

# $\Sigma$ The Summation $\Sigma$

Department of Mathematics & Computer Science Newsletter · Santa Clara University · 2011

## *Remarks from the Department Chair*

“Time flies when you’re having fun.” Well, sometimes time flies even when “fun” is not necessarily the first word one would use to describe an experience. About three years ago, Bob Bekes ended his second three-year term as chair of the Department and, after input from the faculty of the Department and the Dean, I was appointed chair by then-president, Fr. Paul Locatelli, S.J., and began my service to the Department in Fall 2008. It is hard to believe that I’m ending a three-year term already (and I’ve just been appointed to another)! Fortunately, I’ve been able, over the past three years, to rely on the insight and advice of the previous two chairs, Jerry Alexanderson and Bob Bekes, and their combined experience of over 40 years leading the Department.



Dennis Smolarski, S.J.

I am grateful to Tamsen McGinley who has agreed to serve as summer chair, which enables me to continue some research projects during summers with a colleague at Stony Brook University. Besides arranging for faculty to teach summer school mathematics classes, Tamsen also, unexpectedly, had to conduct a job search last summer to find someone to teach a section of calculus when more freshmen engineers enrolled than we expected.

Over the last few years, because of an overall growth in the number of students at Santa Clara, we’ve seen an increase in the number of students taught in the Department, which necessitates a few additional faculty members. We’ve also seen an increase in the number of majors recently: over the past few years, the number of students majoring in mathematics has almost doubled to around 75, and the number of computer science majors has increased slightly to around 35.

In responding to trends and interests, the Department now offers four optional emphases for mathematics majors: Financial Mathematics (new), Mathematical Economics (revised), Mathematics Education (new), and Applied Mathematics (long-standing). As reported in the last newsletter, computer science majors may choose the emphasis in Cryptography and Security. We also keep a list of appropriate courses up-to-date for those students interested in pursuing a career as actuaries. Over the past few years, new courses were introduced in Financial Mathematics, Digital Steganography, and Quantum Computing (as a special topics course).

The Sussman Room continues to be a beehive of activity for students most hours of every day and most days of the week. And I am thankful to current Santa Clara students who are members of the mathematics honor society, Pi Mu Epsilon, for the tutoring they provide in that space.

We hope that all alumni will keep in touch and let us know of significant events in their lives. A Facebook group has been set up for “Santa Clara University Math/CS Alumni” and <http://math.scu.edu/alumni-forms.html> provides an easy way to let us know what has been happening in your lives.

Please feel free to drop in to see us in O’Connor Hall on campus anytime you are near Santa Clara.

A handwritten signature in black ink that reads "Dennis C. Smolarski, S.J." The signature is written in a cursive style.

## Smolarski Wins Teaching Award

Fr. Dennis Smolarski, S.J., at the annual meetings of the Northern California, Nevada, and Hawaii Section of the Mathematical Association of America, on February 27, 2010 at its annual meetings in San Francisco, was presented with the Section Award for Distinguished College or University Teaching of Mathematics for 2010. It cited his reputation as a well-organized and caring teacher, winning over his students by “his dedication to his discipline, his enthusiasm and skills of gentle persuasion.” Also cited were his many publications in computer science and on the history



Gerald Alexanderson, Dennis Smolarski, S.J., Jean Pedersen, Leonard Klosinski

and pedagogy of university mathematics, along with the other side of his professional life, the liturgy. The citation went on to report that Fr. Smolarski has cited two previous award winners as “his principal mentors”, reminding those present of the fact that he was the fifth member of the Department to receive this award, others being Jerry Alexanderson, Paul Halmos, Leonard Klosinski, and Jean Pedersen. That’s probably a record for any department in the country.

## Faculty and Staff News

**Gerald L. Alexanderson:** Still teaching full-time, Jerry will be on sabbatical in the fall of 2011, not so much to work on brand new projects but to try to catch up on neglected ones. When hearing about the latest Swedish murder mystery he usually has to reply that he never reads anything that has already been published—explaining his ten-year term as editor of a book series for the Mathematical Association of America (MAA): so far 38 books with another half dozen on the way. There is, however, a replacement editor in the wings. Jerry is still involved with the American Institute of Mathematics (AIM), chairing its Board of Trustees. (See the separate section on AIM.) And there are still committee meetings, both SCU and MAA, to take up any spare

time. And if committee work does not fill up the time left over after teaching two classes each quarter, there’s always writing, music to listen to, pictures to look at, and old books.

**Glenn Appleby:** In October 2009 Glenn gave a talk at the Penn State meetings of the American Mathematical Society (AMS) and in April 2011 at a similar AMS meeting at the College of the Holy Cross in Worcester, Massachusetts. Both talks were on joint research with Tamsen Whitehead McGinley. During the last four summers he has been involved in two-week long teacher education programs, helping K-8 teachers improve their understanding of mathematical concepts. The program has been supported jointly by Intel and the Silicon Valley Leadership Initiative. Glenn and

his wife Jackie have an addition to their family, a daughter born in December 2009. In Glenn’s unbiased opinion, “she’s very cute.”

Glenn has been back in the department full-time this year after a one-year stint as an associate dean in the College of Arts and Sciences.

**Mary Asuncion:** Mary, the Department’s Administrative Assistant for many years, continues to juggle the many ordinary and extraordinary needs of the Department. Her service is highly appreciated. On the one hand, she handles the day-to-day phone calls and students’ questions, and, on the other hand, easily deals with all the issues related to the annual High School Mathematics Contest and the Putnam Competition. Because of health issues that she has experienced for a couple of years,



Mary Asuncion

Mary will try a reduced schedule with the Department in the fall for a while, until she fully recuperates (or finds a “better offer”).

**José Barría:** José and his wife Erika are still doing a lot of travelling. Their most recent long trip was to Chile, to visit family, “enjoy the beauty of the Andes Mountains, and to check on progress in the building of our small farm there.” There are also regular trips to Illinois to visit a new granddaughter and, of course, their daughter, Lilian, and her husband Steve, both of whom are on the faculty of Eastern Illinois University. José’s sabbatical in the winter of 2011 was spent continuing his study of the interplay between similarity orbits and the strong topology. He’ll be on sabbatical again in the winter of 2012.

**Robert Bekes:** Relieved at turning over his many administrative tasks to Fr. Dennis Smolarski, Bob has taken on additional work with students. This spring he and Rick Scott are directing a seminar in group representation theory with some students looking for additional challenge beyond the regular course work. This next summer he and his wife, Linda, will be visiting friends of the theirs and of the Department, Johan Havnen and Ebba Pauck, in Tuscany. Johan, of the Oslo Insti-

tute of Technology, was a visiting professor at Santa Clara during 2008-2009.

Bob will be on sabbatical in fall, 2011, spending some of the time at Dartmouth College in New Hampshire.

**Frank Farris:** Frank gave a prestigious hour-long invited address at the MAA MathFest, held in Pittsburgh in the summer of 2010. A video of the talk, “Creating Symmetry,” can be viewed by visiting his website. He recently addressed the MAA’s Rocky Mountain Section at their meetings in Boulder, Colorado. For the MAA he continued until recently as Editor of *Mathematics Magazine*, filling out the term of the previous editor, and he is currently Chair of the Committee on Publications for the MAA. In that role he serves *ex officio* on the MAA’s Executive Committee and the Committee on Committees—all time-consuming. This involves several trips each year to Washington, DC, and to winter and summer national meetings.

In the fall he will take a leave of absence from Santa Clara to spend a quarter at Carleton College in Minnesota, as its Benedict Distinguished Visiting Professor.

**Jeremy Horwitz:** The high point of Jeremy’s year may have been in reading the article about a fellow crossword puzzle constructor and himself in the *San Jose Mercury-News*, on the occasion of their having put together a puzzle for the *New York Times* that attracted lavish praise from the crossword puzzle community. The article made it clear that Silicon Valley is a hotbed of crossword activity. Jeremy’s colleague, Byron Walden (described elsewhere) has constructed over 50 puzzles for the

*Times*. Jeremy’s puzzle was described as “a great puzzle” by Will Shortz, crossword puzzle editor at the *Times* and of *Wordplay* (the movie) fame. The puzzle was made all the more attractive by its “indulging a long-held dream of San Francisco Giants reliever Brian Wilson,” who said at the time of the Giants’ win in the 2010 World Series that he had always wanted to be an answer in a *Times* crossword puzzle.

**Leonard F. Klosinski:** Leonard has now broken all records as Putnam Competition Director, something like 35 years, far longer than the tenure of any previous director. Meanwhile, under his supervision, the Competition seems to thrive with well over 4000 participants this past year. The problem is too much success, making it difficult to find sufficient staff and graders to get the job done. But those duties and teaching a full load do not keep him from doing what he *really* enjoys—travelling. The past few years have included a second trip to Norway’s Svalbard (to see polar bears and later,



fjords), both Albanian and Greek Macedonia, a trip to Cambodia, Laos and Vietnam, and, this coming summer, Namibia, to see a part of Africa he hasn’t explored before. But it’s a good thing he did Syria,

Iran and Libya when he did; they do not seem very hospitable right now. But he'll be on sabbatical in the winter and spring this next year and that might allow a quick trip to the Southern Hemisphere to get a break from the bad winter weather in California. When in Santa Clara he'll be working on a manuscript of a collection of the last 25 SCU High School Mathematics Contests.

**Mary Long:** Mary reports that in addition to teaching large numbers of large classes and convincing her students of the "joys of math," she is reading Scandinavian murder mysteries, fishing for salmon, attending semi-weekly Little League games starring her nephews, Connor and Phillip, finishing at least three crosswords a day, and trying to pronounce the names of Icelandic volcanoes. She also takes on some editorial assignments for the MAA.

**Tamsen (Whitehead) McGinley:** Tamsen reports that she is working with Glenn Appleby on a large research agenda involving linear algebra and combinatorics. They have one published paper so far in the area (see Faculty Publications) with one additional paper submitted and two more being prepared for submission. The project is producing other interesting problems as well.

She has taken over the Robert Noyce Scholarship Grant as the principal investigator. It provides \$28,000 to each student earning a single subject teaching credential in science or mathematics.

Further she reports that she is "the proud owner of two middle schoolers. Neal is 11 and will be in the 7<sup>th</sup> grade next year. Nora is 14 and starts her first year of high school in the fall. Nora swims com-

petitively and Neal fences. (With a foil, not building materials.)" Tamsen is also an assistant scout master to Neal's boy scout troop and she is still the leader of Nora's girl scout troop.

**George Mohler:** George Mohler's work on crime "aftershocks" was featured in *The Economist* (10/21/10) and in the *New York Times Magazine* "Year in Ideas" issue of 12/19/10. The research is detailed in the article "Self exciting point process modeling of crime" listed in the Faculty Publications section. To continue their work, Professor Mohler and his collaborators at UCLA and UC Irvine were awarded an NSF FRG grant entitled "Mathematics of large scale urban crime."

**Mona Musa:** Mona, with an undergraduate degree from the University of Khartoum (Sudan), a Fulbright Fellowship, and a Ph.D. from the University of Illinois at Urbana-Champaign, joined us in 2009 as a lecturer. With her three children, ages 9, 4, and 2.5, she visited family in the Sudan last summer and this next summer she plans a family trip (joined by her husband's family) on an Alaska cruise. The rest of the summer will be devoted to summer camp for the children and research for Mona.

**Daniel Ostrov:** Dan continues to work in various areas of

mathematical finance and economics, including recent publications listed below. He has had the opportunity to work with a number of students on research recently. In addition to Tom Wong, with whom he coauthored a paper, he has worked with Eric Edem, Vincent Newell, and Yi Ding. Some of this work has been with Sanjiv Das in SCU's Department of Finance, with whom Dan is happily co-teaching the course in Mathematical Finance.

He also is trying to explain logarithms and trigonometry to his children, David (now age 5) and Reed (age 2). He claims photos of them are available on Facebook to any alumni who "friend" him. For a hobby, Dan continues to tinker with SCU's retirement program and medical benefits. He has been active in faculty governance, having chaired the University Coordinating Committee.

**Lauri Papay:** Lauri reports that over the past few years she has attended several MAA meetings as well as BAD (Bay Area Discrete) Math meetings. In particular she attended a section meeting pertaining to improving algebra skills of entering freshmen, a subject in which she is very interested. And at Santa Clara she has found especially exciting involvement in the Peer Educator Program (adminis-



tered by Ed Schaefer for the University) where many of her Peer Educators have become involved and have expressed much gratitude for having been selected. They have also conveyed how much the program has contributed to their educational growth. Outside of teaching she has become a certified scuba diver and has enjoyed the dives she has taken in Puerto Rico and Hawaii.

**Jean Pedersen:** In 2008 and 2009 Jean attended and gave invited talks at “Gatherings for Gardner,” meetings in Atlanta to



Jean Pedersen with students at annual pizza party

honor the great popularizer of mathematics and former columnist in *Scientific American*, Martin Gardner, who died this past year. She continues to direct the Individual Studies Program of the University, and organizes the Department’s visiting lecture program to send faculty into high schools to speak. During her summers she has been very active in directing student research projects, some of the results of which turn up in her publications list. In 2007 she directed work by Victor

Quintanar-Zilinskas and Linda Velarde, and in 2009 by Victor Garcia.

**Laurie Poe:** In 2009 Laurie won the David E. Logothetti Teaching Award in the College of Arts and Sciences. She reports that “it was definitely the highlight of my teaching career, and it had me walking on air for quite some time.”

**Edward Schaefer:** Ed returned to work at Mzuzu University during the previous two summers. During the first summer,

dissertation in Applied Mathematics. Ed also survived being Faculty Senate President at SCU as well as doing other administrative service and is happy to be back doing teaching and research. With coauthors he proved the statement conjectured by J. W. S. Cassels in his last article. Ed has also published a cryptography article with Ezekial Kachisa and Michael Scott, the former being one of the Malawian MSc students.

**Richard A. Scott:** Rick continues to work on algorithmic and asymptotic properties of Coxeter groups, and in the summers of 2008 and 2009 had two students working with him on research problems, Kathleen O’Reilly in 2008 and Molly Schatzel in 2009. Katie worked on harmonic 1-cycles in hyperbolic reflection tilings, Molly on algorithmic complexity of Coxeter groups. Earlier work with Rebecca Glover led to a publication (listed under publications below).

Rick has been active in the group that organizes BAD (Bay Area Discrete) Mathematics days on various campuses in the broader Bay Area. Rick’s wife, Norine, is working in the campus lab for archeological materials discovered in and around the mission site here in Santa Clara. Norine knows about museums because she was a student of art history in college and graduate school and one-time an assistant curator at the Columbus (Ohio) Museum of Art. So she understands restoration and conservation. Their two girls, Audrey and Emily, are in third and first grades respectively. He’ll be on sabbatical leave in the fall and spring of this next year.

(See separate note on Rick’s recent promotion to full professor.)

**Bin Shao:** In March, 2010, Bin attended the International Multiconference of Engineers and Computer Scientists in Hong Kong. He reports that his research interests have been shifting from Toeplitz operators to problems in operations research and signal analysis.

**Nedra Shunk:** After eight years Nedra has stepped down as Dean of Academic Support Services at SCU and has returned to classroom teaching full-time, which she is enjoying immensely. She will be on sabbatical during the 2011-2012 academic year, working with first and second year teachers in Santa Clara Unified School District on mathematics content development.

**Nicholas Tran:** Nicholas received an SCU-IBM research grant in April 2009 for the project "Existence of Secure Watermarking Algorithms and Approximate One-way Functions." He advised Eric Edem, a physics/computer science double major on a research project in image searching in the summer of 2009. He explored the feasibility of an approach using calculus and randomization to find the best match. Nicholas will be on sabbatical this next winter and spring.

**Byron Walden:** The big event in recent years for Byron was his marriage to Robin Schulman on June 25, 2010, at the Yale Club in New York City. Robin, a most welcome addition to the Department family, is a legal counsel at Adobe Systems in San Francisco, previously an attorney in the San Francisco offices of Fenwick & West, a Mountain View firm dealing in patent law and intellectual property rights. They live in San Francisco with their white, curly-haired

dog Dash. The wedding was covered, with picture, in the Sunday Style section of the *Times* on June 27. The honeymoon was in Morocco.

Byron continues to make up crossword puzzles for the *New York Times* and, in fact, this led to an article in the *Times* about a puzzle made up jointly by Byron and Robin, a puzzle of more than usual complexity. You can read about it at <http://wordplay.blogs.nytimes.com/2010/06/24/abba-hit>. There you

can also see a picture of Robin and Byron, this time with Dash.

Of course, Byron continues to make up problems beyond crossword puzzles. He constructs the annual Santa Clara High School Contest given in the fall and the SCU Freshman Prize Contest administered in the spring. Most recently on campus he has been serving on the College Rank & Tenure Committee.

### **Promotion of Rick Scott**

Rick had some good news this spring, a letter notifying him of his promotion to the rank of full professor. Rick started his mathematical career at SCU when he enrolled as a freshman in 1984. Graduating in 1988 he went on for graduate work at MIT where he received his PhD in 1993. He spent a year as a visiting member of the School of Mathematics at the Institute for Advanced Study (IAS) at Princeton. Though unrelated, it turns out that his dissertation advisor, Robert MacPherson, received the call to become a permanent member of the IAS, other members having been Einstein, von Neumann, Gödel,



Bombieri, Deligne, and others of the celestial mathematical firmament. It's a heady atmosphere at Princeton, but Rick survived it well, receiving another postdoctoral position, a Zassenhaus Assistant Professorship at The Ohio State University. He joined the SCU faculty in 1997, advancing to an associate professorship in 2003. Already a much admired teacher, and a regular contributor to the university community in the area of service, he has done significant work in the

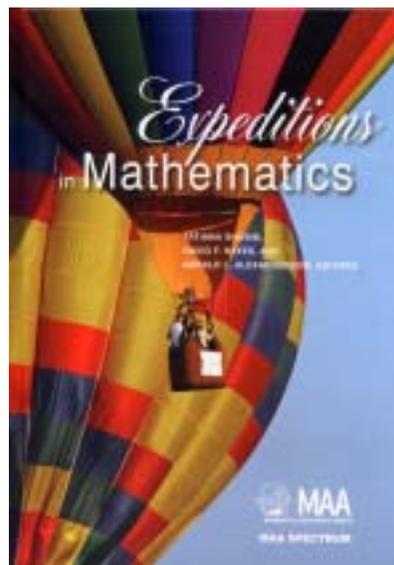
area of topology, geometric group theory, and combinatorics. He has also worked with undergraduates who have produced some of the best student work in the Department, a few projects leading so far to publications. He has also made presentations at meetings of the American Mathematical Society (AMS), and participated in programs at the Mathematical Sciences Research Institute (MSRI) and the American Institute of Mathematics (AIM), co-organizing at the last a workshop on problems in geometric group theory in 2007.

He and his wife, Norine, live here in Santa Clara with their two daughters, Audrey and Emily. The promotion was celebrated by a great party in Los Gatos, with good food and short speeches.

## Bay Area Mathematical Adventures (BAMA)

The news about our joint lecture program with San Jose State (BAMA) is that with the retirement of Peter Ross we have a new person in charge of the Santa Clara side of the program: Frank Farris. He and Professor Tatiana Shubin of San Jose State will be mainly responsible for arranging for the speakers for next year and taking care of the logistics. Over the past three years we have heard some stellar speakers at BAMA: Maria Klawe, President of Harvey Mudd College (Winning Strategies for the PSP Game Lumines); Bernd Sturmfels of UC Berkeley (Tropical Mathematics); Brian Conrad from Stanford (Rational Right Triangles); Richard Borcherds, a Fields Medalist from UC Berkeley (Very Large Integers); Joe Gallian, President of the MAA (The Mathematics of Identification Numbers); Art Benjamin, the mathematician-magician-calculating wizard (Combinatorial Trigonometry); Michael Starbird of the University of Texas, Austin (Geometric Gems); Kevin McCurley from Google (The Mathematics of Inequality); K. Soundararajan of Stanford (From Tic-Tac-Toe to Additive Combinatorics); and many others. One of the best known BAMA speakers was Jeff Weeks, the cosmologist and geometric topologist, MacArthur Fellow, and author of *The Shape of Space* (also the title of his talk here).

Further good news: (1) an anonymous donor, one who attends BAMA talks regularly, has set up a \$50,000 endowment fund to support the program; (2) a second collection of “BAMA talks” has just been published by the MAA: *Expeditions in Mathematics* (a first collection, *Mathematical Adventures for Students and Amateurs*, was published by the MAA in 2004); and (3) the small middle-school boy described in our 2008 newsletter, Evan O’Dorney, who “took on” the eminent Russian mathematician, V. I. Arnold, correcting the speaker’s statement of a conjecture, was this past fall a member of UC Berkeley’s Putnam team which placed fourth nationally. In the meantime he won the National Spelling Bee and this year’s Intel Science Talent Search, for which he received a \$100,000 award!



BAMA is alive and well, and now the program is being replicated elsewhere, notably in Washington, DC.

## Carriage House Lectures in Washington

Modeled on the BAMA program at Santa Clara and San Jose State, a distinguished lecture series was established to bring outstanding speakers to the recently completed Carriage House Conference Center at the MAA’s headquarters in Washington, DC. Funded with a grant from the National Security Agency, the MAA scheduled the first lecture in January of 2007. With presentations by faculty members from Vanderbilt,



MAA Carriage House, Washington, D.C.

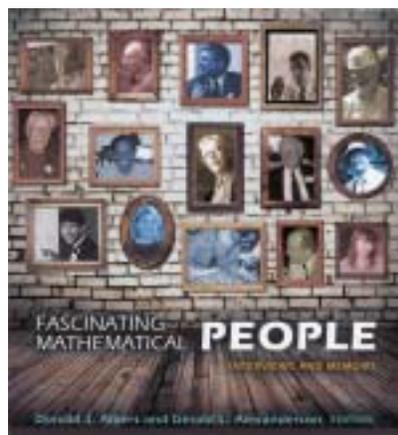
Rutgers, UC Berkeley, Stanford, UC Irvine, Montreal, Texas at Austin, and Toronto, among others, two SCU alumni—Kevin McCurley of Google and Brian Conrey, Executive Director of the American Institute of Mathematics—have been chosen to be among these distinguished speakers. Brian spoke on, not surprisingly, the Riemann Hypothesis (“Primes and Zeros: A Million Dollar Mystery”) and Kevin on “Marketing Similarity in the Age of Data.” Earlier in the series Santa Clara faculty member, Frank Farris, had given a talk on “Hyperbolic Wallpaper.” Full descriptions of all of these talks appear at <http://www.maa.org/dist-lecture/past-lectures.html> and each of the three lectures can be heard via mp3 files.

## Faculty Publications

**Gerald L. Alexanderson:** *Expeditions in Mathematics* (edited with Tatiana Shubin and David Hayes), Washington, DC: Mathematical Association of America, 2011.

*Fascinating Mathematical People* (with Donald J. Albers), Princeton, NJ: Princeton University Press, 2011.

Expository articles: (1) “James Joseph Sylvester:



Spring’s Début,” (2) “Christopher Clavius, Astronomer and Mathematician,” (3) “Luca da Pacioli and Leonardo’s Drawings of Polyhedra,” and (4) “Isaac Newton, Fatio de Duillier, and Alchemy,” in the *Bulletin of the American Mathematical Society* 45 (2008), 429-33; 46 (2009), 669-71; 47 (2010), 553-56; and 48 (2011), 275-79.

Memorial essays: “Remembering Paul Cohen,” *Notices of the American Mathematical Society* 57 (2010), 835-36; “Remembering Constance Reid” and “Reminiscences” in “Peter Hilton: Code Breaker and Mathematician,” both in the *Notices of the American Mathematical Society* (to appear).

“Paul Erdős and the dancing saints,” *MAA FOCUS* 30 (2010), 16 (<http://www.maa.org/pubs/FOCUSDec-Jan10-Erdos.html>).

Book reviews of (1) *Lewis Carroll in Numberland* by Robin J. Wilson (W. W. Norton, 2008), in *College Mathematics Journal* 30 (2008), 419-21; (2) *Mathematicians of the World, Unite!* by Guillermo F. Curbera (AKPeters, 2009), in *Mathematical Intelligencer* 32 (2010), 65-66; (3) *Mathematicians Fleeing from Nazi Germany/Individual Fates and Global Impact* by Reinhard Stegmund-Schultze (Princeton University Press, 2009), in *Mathematical Intelligencer* 32 (2010), 75-77; and (4) *The First Six Books of Euclid* by Oliver Byrne (Taschen, 2010), in *MAA FOCUS* 30 (2010), 24-26.

**Glenn Appleby:** “Invariants of matrix pairs over discrete valuation rings and Littlewood-Richardson fillings” (with Tamsen Whitehead), *Linear Algebra and Its Applications* 432 (2010), 1277-98.

**José Barria:** “On the strong closure of the simultaneous similarity orbit of a pair of finite rank operators,” *Linear Algebra and Its Applications* 432 (2010), 1873-77.

**Robert Bekes:** “Mad Tea Party Cyclic Partitions” (with Jean Pedersen and Bin Shao), *College Mathematics Journal* (to appear in an issue dedicated to the memory of Martin Gardner).

**Frank Farris:** “The Gini index and measures of inequality,” *American Mathematical Monthly* 117 (2010), 851-64.

“A non-Euclidean universe,” in Shubin, Tatiana, et al., *Expeditions in Mathematics*, Washington, DC, Mathematical Association of America, 2011, pp. 153-64.

“Crafty counting,” *Math Horizons*, February, 2008, 12-15.

“A window on the fifth dimension,” *MAA FOCUS* 28, (November, 2008), 1-4.

**Leonard F. Klosinski:** “Sixty-eighth, Sixty-ninth, Seventieth William Lowell Putnam Mathematical Competitions” (with G. L. Alexanderson and Loren C. Larson), *American Mathematical Monthly* 115 (2008), 729-39; 116 (2009), 719-26; 117 (2010), 368-72. (Also appearing in Chinese in *Individual Mathematical Developments*, *Academia Sinica* 27 (2008), 365-72; 28 (2009), 372-76; 29 (2010), 368-75.

**Tamsen (Whitehead) McGinley:** (See entry under Glenn Appleby.)

**George Mohler:** “Self exciting point process modeling of crime,” *Journal of the American Statistical Association* 106 (2011), 100-08.

“Coupled flow-polymer dynamics via statistical field theory: modeling and computation” (with H. Ceniceros and G. H. Fredrickson), *Journal of Computational Physics* 228 (2009), 1624.

“Numerical solutions of the complex Langevin equations in polymer field theory,” (with E. M. Lennon, H.D. Ceniceros, C. J. Garcia-Cervera, and G. H. Fredrickson), *Multiscale Modeling and Simulation* 6 (2008), 1347.

“A practical splitting method for stiff SDEs with applications to problems with small noise,” (with H.D. Ceniceros), *Multiscale Modeling and Simulation*, 6 (2007), 212.

**Mona Musa:** “On some double circulant binary extended quadratic residue codes,” *IEEE Transactions on Information Theory* 54 (2008), 898-905.

“A note on some classes of good group codes,” *African Diaspora Journal of Mathematics* 6 (2008), 101-114.

**Daniel Ostrov:** “An option to reduce transaction costs” (with Jonathan Goodman), *SIAM Journal on Financial Mathematics* (to appear).

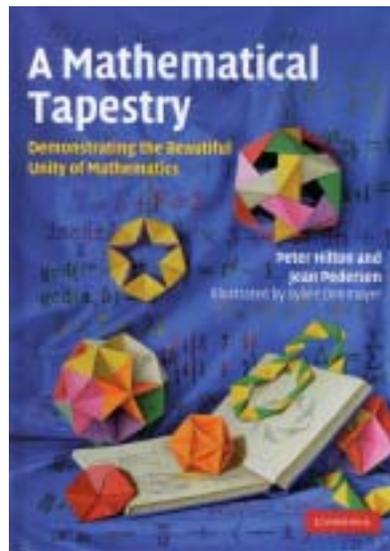
“Balancing small transaction costs with loss of optimal allocation in dynamic stock trading strategies” (with Jonathan Goodman), *SIAM Journal on Financial Mathematics* 70 (2010), 1977-98.

“Gradient dynamics in population games: some basic results” (with Daniel Friedman), *Journal of Mathematical Economics* 46 (2010), 691-707.

“Optimal asset allocation for passive investing with capital loss harvesting” (with Thomas G. Wong), *Applied Mathematical Finance* (to appear).

“Conspicuous consumption dynamics” (with Daniel Friedman), *Games and Economic Behavior*, 64 (2008), 121-45.

**Jean Pedersen:** *A Mathematical Tapestry: Demonstrating the Beautiful Unity of Mathematics* (with Peter Hilton), Cambridge & New York: Cambridge University Press, 2010.



“Stop-sign theorems and binomial coefficients” (with Peter Hilton), *Mathematical Gazette* 94 (2010), 247-61.

“Mathematics, models, and Magz, Part I,” Investigating patterns in Pascal’s triangle and tetrahedron” (with Peter Hilton), *Mathematics Magazine* (to appear).

“Mathematics, models, and Magz, Part II, Investigating patterns in Pascal’s simplex” (with Victor Garcia), *Mathematics Magazine* (to appear).

“Star patterns relating to  $2n$ -gons in Pascal’s triangle—and more” (with Carlos Sequin), *Southeast Asian Bulletin of Mathematics* (to appear).

“Peter Hilton: Codebreaker and mathematician” (coordinating editor), *Notices of the American Mathematical Society* (to appear).

**Peter Ross:** “What I learned from Paul Halmos,” *MAA FOCUS* 29 (December 2009-January 2010), 4-6.

**Edward F. Schaefer:** “The yoga of the Cassels-Tate pairing” (with Tom Fisher and Michael Stoll), *London Mathematical Society Journal on Computational Mathematics* 13 (2010), 451-60.

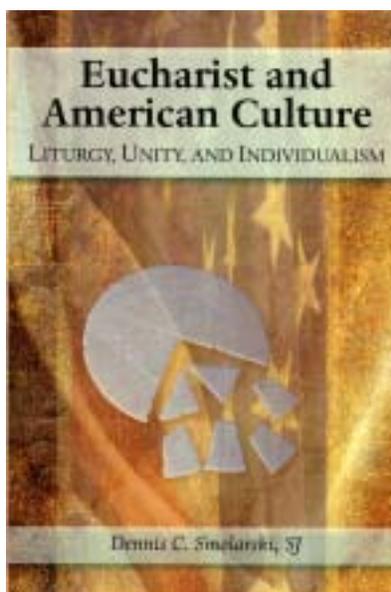
“Constructing Brezing-Weng pairing friendly elliptic curves using elements in the cyclotomic field” (with Ezekiel J. Kachisa and Michael Scott), *Pairing* (2008), 126-35.

Richard A. Scott: "Right-angled mock reflection and mock Artin groups," *Transactions of the American Mathematical Society* 360 (2008), 4189-4210.

"Automatic growth series for right-angled Coxeter groups" (with Rebecca Glover), *Involve* 2 (2009), 370-84.

"Rationality and reciprocity for the greedy normal form of a Coxeter group," *Transactions of the American Mathematical Society* 363 (2011), 385-415.

Dennis C. Smolarski, S.J.: "Stellar core collapse: a case study in the design of numerical algorithms for scalable radiation hydrodynamics" (with Eric S. Myra, F. Douglas Swesty), *Computing in Science and Engineering* 11 (2009), 34-44 (<http://www.computer.org/portal/site/cise/index.jsp>).



*Eucharist and American Culture: Liturgy, Unity, and Individualism*. New York, Paulist Press, 2010.

Nicholas Tran: A paper "A perceptual similarity measure based on smoothing filters and the normalized compression distance" at the IS&T/SPIE Electronic Imaging 2010 Conference, January 17-21, 2010, in San Jose.

Byron Walden: "Paper-folding, polygons, complete symbols, and the Euler totient function: an ongoing saga connecting geometry, algebra, and number theory" (with Jean Pedersen and Peter Hilton), in *Advances in Algebra and Combinatorics* (World Scientific, 2008), pp. 157-78.

"Patterns relating to complete symbols" (with Jean Pedersen, Victor Quintanar-Zilinskas, and Linda Velarde), *Southeast Asian Bulletin of Mathematics* 32 (2008), 939-50.

## American Institute of Mathematics



An architect's drawing of the planned future building.

Programs at AIM continue to take place at its Palo Alto facility after a series of construction delays at the Morgan Hill site, due to bureaucratic difficulties in getting a geological report. But with substantial National Science Foundation (NSF) funding, in addition to the generous support of AIM's founder, John Fry of the 1979 class of SCU mathematics graduates, the AIM style of research workshops continues to attract first-class mathematical talent. The workshops are focussed and highly collaborative. A recent article in the MAA's *FOCUS* by Adriana Salerno of Bates College describes recent work on the partition function,  $p(n)$ , by Ken Ono of Emory University and a team of researchers, that breaks new ground and explains hitherto mysterious patterns in the Rogers-Ramanujan identities in a more general context. It is exciting work and will, no doubt, make its way into our courses in number theory and even into combinatorics. (*MAA FOCUS* 31(2) (2011), 15-17.)

There are eight NSF-supported research institutes in the United States, of which AIM is one. (Others are at Princeton, Ohio State, the Research Triangle in North Carolina, Minnesota, UCLA, and UC Berkeley, with a new one this year at Brown.) Each year the directors of all of the institutes meet, joined by NSF staff. This year it was AIM's turn to host the meetings, which involved sessions in Palo Alto and an evening reception and dinner in Morgan Hill.

Brian Conrey, Executive Director of AIM and a member of the SCU mathematics class of 1976, did a splendid job of playing host to the event. In his role as AIM director he has to travel not only to research centers here and abroad, but he also helps set up outreach programs for bright middle school and high school students that were locally developed with some AIM support: Math Circles and Teachers' Circles, programs now being replicated elsewhere. Brian and Associate AIM Director Estelle Basor helped set up some AIM-style research workshops in Pisa, Italy, earlier this year, with another scheduled at the Max Planck Institute in Bonn, Germany. And most recently Brian has been attending meetings in Rio de Janeiro for planning the Mathematical Congress of the Americas to be held in 2013.

Brian lives in Morgan Hill with his wife Jan. A son, Rick, graduated from SCU in 2007 but, alas, in electrical engineering, not mathematics.

## Alumni News

### Class of 1961

**Tom Nelson** has retired after a long career on the faculty of Sonoma State University in Rohnert Park. He and his wife live in Santa Rosa.

### Class of 1964

**Jerry Giaccai**, with a PhD from the University of Illinois, Urbana-Champaign, spent many years at the Federal Reserve Bank of Boston, a position from which he recently retired. He now lives in the suburbs or Washington, DC.

### Class of 1966

**Marguerite Ott (Brunet)** has retired from Cisco Systems, but we now see her on campus from time to time because she has a granddaughter attending Santa Clara (alas, not as a mathematics or computer science major).

### Class of 1967

**Lawrence Swienciki** teaches at the University of Texas at El Paso, and is still producing posters on the history of mathematics for use in the classroom.

### Class of 1970

**Robert Hupf** has spent 38 years as an actuary for Mutual of Omaha in Nebraska but plans to retire at the end of 2011, after which he may try his hand at teaching mathematics to grade school children—something “like Pascal’s Triangle,” Bob says.

**Gail Harrington Miller**, after a master’s degree from the University of Arizona and a law degree from the University of Richmond, has been practicing law in Richmond, Virginia.

### Class of 1971

**Linda Da Rin (Butz)** is vice-president of Northrop-Grumman and lives in the Washington, DC area. She also serves as president of one of the company’s divisions, the Information Technology Sector.

**Robert Kleinhenz** is teaching in the Applied Mathematics Department in the School of Engineering here at SCU.

### Class of 1972

**Mike and Marie Faggiano ('74) Piccardo** attended the most recent Pi Mu Epsilon dinner. Mike is now with Boeing and Marie with Hewlett Packard. They live in Sunnyvale.

### Class of 1975

**Jim and Teresa (Caserza) Dechene** have left Chicago where Jim practiced law at Sidley and Austin, specializing in health care law. They have moved to Madison, Wisconsin where he now holds various positions at UW Health and is an adjunct professor at the University of Wisconsin Law School. Terry continues working in Chicago—but as a telecommuter.

**Mark Kelsey** received an MBA at Santa Clara in 1979 and is Senior Vice President of Learning and Development for the San Francisco Bay Region at Wells Fargo Bank.

### Class of 1976

**Joe Bayless** was not technically a mathematics major though he took all the requirements of a major. (We didn’t have double majors in 1976.) So he majored in biology and went to medical school. He’s now practicing medicine as an an-

esthesiologist in Reno, Nevada. And he has a daughter, Sophie, who is currently a sophomore at Santa Clara. He has generously endowed a fund to support scholarships for mathematics and history majors, as well as another gift to support scholarships more generally.

**J. Brian Conrey** is Executive Director of the American Institute of Mathematics.

(See sections of this newsletter on the Carriage House lectures and on the American Institute of Mathematics.)

**Kevin McCurley** is a senior research scientist at Google and spoke at a recent Career Night dinner at Santa Clara.

(See the section on Carriage House lectures.)

**Dragutin Sbragia-Zoricic**, after working for various accounting firms in San Francisco, has set up his own firm in Oakland as a tax attorney. After finishing his BS in mathematics at Santa Clara, he went on to earn an MBA and his law degree, also from SCU.

### Class of 1978

**Robert Beezer** and his wife Pat Dorsey have a son, David, who is a freshman at SCU. Last year Rob was on sabbatical from the University of Puget Sound, which allowed him to give a course at the African Institute for Mathematical Sciences in Cape Town, South Africa. Pat and their other son Robert joined him for the requisite safari in Zimbabwe before their return to Tacoma.

**Mary Treder** teaches mathematics at Mesa State College in Colorado.

### *Class of 1980*

**Shari (Abdalian) Plummer ('83) and Mark Plummer** work in Silicon Valley, at Applied Signal Technology and General Dynamics respectively. When not on the job they tend to their family—Alyssa and Brendan.

### *Class of 1981*

**Dennis Carney**, his wife Véronique, and their two children live in Louisville, Colorado, where Dennis is on the staff of IBM. He says that he is “a full-time open standards architect.”

**Peter Friedenbach** continues a long family connection with this Department (one brother, Ken, graduated in mathematics at SCU, another, John, in economics, with a strong interest in mathematics). Peter works at Hewlett-Packard but teaches in our Department part-time.

**Sharon Kugler** was the principal speaker at SCU's Graduate Commencement on June 10, 2011. In our previous departmental newsletter, Sharon's appointment to the post of chaplain at Yale Uni-

versity was noted. The appointment was a first on several counts and the position is one of considerable prestige. Previously she had been chaplain at The Johns Hopkins University in Baltimore, the first layperson to serve in that role. She is married to Duane Isabella; they have two daughters and two grandchildren.

**Lisa Townsley** has left the Chicago area to join the faculty of the University of Georgia in Athens. Recent travel has taken her to France and Switzerland, as well as to India, of course, for the 2010 International Congress of Mathematicians. She is married to Jon Carlson, a well-known algebraist. Lisa has had a career as a teacher and topologist (PhD from Northwestern) but also a dancer (classical ballet).

### *Class of 1984*

**Stephen Chiappari**, with a PhD from the University of Illinois, Urbana-Champaign, is now chair of the Applied Mathematics Department in the School of Engineering at SCU. He is married to Carolyn “Lyndy” Dean, an art historian and professor in the History

of Art and Visual Culture Department at the University of California, Santa Cruz.

### *Class of 1985*

**Gene Magpayo** has a new position with Microsoft. He and his wife, Joan, who live in Mountain View, are much relieved because this job involves far less travel than previous assignments. They joined us for the Pi Mu Epsilon dinner this year.

### *Class of 1986*

**Ed Goetze**, having received a PhD from the University of Chicago, is teaching at Emory University in Atlanta.

### *Class of 1988*

**Kristin Kusanovich** was not exactly a mathematics major but probably would have been if the University at that time had allowed double majors. Her principal interest was modern dance and during her stay at Santa Clara she choreographed a dance on the subject of linear algebra. After directing her own dance company in Minneapolis, she returned to Santa Clara as a senior lecturer in Theatre and Dance.

**Sharon Sheehan** earned two master's degrees from Northwestern University and has now been teaching mathematics for 17 years at Glenbrook South High School in a suburb of Chicago. She lives in Evanston with her husband Jeff and their two daughters.

### *Class of 1989*

**Sarah Johnson Bresniker** is married to Kirk Bresniker who is with Hewlett Packard near Sacramento. They have two children, Kyle and Katrina. Kirk travels a lot



Michael Piccardo, Marie (Faggiano) Piccardo, Richard Scott, Dennis Smolarski, Dragutin Joseph Sbragia-Zoricic, Mary Long, Leonard F. Klosinski, Gene Magpayo

on his job and is reported to know all too well conference rooms from Shanghai to London. Sarah is a librarian.

**Mike Jones** has left his faculty position at Montclair State University in New Jersey to become associate editor of *Mathematical Reviews*, the international abstracting journal of the American Mathematical Society. Mike and his wife, Carrie Vitale, a physician in the medical school hospital at the University of Michigan, live in Ann Arbor, where *Mathematical Reviews* maintains its editorial offices.

### *Class of 1990*

**Stephen DeBacker** appeared in the last newsletter, having taken a tenured position at the University of Michigan, Ann Arbor, after receiving a PhD from the University of Chicago and taking postdoc appointments at Chicago and Harvard. Now, adding another honor to his biography, he has been appointed to an Arthur F. Thurnau Professorship at Michigan, a title he will hold during his full career at the University. The citation says that “colleagues attribute the dramatic increase in the number of majors and minors in mathematics [at Michigan] over the past six years in large part to DeBacker’s . . . efforts to retain undergraduates who demonstrate enthusiasm in entry-level math courses . . . [He] ‘inspired deep mathematical contemplation’ despite his ‘reputation for giving especially difficult homework.’”

**Karen Keizer Thrift** attended the Department’s October 2010 reunion. She works for Oracle and is married to Scott Thrift, a University of Oregon architecture graduate who now has his own architectural practice on the San

Francisco Peninsula. They have two boys, Alexander and Charlie.

### *Class of 1991*

**Spera Marcu Georgiou** after earning an M.S. in 1993 from the University of Illinois at Urbana-Champaign and an MBA in 2001 from SCU joined the faculty at De Anza College where she has been teaching computer science. She lives in Saratoga with her partner Stephen and her twin sons Axel and Cornel.

### *Class of 1992*

**William F. Forrest III** received his PhD in statistics from the University of California, Berkeley, and is now a research statistician at Genentech on the San Francisco Peninsula. He is married to Sarah Kelsey who also graduated in 1992 from SCU, though in Spanish and political science. She is the sister of Mark Kelsey, a mathematics graduate in the class of 1975.

**Ted Logothetti** has worked, practically since graduation, in Washington, DC, first at the Bureau of Labor Statistics, then at the U.S. Census Bureau. His sister, Heidi, also an SCU graduate (in English), is working in Washington for a medical publishing firm.

**Bonnie (Valant) Spaight** (from physics and mathematics) is a senior research physicist at the Pathfinder Energy Service in Marietta, Georgia, after getting a PhD from Cornell. Her husband, Tracy, was an SCU history major and did graduate work at UC Berkeley. Sadly they lost their little Gretchen (a dachshund) not long ago but are consoled by the arrival of a daughter, Josephine. Some may recall Bonnie’s appearances on stage at Images in the Mayer

Theatre, where she danced classical ballet.

### *Class of 1995*

**Derek Purdy** spent the requisite number of years as an officer in the Navy and is now working for Baro Sense Inc.

**Phuong Lam** is teaching at Foothill College in Los Altos.

### *Class of 1998*

**Annie Phan** married Hugh Murphy and is now Annie Murphy. They have a cute daughter (according to Ed Schaefer). Annie has been at Cisco Systems for 14 years working as a systems engineer and is the technical consultant to customers for all of 35000 Cisco SKUs.

### *Class of 2000*

**Jonathan Reyes** is a Software Developer and Systems Engineer at Kaiser Permanente’s Innovative Laboratories in San Leandro, California. In his 12 years there he has been involved with financial/banking information technology, natural language processing startup, multimedia research & development and is now in health care information technology.

### *Class of 2001*

Valerie Peterson received her PhD at the University of Illinois, Urbana-Champaign, and now has a tenure-track assistant professorship at the University of Portland.

**Brian Sittinger**, after earning a PhD at the University of California, Santa Barbara, is teaching at California State University, Channel Islands.

### *Class of 2002*

**Shweta Bansal** was awarded her PhD in computational and applied mathematics at the University of Texas at Austin. Since then she has been on a postdoc at Penn State at University Park. This coming spring she assumes a tenure-track assistant professorship in biology at Georgetown University.

**Dan Cavagnaro** completed a second postdoc at The Ohio State University and is on his way back to California to take a position at California State University, Fullerton, where he will be teaching in the Business School. He is soon to be married; his fiancé will also be at Fullerton, teaching in the Finance Department.

**Alex Dow** completed his PhD in computer science at UCLA last year and is now working for Microsoft in Mountain View with a group that does social search for Bing. He's living in San Francisco; he and his wife are expecting their first child in a few weeks.

**Maribeth (Bleymaier) Oscamou** is teaching mathematics part-time at Santa Clara while working for a startup she founded with her brothers: LateralSports.com which helps sports fans follow games online. Maribeth is working on the data and analytics.

### *Class of 2003*

**Konstantin Svist** is a senior software engineer at Relevad in San Mateo.

**Misako van der Poel** is an adjunct faculty member at San Jose State University, Cabrillo College and Ohlone College, teaching mathematics.

**Steve Wedig** became the first employee of the startup Lingospot which licenses software to online publishers like *USA Today*, *Forbes*, *Bloomberg*, among others. He is a software developer and has been working on a new programming language. He plans to found his own startup.

### *Class of 2004*

**David Nash** completed his PhD at the University of Oregon, in the course of which he spent some time with his advisor at Cambridge University. He is now a tenure-track assistant professor at Le Moyne College in Syracuse, New York.

execute large scale testing of various features and enhancements.

### *Class of 2006*

**José Acain** completed his MS in mechanical engineering specializing in robotics at SCU. He now works as a rocket scientist with his fiancé Erin Beck at Space Exploration Technologies in Los Angeles.

**CJ Bridges** is a software engineer at SafeNet, Inc., working on their cloud security line of products.

**Kevin Dyer** finished his master's degree in cryptography at Royal Holloway University in London. He is now working on a PhD



The Sussman Room (Math Lab) Spring, 2011

### *Class of 2005*

**Kamran Khan** is an engineer at the iPhone/iPad division at Apple. He works on the software that drives Apple's mobile devices, writing automation for new features, organizing software test strategies, and providing feedback and presenting data to cross functional teams as a project lead. He also organized strategies to coordinate users in regions globally to

at Portland State University in cryptography. He married the British physician Susannah Daniels (a match arranged by Ed Schaefer).

**Megan Sabo** is working for Google. She gave a talk about her experiences at the Career Night dinner in winter term.

### *Class of 2007*

**David Garcia** is a graduate student in computer science at Stanford University.

### *Class of 2009*

**Victor Quintanar-Zilinskis** is using his talents in biology and in mathematics as a graduate student at the University of California, Irvine.

### *Class of 2010*

**Eric Edem** is currently working on a master's degree in computer engineering at SCU and is at the same time working at a startup, Gridiron Systems, which "makes an embedded storage acceleration device for high tier databases."

**Brittany Markert** during her senior year appeared (and survived for weeks and weeks) on the "America's Next Top Model" show on television.

**Ramon Pulido** is staying an extra year at SCU on a Noyce Scholarship to earn a credential so he can teach mathematics. In the meantime, though, he continues to dance in several folkloric dance companies and may take some time next year to dance professionally. He recently had an important role in a dance choreographed by Kristin Kusanovich, which was part of the 2011 Images at the Mayer Theatre.

**David Runger** was also in the Noyce Scholarship program and is now teaching at Leland High School in San Jose.

**Rachel Witte** celebrated graduation by travelling to Hong Kong, Thailand, Laos, Cambodia, Malaysia and Singapore.

### *Class of 2011*

**Evan McClure**, while attending Santa Clara as a computer science major, has been working as a senior software engineer at Silver Spring Networks, leading the development team for its Firmware

Upgrade webapp, which is written in Java and used to upgrade millions of smart meters and their communications modules. Next year he will be entering the graduate engineering program at SCU, studying computer networking.

### *New Faculty*

**George Mohler** joined the Department this past fall. Originally from Indianapolis, he received his undergraduate education at Indiana University, Bloomington, and his MS (2005) and PhD (2008) from the University of California at Santa Barbara. This was followed by a postdoctoral appointment at UCLA. He works in applied mathematics—more specifically, in computational mathematics and statistics, stochastic differential equations, nonparametric statistics, and applications to complex fluids, seismology and, perhaps most relevant recently, criminology! (Further details on this last work appear under "News of Faculty" above.) Law enforcement officials appear to be quite interested in George's work.



George is married to Courtney Elkin Mohler who holds an Inclusive Excellence Postdoctoral Fellowship at SCU, in theatre and ethnic studies.



Faculty and students on O'Connor lawn

## Coletti Receives National Honor

Neil B Coletti, of the Class of 1977, has been awarded the National Intelligence Medallion by the National Intelligence Community. The citation reads that the



award is “in recognition of outstanding service from January 2001 to April 2009. Dr. Coletti has made significant contributions to the National Security Agency’s DOCK project. His wisdom and expertise have been invaluable to the success of the project. Dr. Coletti developed and perfected sophisticated algorithms for use by multiple Intelligence Community Agencies which will be relied upon for years to come. Dr. Coletti’s accomplishments reflect the highest credit upon himself, the National Security Agency, and the Intelligence Community.” The gold medallion was presented to Neil at a ceremony in Washington, DC, on August 14, 2009. Admiral Dennis C. Blair, Director of National Intelligence, made the presentation. Neil’s family flew from Sunnyvale, CA, to witness the presentation.

Neil received his undergraduate degree in mathematics from SCU and followed that with his PhD in computer science in 1983 from the University of Illinois, Urbana-Champaign. There are other SCU connections: Neil’s mother Virginia has for many years been the principal organist in the Mission Church and his sister Suzanne, class of 1984 in theatre arts, has designed vestments and banners for the Mission.

Neil has been living near An-



napolis, Maryland for 25 years and when he’s not on the job he tends to be out rock climbing, SCUBA diving, kayaking and skiing!

## Student Prize Winners

Students awarded membership in Pi Mu Epsilon in 2011 were Alex Ambrose, Britzia Arroyo, Emily Heizer, Eric Kittlaus, Quynh Nguyen, Maung Oo, Nick Russel, and Eric Zadoroznyj. They were inducted into PME on May 17 in the St. Clare Room of the new library. Two students, Victor Garcia and Eric Kittlaus, were awarded membership in Sigma Xi for their research, which they reported on in a poster session on May 17 as well.



Pi Mu Epsilon Initiates: Eric Kittlaus, Eric Zadoroznyj, Britzia Arroyo, Alex Ambrose, Nick Russel, Emily Heizer, Maung Oo

At the annual awards dinner, the George W. Evans II Prize for performance on the Putnam Competition for 2011 went to Eric Kittlaus (1<sup>st</sup>), Colin Hagemeyer and Wesley Engers (tied for 2<sup>nd</sup>). Colin Hagemeyer won the prize in 2010, Dennis Fong in 2009, and Sharif Elgamal in 2008. The Evans Prize for Research went to Victor Garcia in 2010, with the 2008 prize going to Rebecca Glover.

## Student Prize Winners (continued)

The Freshman Mathematics Prize in 2011 went to S. Michael Miller (1<sup>st</sup> prize), Nikolas Tower (2<sup>nd</sup> prize), and Ben Demaree (3<sup>rd</sup> place). In 2010 it went to Caitlin Hendricks and Eliza Brenna in 1<sup>st</sup> and 2<sup>nd</sup> place, James Adolph and Eric Kittlaus (tied for 3<sup>rd</sup> place); in 2009 to Colin Hagemeyer and Samuel Pontrelli, and in 2008 to Vincent Newell.

The Paul R. Halmos Prize for 2011 went to Vincent Newell, and in earlier years to Molly Schatzel in 2010, to Kathleen O'Reilly in 2009, and to Thomas Wong in 2008.

The Robert P. Balles SCU Mathematics Scholar Award went to Wesley Engers for 2010-2011, to Molly Schatzel for 2009-2010, Kathleen O'Reilly in 2008-2009, and to Rebecca Glover in 2007-2008.

Further details can be found at <http://www.scu.edu/cas/math/students/scholarship.cfm>.



Victor Garcia with poster on his research

## Alumni in the Arts

As mentioned in the last departmental newsletter (which you can find at <http://www.scu.edu/cas/math/alumni/upload/newsletter-2008.pdf>), Brian Thorsett of the Class of 2000 has won various prestigious awards: membership in the San Francisco Opera's Merola Program, with recognition in *Opera News*, and winner of the Opera's Schwabacher Competition. He continues a busy concert schedule, most recently in Bach's B Minor Mass in various Bay Area venues. In February Brian returned to campus to give a Music @ Noon concert. As the announcement said, he has taken on over 70 diverse roles, in operas ranging from Monteverdi to Britten, back to Rameau and ahead to pieces written especially for him. Brian lives with his wife and growing family in Pacifica.

Unlike many larger departments of mathematics that can at the very least field a string quartet from faculty and students, if not a small chamber orchestra, we can still point to some musicians on the faculty, Frank Farris, for example, as well as graduates with majors in both mathematics and music: Patricia Fairweather of the class of 1999 (from Belize, but now teaching in the state of Georgia), James Conelly (who played various instruments) from the class of 2010, and a current senior, Eric Zadoroznyj who plays the trumpet and has, with his band, a new CD—Cheetah Speed/Project Blue Book—that just came out.

Among the alumni mentioned individually above, several have had careers in dance as well as science and mathematics: Kristin Kusanovich, Lisa Townsley, Bonnie Spaight, and Ramon Pulido.



Eric Zadoroznyj with two groupies

## Retirements and Departures

**Peter Ross**, who had been on phased retirement for several years, taught his last course at SCU in the spring term of 2010. Still living in San Jose he continues to attend departmental colloquia and assist in the administration of the BAMA series of lectures. He also continues to write ten or more media highlights (mini-reviews) a year for the *College Mathematics Journal*, as well as an occasional book review. Those who remember Paul Halmos might enjoy reading Peter's article "What I learned from Paul Halmos" (see the Publications list above). Peter is in the second year of his five-year term as a member of the MAA's Euler Prize Committee, which he hopes will help him retain his connection with the real, that is, mathematical, world. With more time available he has been volunteering, as a general factotum at the JW House (sort of a Ronald McDonald house) on the Kaiser Hospital grounds in Santa Clara, and as a dog socializer at the Humane Society of Silicon Valley. Peter says that the best part of retirement is not having to set an alarm clock!

Peter sings bass with several South Bay choruses, and has vowed in retirement finally to learn to play a musical instrument. Since the last newsletter he has made his

12th, 13th, and 14th Sierra Club "service trips," week-long trips working on the Donner Rim Trail, in the Piedras Blancas Preserve in Big Sur, and in the Valles Caldera National Preserve near Los Alamos, NM.

This June Peter will attend the 50th reunion of his MIT class, and last September he attended a reunion of his Peace Corps group (India '63-'65) in South Carolina. To commemorate the 50th anniversary of the Peace Corps, UC Berkeley made three videos of several of its alumni who served as Volunteers in the early years of the Peace Corps. See <http://newscenter.berkeley.edu/2011/02/01/uc-berkeley-renews-the-call-for-grads-to-join-the-peace-corps/>

Peter is in the first one for a minute, starting at 3:17, and the last five minute video is about his service.

Of course, last spring as a part of the Pi Mu Epsilon dinner there was a very enjoyable acknowledgement of Peter's retirement, not to *celebrate* Peter's departure but just because the members of the Department appreciate any excuse for a party. Leonard Klosinski prepared for the occasion a video about Peter that was highly entertaining and so popular it has even enjoyed a return engagement at a subsequent departmental party.

**Aaron Diaz** has joined the research staff at the University of California, San Francisco, where he spends part of his time at the Medical School complex on Parnassus Heights and the rest at the research campus in Mission Bay.



Brian Conrey and Peter Ross

## Retirements and Departures (continued)

**Donald J. Albers** will be leaving his appointment as scholar in residence, though he continues his duties as Senior Book Acquisitions Editor for the MAA until January 2012. Beyond that he will be catching up in the world of astronomy, his principal scientific interest, and travelling to keep up on the work of potential authors. And some extra time will allow for more hiking trips in the West with his wife Geri. He's still reserving some time to tend to the growing family of his daughter Lisa and her husband Josh, now consisting of the dog, Lucy, daughter Hannah (age 2) and little Max (age four months). And then there's always the possibility of another book of interviews in the Mathematical People series to follow *Fascinating Mathematical People* (to appear this fall from Princeton University Press).

### IN MEMORIAM

#### **Tom Kropp (Class of 1969):**

Tom Kropp of the class of '69 died in San Francisco on December 20, 2010, from cancer. Tom was a mathematics major at SCU and did graduate work at the University of California, Davis. He had a long and successful career in applied mathematics and, though ill, he continued to work up to a few weeks before his death. A loyal member of the Santa Clara family, as was his wife Gail who had been a German major here, Tom and Gail were often seen at reunions and departmental dinners. Tom graduated with a stellar group of alumni of the Department from that class, among them the current department chair, Dennis Smolarski, S.J., as well as Jack Giebler, Bruce McLemore, Russ Meredith, Ken Stevens, Chuck Swart, Teril Crampton Swart, and Sue Cassel White, all of whom have lived up to their early promise. Tom added to the luster of that splendid class of Santa Clarans and we shall miss him.

#### **Julianne (Abney) Lovin (Class of 1985):**

Julianne Abney died on January 1, 2011. Her degree from this Department was in computer science. She had received an MS in applied mathematics at SCU and had worked at General Dynamics. She and her husband lived in Saratoga; Dennis Smolarski, SJ, had officiated at their wedding.

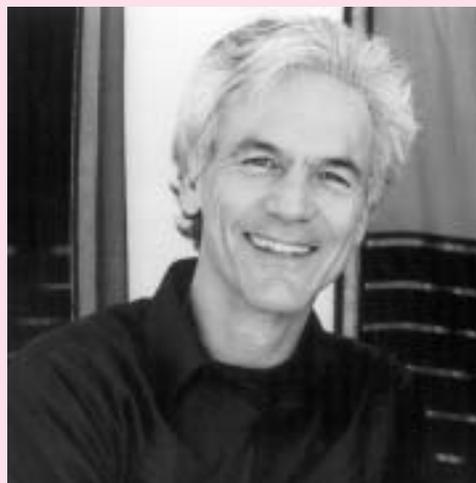
#### **Peter J. Hilton (1923-2010):**

Though never formally a member of this Department, Peter Hilton was a frequent visitor and a distinguished mathematician who was helpful not only to his longtime coauthor, Jean Pedersen, but also a good friend of many of our faculty. During World War II he was an important member of the Bletchley Park group that, with the leadership of the famous Alan Turing, cracked the German cipher, Enigma, and almost certainly contributed critically to the Allied win in 1945. With doctorates from both Oxford (DPhil) and Cambridge (PhD), Peter was erudite and an extraordinarily productive mathematician, primarily as a topologist. But he was widely experienced in various branches of mathematics and was also interested in mathematics education. In his career he held various prestigious posts at Manchester, Cambridge, and Birmingham, before coming to the United States, first to Cornell, then to the University of Washington, Case Western Reserve, the Battelle Institute, and finally to the State University of New York at Binghamton. He was a highly cultivated man, knowledgeable about literature, music, theatre, politics, and just about anything else one could think of. He was married to an English actress, Meg Hilton, who has been seen on the stage in London, New York, and at various festivals.

Peter was charming and urbane (as many Englishmen are), but he was also warm and generous, and known for his quick flashes of wit. He once remarked that it is curious that we live in a society that has driver *education* but teacher *training*. We shall miss Peter's elegant wit, his deft abilities as a raconteur, and his generosity of spirit.

## Brian Swimme Produces New Film

Brian Swimme's new film, "Journey of the Universe" recently placed in the top five among 150 films at "The Environmental Film Festival in the Nation's Capital." Done in collaboration with Mary Evelyn Tucker, a faculty member at the Yale Divinity School and the School of Forestry and Environmental Studies, the film was chosen for the United Nations Environment Day, held in New York on June 2, 2011. The film continues a long series of Swimme's books, videos and films on cosmology. A 1972 graduate of SCU with a major in mathematics, he went on to receive a PhD in 1978 at the University of Oregon in mathematical physics. Influenced by the French paleontologist, geologist, and philosopher, the Jesuit Pierre Teilhard de Chardin, Brian has held various academic posts, and is currently at the California Institute of Integral Studies. He has written, sometimes with coauthors, five books, published by John Wiley, Orbis, Bear, and Harper's. A charismatic speaker he has also produced three videos that have been shown on the BBC, the Canadian Broadcasting Company, and PBS.



## 2011 Freshman Math Contest

1. A perfect square is a number that can be expressed as the square of an integer. For example,  $2025(= 45^2)$  is a perfect square with 4 digits. How many perfect squares have precisely 5 digits?
2. Find all real solutions  $(x, y)$  to the equation  $(xy - 20)^4 + (x + y - 11)^4 = 0$ .
3. In the country of Aranyoskam, the only denominations of stamps are 7, 11, and 13 szents. Because the glue on the stamps tastes like cigar butts and promotes flatulence, people use as few stamps as possible when sending mail.
  - a) What is the fewest number of stamps necessary to make 136 szents in postage?
  - b) What is the smallest amount of postage which requires 20 stamps?
4. A right triangle has its legs on the positive  $x$ - and  $y$ - axes and its hypotenuse passes through the point  $(3, 5)$ . What is the smallest possible area for such a triangle?
5. The portion of the graphs  $y = \cos x$  and  $y = \tan x$  for  $0 \leq x \leq \pi/2$  is shown at the right. Show that the tangent lines to the two graphs at the point where the graphs intersect must meet at right angles.



6. Determine the value of  $\lim_{a \rightarrow \infty} \int_{a-1}^{a+1} \tan^{-1} x \, dx$ .

PLEASE LET US KNOW NEWS OF YOURSELF!

Name: \_\_\_\_\_ Employer: \_\_\_\_\_

Address: \_\_\_\_\_

Year of graduation: \_\_\_\_\_ Advanced degrees and from where: \_\_\_\_\_

Mathematics  or Computer Science  ; please check.

What kind of work do you do now?

Personal news:

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