerusalem, Israel and is proud to be a frequent speaker at math circles around the San Francisco Bay Area. When not working, biking or spending time with his family, Alon is often answering mathematical (and other) questions on Quora.

BIN YU is Chancellor's Professor in the Departments of Statistics and of Electrical Engineering and Computer Science at the University of California at Berkeley. She held faculty positions at the University of Wisconsin-Madison and Yale University and was a Member of Technical Staff at Bell Labs, Lucent. She was Chair of Department of Statistics from 2009 to 2012, and is a founding co-director of the Microsoft Lab on Statistics and Information Technology at Peking University, China.

She has published over 80 scientific papers in premier journals in statistics, machine learning, information theory, signal processing, remote sensing, neuroscience, and networks. She has served on many editorial boards for journals such as the Annals of Statistics, Journal of American Statistical Association, Journal of Machine Learning Research, and Technometrics.

She is a Fellow of the American Academy of Arts and Sciences. She was a Guggenheim Fellow in 2006, an Invited Speaker of ICIAM in 2011, and the Tukey Memorial Lecturer of the Bernoulli Society in 2012. She is a Fellow of AAAS, IEEE, IMS, and ASA.

She is President of IMS (Institute of Mathematical Statistics) and serving on the Scientific Advisory Board of IPAM at UCLA and on the Governing Board of ICERM at Brown University. She was co-chair of the National Scientific Committee of SAMSI, and served on the Board of Mathematical Sciences and Applications (BMSA) of the U.S. National Academy of Sciences.

CHRISTOS H. PAPADIMITRIOU is the C. Lester Hogan Professor of Computer Science at UC Berkeley. Before joining Berkeley in 1996 he taught at Harvard, MIT, NTU Athens Stanford, and UCSD. He has written five textbooks and many articles on algorithms and complexity, and their applications to optimization, databases, AI, economics, the Internet, and evolution. He holds a PhD from Princeton, and seven honorary doctorates. He is a member of the Academy of Sciences of the US, the American Academy of Arts and Sciences, and the National Academy of Engineering, and a fellow of the ACM. He has also written the novels "Turing ," "Logicomix" (with Apostolos Doxiadis) and "Independence" (in Greek).

PHIL DARO is a mathematics educator who most recently co-directed the development of the Common Core State Standards for mathematics. He has also directed large-scale teacher professional development programs for the University of California including the California Mathematics Project and the American Mathematics Project. He is Site Director of the Strategic Education Research Partnership (SERP) at the San Francisco Unified School District. *Steering Committee, Math Work Group (chair), and District Engagement Committee*

ZVEZDELINA STANKOVA is a professor at Mills College in Oakland, CA, and a visiting professor at UC Berkeley. She was drawn to mathematics when, as a fifth grader, she joined the math circle at her school in Bulgaria and won the Regional Math Olympiad three months later.

She went on to compete on the Bulgarian National Team at the Balkan Mathematical Olympiad in Romania 1986 and at the International Mathematical Olympiads (IMO) in Cuba (1987) and Australia (1988), earning three silver medals. Dr. Stankova completed her undergraduate degree at Bryn Mawr College in 1992, and in 1997 she received her Ph.D. from Harvard University in the field of algebraic geometry. Meanwhile, she earned high school teaching credentials in Massachusetts and later in California.

As a postdoctoral fellow at the Mathematical Sciences Research Institute (MSRI) and UC Berkeley in 1997-1999, Zvezda co-founded the Bay Area Mathematical Olympiad (BAMO) and started the Berkeley Math Circle. Her pioneering work inspired dozens of new circles throughout the US and abroad. She trained the USA national IMO team for six years, including in 2001 when three of the six team members were from her circle, and USA tied with Russia for a second place overall in the world.

In 2004, the Mathematical Association of America awarded her the first Henry L. Alder Award for Distinguished Teaching by a Beginning College or University Mathematics Faculty Member. In 2009, she co-edited with Tom Rike the book A Decade of the Berkeley Math Circle – the American Experience, Volume I, which was among the 2009 top 10 bestsellers of the American Mathematical Society. In January 2011, at the joint AMS/MAA meetings in New Orleans, MAA awarded Zvezda the Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics. In 2012, she was listed in Princeton's Review "300 Best Professors."

Zvezda's most enduring passion remains working at the Berkeley Math Circle every year with about 350 pre-college students who are interested in mathematics and motivated to discover new mathematical wonders.

THE MATHEMATICAL ASSOCIATION OF AMERICA
NORTHERN CALIFORNIA, NEVADA, AND HAWAII SECTION
Saturday, February 22nd, 2014
Sonoma State University

Talks are in the Warren Auditorium in Ives Hall
Lunch and Presentation is in Ballroom B/C/D of the Student Center

8:30 – 9:30 Registration, Coffee Hour, Book Sales
Registration Fee: $20 (Retired $10, Students and Unemployed $5)

9:30 Opening Welcome: **Ruben Armiñana**, President, Sonoma State University.

9:30 – 10:20 **Alon Amit**, Origami Logic
Randomness in Theory and Practice
Presider: **Incoming Vice Chair**

10:30 – 11:10 **Bin Yu**, University of California Berkeley
Movie Reconstruction from Brain Signals: "Mind-Reading"
Presider: **James Smith**, San Francisco State University,

11:20 – 11:40 **MAA Section Business Meeting and Governor's Report**
Presiders: **Bem Cayco,** San Jose State University, Section Chair
Brigitte Lahme, Sonoma State University, Section Governor

11:40 – 12:10 **Student Poster Session**

12:10 – 1:10 Luncheon**: Ballroom B/C/D of the Student Center**
Advance reservation for luncheon ($20.00) is required.

1:10 – 1:50 Presentation of the 2014 Section Award for Distinguished Teaching of Mathematics
John Thoo, Yuba College, Teaching Award Committee Chair
Speaker: **Christos Papadimitriou**; Univ. of California Berkeley; *The History behind Logicomix*
Presider: **Dean Gooch**, Santa Rosa Junior College

2:00 – 2:50 **Phil Daro**, Strategic Education Research Partnership
Common Core State Standards – Mathematics: A perspective from a member of the writing team
Presider: **Brigitte Lahme**, Section Governor

3:00 – 3:50 **Zvezdelina Stankova**, Mills College
Restricted Patterns: Snippets, Ideas, and Future
Presider: **Tatiana Shubin**, San Jose State University

4:00 – 5:30 Math Wrangle
Tatiana Shubin, San Jose State University, moderator

For updates, see section web site: sections.maa.org/golden

PROGRAM ABSTRACTS

ALON AMIT, Origami Logic; *Randomness in Theory and Practice.*

Abstract: We don't normally think of "do it at random" as a useful approach to performing a task or constructing a complex structure. In this talk we will present some areas where this, surprisingly, has actually been the case: The Probabilistic Method can be used to show the existence of combinatorial objects that are very difficult to build explicitly, and randomized algorithms are used in many places where they seem to perform much better than any approach which is restricted from flipping a coin.

BIN YU, University of California at Berkeley; *Movie Reconstruction from Brain Signals: "Mind-Reading"*

Abstract: Least Squares, a time-tested method for fitting a linear model to data, attained prominence as far back as 1801 when it was used by Johan Carl Friedrich Gauss to fit astronomical data and predict the trajectory of the newly-discovered asteroid Ceres. In a thrilling breakthrough at the intersection of neuroscience and statistics, penalized Least Squares methods have been used to construct a "mind-reading" algorithm that reconstructs movies from MRI brain signals. The story of this algorithm is a fascinating tale of the interdisciplinary research that led to the development of the system that was selected as one of Time Magazine's 50 Best Inventions of 2011.

CHRISTOS H. PAPADIMITRIOU, University of California at Berkeley; *The History behind Logicomix*

Abstract: I propose to talk about "the intellectual roots of the computer and the internet", where I will talk for about 30 mins on the math and history of science behind *Logicomix*.

PHIL DARO, Strategic Education Research Partnership; *Common Core State Standards – Mathematics: A perspective from a member of the writing team*

Abstract: The Common Core State Standards - Mathematics (CCSS-M) were designed to solve an educational problem. The good intentions of the design, however, can drown in the politics of accountability, teacher policy and public education. The biggest education problem in school mathematics on which the writing team focused its efforts was the "mile wide, inch deep" configuration of the American school curriculum. The CCSS-M propose a shift in the perspective toward mathematics taught in schools: less emphasis on a fragmented multitude of special solution methods, especially tricks that avoid underlying mathematical principles; more emphasis on core principles and practices that unify and focus mathematical thinking.

Standards can help solve this kind of curriculum architecture problem, but we all face more detailed and difficult challenges of instructional materials, assessment, and program design, as well as the even more area of teacher preparation and continuing education. The speaker will reflect on how the good intentions of the writing team a few years ago are breaking on the rocky shores of today's realities.

ZVEZDELINA STANKOVA, Mills College; *Restricted Patterns: Snippets, Ideas, and Future*

Abstract: Restricted patterns made their official debut in the 80's through works of Simion, Wilf, Lovász, and others, but they had already appeared in the 60's via Robinson-Schensted's, Knuth's and Stanley's earlier results. Whether you tackle Catalan or Fibonacci numbers, Dyck paths or Young diagrams, generating trees or Chebychev polynomials, restricted patterns are likely to appear in one way or another. The rebirth of the topic was initiated by West at MIT in 1992. Yet, the ever-tempting Wilf-classification of restricted patterns is still an open question. In this talk, we shall discuss several paths of pattern-exploration, and think about whether among the array of generated ideas and methods there is a "true" way of approaching pattern-avoidance equivalence and ordering.

Sonoma State University of MAA Sectional Meeting

Registration is online, at http://tinyurl.com/GOLDEN2014.
Registration is Regular $20; Retired $10; Students and unemployed $5. Lunch is $20.
Please consider sending an extra $10 to support student members.

Pay by sending a check (arriving no later than February 21, 2014) payable to the MAA to

MAA 2014 Luncheon
Department of Mathematics and Statistics MS084
University of Nevada Reno
Reno, NV 89557

If you experience any problems, contact Ed Keppelmann at keppelma@unr.edu or 775-722-0658.

Directions: See http://www.sonoma.edu/visit/directions.html for full directions. In brief:
From San Francisco/Oakland and Northern California: Take Highway 101 to the Rohnert Park Expressway exit. Turn east onto Rohnert Park Expressway and follow to its end at Petaluma Hill Road. Right on Petaluma Hill Road to the stoplight at East Cotati Avenue. Right on East Cotati Avenue to Main Entrance of the campus on your right.
From Northern Central California (Redding, Chico): Take Interstate 5 south to Interstate 505. Take 505 to Interstate 80. Take Interstate 80 West to Vallejo to Highway 37 west to Highway 101, then north on Highway 101. Proceed to campus as from San Francisco.
From Sacramento: Take Interstate 80 west to Vallejo. Take Highway 37 west to Highway 101 north. Proceed to campus as from San Francisco.

SONOMA STATE UNIVERSITY

Parking: Nearest Parking is in Lots E & F. Parking passes are $5 and parking is enforced 24/7.