



Remarks from the Department Chair

Hi. This is Ed Schaefer, I succeeded Fr. Dennis Smolarksi, S.J. and Glenn Appleby as Chair. We hope you are all doing well and that we have been one of the pieces that helped prepare you for your life. Both nationwide and at SCU, the percentage of students majoring in STEM fields (Science, Technology, Engineering, and Mathematics) is increasing. At SCU, we are seeing huge growth in both Computer Science and Computer Engineering. In our Department, we currently have about 250 Computer Science majors and 100 Mathematics majors. The Department's enrollment in Winter 2018 classes is about 2100 students.



Each of the last three years we have hired a new tenure-track faculty member and we have plans to hire six more continuing faculty over the next two years.

The Department has received two gifts to improve our first year mathematics curriculum and retention of students traditionally under-represented in STEM. One gift is from the Koret Foundation and the other is from anonymous donors – they total \$700,000. This has enabled us to support several exciting new programs. We are piloting lab sections for precalculus, STEM Calculus 1 and Business Calculus 1 (Math 9, 11, and 30). Each lab meets once a week for an hour. Active learning pedagogies are used in the labs, including a lot of group work focused on longer, conceptual problems. Students in SCU's successful LEAD program, for first generation undergraduates, all take the labs, which are optional for other students.

The gift from the anonymous donors has also enabled us to hire a post-doc, Linda Burks, to found a new Mathematics Learning Center that is currently housed in the Benson Center. Student employees at the MLC are paired with students for tutoring and they also facilitate study groups for various first-year courses. We also use the money to pay for ALEKS software, which includes a reliable placement component. Students now must place into calculus in order to register for it. This has increased both the number of precalculus sections and the quality of the students taking first-quarter calculus.

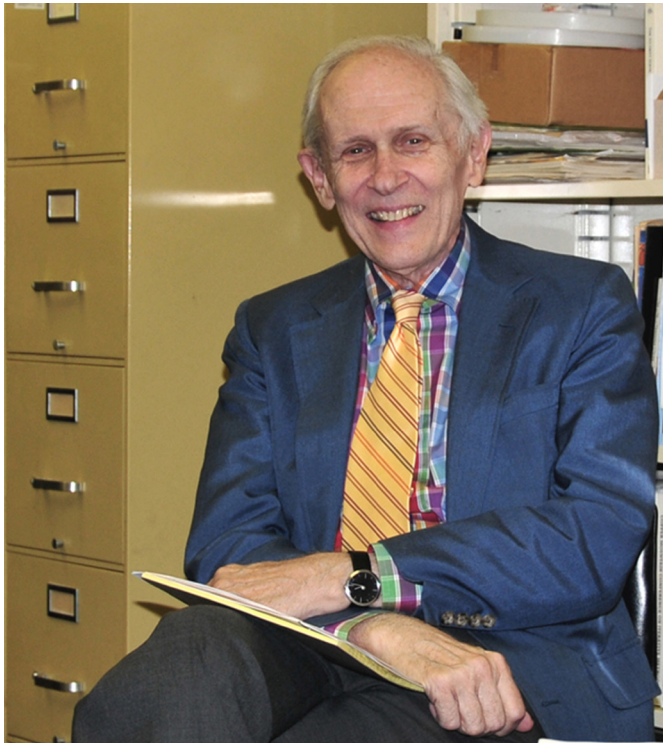
We would love to hear from you, and if you are living in the area, perhaps you'd be interested in giving a brief presentation at our annual Career Night. And drop by – we'd like to see you, especially at 11:30 when a group of Department members heads over to the Adobe Lodge for lunch most days.

Edward Schaefer

The Sky HAS Fallen

Hell HAS Frozen Over

GERALD L. ALEXANDERSON RETIRES



Gerald L. Alexanderson arrived in Kenna Hall at the University of Santa Clara in the fall of 1958. After 5 offices and 60 years, he has decided that it was time to retire from the profession he has enjoyed so immensely.

After receiving degrees from the University of Oregon and Stanford University, he came to Santa Clara to share an office with Abraham P. Hillman, Colonel Michael Buckley, and Alvin White on the south side of the first floor of Kenna; the office also included a state of the art mimeograph machine. The only other member of the Mathematics Department at that time was the chair, Irving Sussman but his office was in O'Connor.

Before long, Professor Alexanderson became the first director of the new University Honors Program. And then he became chair of the Department, a position he held for a record 35 years. He oversaw the growth of the Department and the program; he initiated the computer science emphasis and eventually the computer science degree. He was a division director, a vice chair of the board of trustees of Santa Clara, the secretary and president of the Mathematical Association of America, the chairman of the board of the American Institute of Mathematics, president of the Fibonacci Association, and senator of Phi Beta Kappa.

The first book he was co-author of (with A. P. Hillman) was *Functional Trigonometry* which was published in 1961. Seventeen books later, he co-authored *The G. H. Hardy Reader* in 2015. Among the prizes he has won are: the MAA Haimo Award for outstanding teaching of mathematics, the Joseph Bayma Scholarship award, and the MAA's highest award, the Gung-Hu Award for Distinguished Service.

A rocking chair is far in the future for Professor Gerald L. Alexanderson. We wish him a long and productive retirement.

(His email is: galexanderson@scu.edu)

The Campus

If you have not been to the campus recently, here are a few new buildings.



Edward M. Dowd, the Art and Art History Building which opened in 2016. It is located across from Alumni Science on Franklin Street which is being turned into a grassy mall.



Patricia A. & Stephen C. Schott Hall, the admission & enrollment services building which opened in 2012. It is located near the main entrance to the University



Do you recognize this building?



Victor B. & Julia Botto Vari Hall houses the offices of the dean of the College of Arts and Sciences and the Department of Communication. Its doors opened in 1998 and it is located near the main entrance to the University across from Shott Hall.



The Harrington Learning Commons, Sobrato Technology Center and Orradre Library was opened in 2008. It is situated on the site of the old Orradre Library.



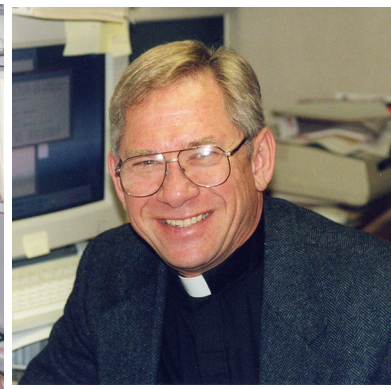
The Law School building under construction in October, 2017.

Alumni of the Department who are teaching in the Department

Leonard F. Kłosinski (class of 1961). This is Leonard's 54th year of teaching and the first year of phased retirement; he is now teaching only one course per quarter which in the Fall of 2017 was Linear Programming.



Dennis C. Smolarski, S.J. (class of 1969). Dennis is spending the beginning of his 36th year at Santa Clara on medical leave while recovering from hip replacement surgery. He was back in the classroom for the winter quarter 2018. Dennis is the new Director of Campus Ministry.



Richard A. Scott (class of 1988). Rick begins his 21st year on the faculty of the University. After a year's leave, Rick has returned to the classroom with a full schedule of classes.



Mary Long (class of 1987). This year marks Mary's 19th year as a lecturer in the Department. She is responsible for the dramatically revised Math 9 Precalculus course.



More alumni who teach in the Department

Ignacio Terrizzano (class of 1985). Ignacio has been a part-time lecturer in the Department teaching on and off for 3 years. After teaching his early morning class, he returns to his desk at IBM.



Maribeth Oscamou (class of 2002). Maribeth completed her 6th year as a lecturer at Santa Clara in the spring of 2017. She has since transferred her allegiance to the University of Colorado in Boulder.



Peter Friedenbach (class of 1981) has taught early morning classes. Last year he decided he would temporarily retire from teaching and continue with his regular full time job at Hewlett Packard.



Grand Reunion - October 14,



Alexander Ambrose (2013), Wesley Engers (2011), Mark Rogers (2013), Jimmy Nguyen (2012), Quynh Nguyen (2013)



J. D. Herdlick (1992) Frank Farris, Jeffrey White (1992)



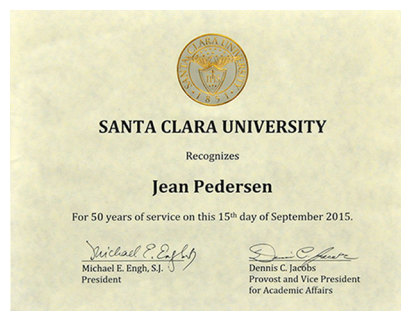
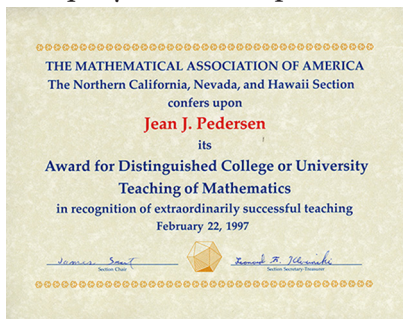
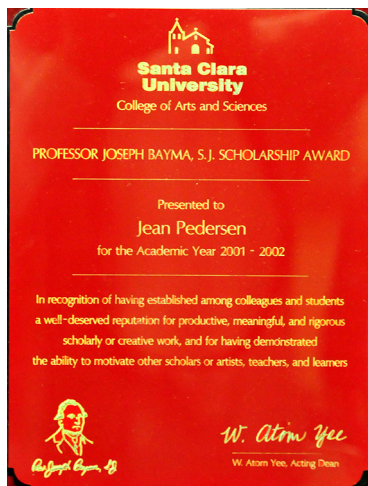
Ed Schaefer, Issiah Cantrell (2014), Julian Ornelas (2015)

Remembering Jean J. Pedersen



Jean began her career at Santa Clara University as a part time lecturer in 1966. When she died on January 1, 2016, she was a full professor and had been teaching for fifty years. Jean enjoyed early morning classes and would often arrive on campus by 6:00 a.m. Her energy seemed boundless and her devotion to her students, the Department and the University was unparalleled. She was a prolific writer with 214 published papers to her credit; her list of coauthors included Peter Hilton, George Pólya, Andrew Gleason, Ronald Graham and at least ten members of the Department. She also showed an interest in doing research with students and had published articles with five students. In addition to her scholarly research, Jean was the coauthor of ten books, some of which had multiple editions. She spoke at eight major international meetings, gave three talks at MAA section meetings and seventy-nine department colloquia in institutions in a wide variety of countries. In 1997 she was honored with the Award for Distinguished College or University Teaching of Mathematics by the Northern California, Nevada, and Hawaii Section of the Mathematical Association of America. Jean was honored by the University with the Bayma Scholarship Award in 2002.

These are a couple of quotes from her colleagues. “She was unusually generous with her time.” “Jean was a community builder and contributed greatly to making the Math/CS Department a uniquely wonderful place to work.” We miss her smile.



Departures



Mary Asuncion was our long time administrative assistant. She died in 2012.



Michael Bannister was an assistant professor in 2016-2017. He decided that the academic life was not for him.



Monika Caradonna retired in 2013.



Aaron Diaz is now at UCSF School of Medicine.



Jeremy Horwitz now works for Salesforce in San Francisco

Kevin McCandless worked at both Santa Clara and San Jose City College. He is now working full time at San Jose City College.



George Mohler received tenure at Santa Clara and then accepted a position at Indiana University-Purdue University Indianapolis.



Lauri Papay is now teaching at Foothill College



Bin Shao is teaching at the University of San Francisco and at the City College of San Francisco.



Nedra Shunk retired from her post as a dean of Academic Support Services and then in 2013 she retired completely and moved to Chicago.

William Lowell Putnam Mathematical Competition

The directors of the Putnam Competition have been: Garrett Birkhoff, Harvard University, Director 1946; George Mackey, Harvard University, Director 1947 – 1948; L. E. Bush, College of St. Thomas & Kent State University, Director 1948 – 1964; James H. McKay, Oakland University, Director 1964 – 1973; Abraham P. Hillman, University of New Mexico, Director 1973 – 1978.



In 1975 Gerald Alexanderson and Leonard Kłosinski became associate directors of the Competition; in 1978 Leonard became the sixth director and would continue in that role for thirty-nine years.

In 1978 the Putnam Competition took over O'Connor 25 and remained there until the summer of 2017. Shelving made of 2 x 4's was installed to hold the vast amount of material the Competition generated. Only one box fell during the Loma Prieta earthquake of 1989; O'Connor itself suffered much more damage.

All aspects of the Competition were headquartered here: registering, printing, mailing, sorting, grading, reporting; we even had some students take the test.

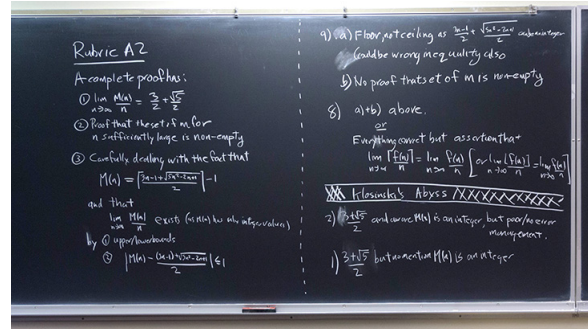
Most of the faculty of the Department par-



Putnam staff during the packaging-mailing process

ticipated in the grading process and many alumni were flown in to be graders. There were two grading sessions in December, each session lasting two very long days with twenty graders per session.

One of the most memorable experiences for

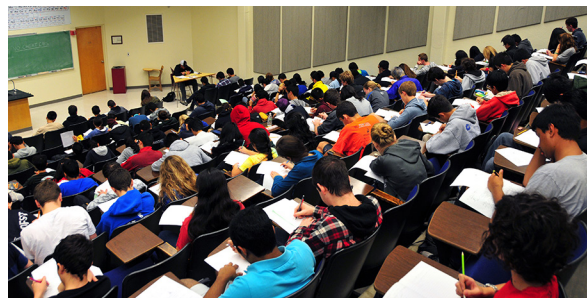


Rubric for grading problem A2, 2016

the graders occurred when Paul Sally (University of Chicago) was using his bathroom at the motel and an automobile drove into his bathroom. There were no injuries and Paul was reputed to have said, “May I help you?”

When Jerry and Leonard’s terms were set to expire with the 2016 Competition, Bob Bekes and Nicholas Tran applied to become the new director and associate director. But the MAA wanted the contest director to be nearer the MAA headquarters in Washington, D.C.

High School Mathematics Contest



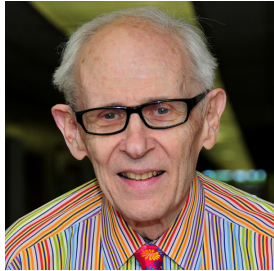
The year 2017 marks the sixtieth year of the Santa Clara University High School Contest. It is directed by L. Kłosinski with problems created by Byron Walden.

Phased Retirement

Three of our senior faculty have gone on phased retirement. The phased retirement period lasts a maximum of five years after which the professor retires completely. The faculty member also teaches fewer courses and has less departmental responsibility.



José Barria began his phased retirement in the fall of 2016. He spends a quarter each year in Chile in a house he just built for his retirement.



Gerald Alexanderson began phased retirement in the fall of 2016 and had only six articles and one book published last year.



Leonard F. Klosinski started his phased retirement in the fall of 2017. He is still spending time phasing out the Putnam.



This is a 2013 group photograph of our faculty. *First row:* Dan Ostrov, Emily Gismervig, Norman Paris, Ed Schaefer. *Second row:* Jean Pedersen, Dennis Smolarski, S.J., Corey Irving, José Barria, Sayanti Banerjee. *Third row:* Brandyn Lee, Frank Farris, Julia Zuev, Natalie Linnell, Mary Long. *Fourth row:* Bob Bekes, Gerald Alexanderson, Peter Friedenbach, Rick Scott, Leonard Klosinski, Glenn Appleby, Nicholas Tran, Tamsen McGinley, Monika Caradonna.

New Faculty



Michael Hartglass came to us in the fall of 2017 as an assistant professor of mathematics on the tenure track. He received his PhD from UC Berkeley in 2013. He was previously at UC Riverside.



Sukanya Manna joined the faculty as a tenure track assistant professor in computer science in the fall of 2016. Her PhD is in Computer Science from the Australian National University and she comes to us from Cal Poly Pomona.



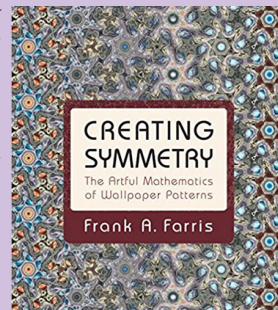
Nicolette Meshkat is the Clare Booth Luce Assistant Professor. She was an adjunct lecturer in the Department in 2011-2012, and then joined the faculty in 2015 on a tenure track position. Her PhD is from UCLA.

American Institute of Mathematics announces a new prize

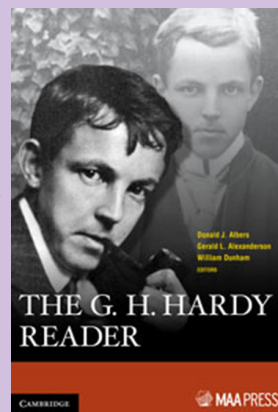
Brian Conrey (class of 1976) continues as the director of AIM which was founded by John Fry (class of 1979). Brian states that the participants in the AIM workshops produced 134 mathematical papers in 2016. The author of one of these papers will be awarded the first **Alexanderson Award**; the prize is named for the longtime chair of the Department.

Books Published by Faculty

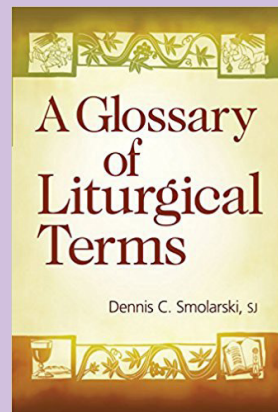
Frank Farris, *Creating Symmetry: The Artful Mathematics of Wallpaper Patterns*. Published by Princeton University Press in 2015.



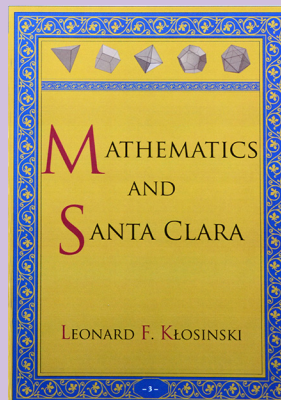
Gerald L. Alexanderson (with Donald J. Albers and William Dunham), *The G. H. Hardy Reader*. Published by the Cambridge University Press and the MAA Press in 2015.



Dennis C. Smolarski, S.J. (with Monsignor Joseph DeGrocco), *A Glossary of Liturgical Terms*. Published by Liturgy Training Publications.



In a completely different category, L. F. Klosinski wrote *Mathematics and Santa Clara*, a 371 page history of the Department.





Not many years ago the only sculpture on campus was the statue of the Sacred Heart between St. Joseph's Hall and the Adobe lodge. As the photographs on the following pages show, that has changed.

Alumni News

Class of 1962

Thomas Kearns is retired after a teaching career at the University of Delaware and Northern Kentucky University.

Class of 1972, 1974

Michael Piccardo and **Marie (Faggiano) Piccardo** are enjoying retirement at their home in Sunnyvale. They are regular attendees at the Honors' banquet (formerly Pi Mu Epsilon banquet) in the spring.

Class of 1980

Christopher Best is working full-time with St. Anthony's Dining Room in San Francis-

co. The Dining Room provides food for the homeless.

Ed Dunne is executive editor of *Mathematical Reviews* and editorial consultant (with G. Alexanderson) of the *Bulletin of the American Mathematical Society*.

Class of 1985

Gene Magpayo has left Microsoft and started his own company called UR-Take. The company provides a fun, collaborative service/platform whereby guests at an event can take photos and have them instantly shared with everyone on a big screen.

Class of 1989

Michael Jones has been an Associate Editor of the American Mathematical Society's *Mathematical Reviews* in Ann Arbor, Michigan since August 2008. Following in the footsteps of Jerry Alexanderson and Frank Farris, he is the editor of *Mathematics Magazine*. His wife, Caroline Vitale, works as a geriatrician at the University of Michigan hospital and at Ann Arbor's VA. They have two children: Stephen (age 14, a freshman in high school) and Anneliese (age 11, in middle school). Stephen is soccer-obsessed and plays the viola. Anneliese is also into sports and music, playing the cello and trumpet.

Class of 1991

Nancy Urena Reid is teaching at Lincoln High School in San Jose and is highly involved in new curriculum studies.

Class of 1992

J. D. Herdlick has been teaching at St. Louis Community College in the St. Louis area and has written three books all published by McGraw-Hill.

Jeffrey White has retired after some 25 years

in actuarial work. In retirement, he has founded a start-up for data storage.

Class of 1993

Dana Albrecht (Harvard 2011 -- S.M. Applied Mathematics) currently lives in Nashua, NH and has four wonderful children: Peter (20), Caleb (17), Sophie (13), and Grace (10).

Class of 1995

Eric Madia is now the Vice President of Product Design at Esurance where he is responsible for the pricing and design of all insurance products as well as the digital product design that delivers the online experience to customers. He lives in San Carlos with his wife (Elizabeth Madia (Mahoney) '95) and their three children, Alison, Caitlin, and Alex.

Class of 1997

Annie Murphy (Marketing M.B.A. 2006) is celebrating almost two decades of working at Cisco Systems, where she has held roles as a software engineer, marketing manager, consulting systems engineer, and currently works as an enterprise account systems engineer residing in San Ramon, CA. She is happily married for 13 years to Hugh Murphy. Together they have an 8 year old daughter Madison who most recently won the regional mighty mite ice hockey showcase with the Trivalley Blue Devils 8U Boys team.

Class of 2001

George Barnidge got a master's degree in statistics from the University of Washington in 2004. He then taught for 3 years in the math department at one of the local universities in St. Louis, MO. He then decided to switch careers and now works as an actuary for Reinsurance Group of America. He works with the South African and Latin American offices. He has a wife and 2 girls.

Danielle Nelson's college years were spent at De Anza Community College then Santa Clara University where she received a bachelor's in Mathematics. UC San Diego is where she earned her Master's in Applied Math. After spending a decade as a corporate forecast analyst, she took up her passion of teaching college math. She and her husband Allan just welcomed their daughter Riley into the world late in 2017. Outside of work and home she enjoys the world of improvisational comedy. With two theaters in San Jose it's not too hard to get out once in a while!



Zeno

by Roger Berry

Located between the Art & Art History Building and the Jesuit Residence

Class of 2002

Alex Dow went on to get his PhD from UCLA, where he also became a Dodger fan. He now lives in Redwood City and works at Facebook, where he leads a team of computational social science researchers. He's been married to Anjuli Arora Dow, a public interest attorney,

for 10 years, and, as of October, they have three children: Divya (6), Leonardo (3), and Avni (0).

Connie Jinq is now the founder of Tasty Time, a startup employing computer vision to recognize food to help people estimate nutritional value and make better food choices. She married Cliff Szu in 2008 and they have 5 chinchillas - no plans on having children anytime soon. In her spare time, she likes to cook and sew - she made her own wedding dress in 2008. She's always happy to connect, so email her anytime: connie@tastytime.com



Linear Development
by Mike Melhuse

Located between the DeSaisset Art Museum and O'Connor Hall

Class of 2003

Konstantin Svist finished his CS degree at the burst of the dot-com bubble and so he got his Master's Degree at SCU. After working for several years at a start-up he is now happily employed at Google. In his free time he both learns and teaches a variety of martial arts.

Misako van der Poel teaches mathematics at San Jose State University, De Anza College, and Cabrillo College. She is a housemate of Ed Schaefer and is the most amazing cook.

Steve Wedig got his MS in Computer Science at UCLA and left grad school to pursue software entrepreneurship. He now works at a healthcare analytics startup in Pasadena. He lives in Encino with his wife Alisa who recent-

ly completed a PhD in Neuroscience at UCLA.

Class of 2005

Christina Cismas Florea went on to get her teaching credential for secondary education and a Masters Degree in Education Technology at Santa Clara. While completing her graduate work, she taught math at Saratoga High School and then at Henry M. Gunn High School in Palo Alto where she has been teaching since 2006. In 2014 she started the BEAM Program (Business, Entrepreneurship, and MATH) to replicate real-life business environments that require applications of mathematical principles for high school students.

Trevor Gibson joined the United States Marine Corps and deployed to Iraq in 2006 and back to the Middle East in 2008. He earned his Masters in Education at the Stanford Teacher Education Program in 2010 and now teaches secondary math in Boulder, CO. He married Maura Dudley in 2014 and his daughter, Simone, recently celebrated her 2nd birthday. She can sometimes count to 10.

Class of 2006

Jose Acain got his M.S. in Mechanical Engineering at SCU all the while working for NASA. At SCU he met Erin Beck, whom he married. The two then went to work for SpaceX as rocket scientists. This earned him enough money to live out his dream: Jose is now a musician and comic performer. He and Erin have been competitive swing dancers as well. Their baby was walking at six months and is just as adorable as Kevin Dyer's.

Kevin Dyer got his M.S. at Royal Holloway University in London and his Ph.D. in 2015 in Computer Science (Cryptography) at Portland State University. He now works at Google as a Software Engineer in Security and Privacy. He married an English Physician from the UK he met in Malawi with Prof. Schaefer. His free time

is consumed by an active and adorable toddler.

Class of 2007

Annie Garrison is in her fifth year as an Assistant Professor of Mathematics Education at Southern Methodist University. She and her husband Ed have two kids: Ed (3 years old) and Ella (born this past May).

Class of 2008

Sharif ElGamal got his M.S. in Mathematics at New York University and is now a software engineer at Google. He collects video games, goes to concerts and has season tickets for the Giants.

Tom Wong is an Assistant Professor of Physics at Creighton University, a Jesuit, Catholic University in Omaha, Nebraska. After graduating from Santa Clara, he served as a high school mathematics teacher. Then, he earned his Ph.D. in Physics from UC San Diego, where he was advised by a mathematician. Afterwards, he completed two postdoctoral research fellowships in computer science, one in Latvia and another in Austin, Texas. Tom is married to Edna, and their non-work hours are spent renovating their fixer-upper home.

Class of 2009

Ellis Fenske is going to defend his thesis this Spring at Tulane. He is getting a PhD in mathematics studying anonymous communication/cryptographic protocols. He published a protocol this year in CCS for safely collecting private data. He lives with his partner in New Orleans and his hobbies are being an ABD graduate student (a full-time job) and board games.

Katie O'Reilly went on to get her Master's in Math at UC Davis, and has been teaching Algebra 1 and AP Calculus at St. Ignatius College Prep in San Francisco since 2012. She wrote "The incredible math professors I had at SCU are a constant source of motiva-

tion for me. I'm so grateful to have had such wonderful inspirations. Still, I didn't have any female math professors (or high school teachers for that matter) so my hope is to show that women can also be awesome at math."

Class of 2010

Rachel Binx lives in sunny Los Angeles, where she works as a full-stack engineer on the Content Science team at Netflix. Outside of work she is an avid traveler and scuba diver, and loves to spend time with her bird, Björd.



Solar Flare

by Linda Fleming

Located between the Art & Art History Building and the Jesuit Residence

Through his connection with alum Jose Acain, **Dennis Fong** worked at SpaceX, taught himself electrical engineering and held a variety of different positions there. He then founded his own start-up a year and a half ago. He has a non-existent personal life, because he

spends all his time growing the company. He spends what little free time he has rock climbing on the eastern side of the sierras.

Peter Kirst is currently working at NVIDIA in Santa Clara as a Technical Program Manager. The program he manages is testing and certification of 3rd party software running on NVIDIA GPU's. He has no family yet. He likes cooking, softball, cycling, and snowboarding. He wishes he had more time to travel and play video games.



Going Around the Corner with x
by Fletcher Benton

Located in front of the DeSaisset Art Museum

Class of 2011

Wesley Engers is self-employed as a data science consultant and math tutor in the San Jose area. Graduated from Claremont Graduate School in 2013 with a Masters in Mathematics. He enjoys playing tennis and has recently started trying out parkour.

Brian Sittinger finished his PhD in Mathematics from UC Santa Barbara in 2006. Since Autumn 2007, he has been teaching Mathematics at CSU Channel Islands. Since the end of graduate school (having lived in Santa Barbara), he has become a fairly devoted road cyclist spending a decent amount of time in the hills.

Cameron Wong completed his masters in the SCU Software Engineering program in 2012. He now consults as a Software Architect for several small tech companies in the South Bay area. In his free time, he loves to snowboard and play chess (albeit quite poorly).

Class of 2014

Nik Jones is a substitute teacher, working on a teaching credential and Master's in Education through National University, and likes to sketch.

Eddie Nugent spent a couple of years getting a master's in a mix of philosophy and religious studies at Boston College, and is currently in his second year at Stanford Law School. When he's not reading cases or battling his caffeine addiction, Eddie enjoys yoga, swimming, cooking, and weirdo postmodern novels.

Phillip Peralez graduated from SCU in 2015 with his MS in Computer Engineering. Since then he has been working at various startups. Currently he is working at a data analytics and business intelligence company called Looker in Santa Cruz. The best thing that has happened to him recently is that he has married his best friend Jenny this year!

Class of 2015

Mia Kumamoto is the resident lighting and video designer at City Lights Theater Company in San Jose. She has also had an active career as a freelance designer, winning the Leigh Weimers Emerging Artist Award and a Theatre Bay Area Award for lighting design. She is currently back at Santa



Bronze Bronco

by David L. Spellerbert

Located at the intersection of The Alameda and Market Street.

Clara University taking more classes to prepare for applications to graduate school for physics.

Brandon Young has been working the last two years as a Software Engineer. He is currently on the WebRTC team working to make VR communications a reality in the near future. He still plays more League of Legends than he should, and just became an assistant coach for the girl's varsity basketball team at The King's Academy in Sunnyvale.

Class of 2016

Garrat Dalton Johnson after earning certifications in Wilderness Medicine and Outdoor Education, and teaching at Deer Hill Expeditions in Colorado and Outward Bound Baltimore during the summer and fall of 2017, has returned to California and is a substitute teacher in Santa Cruz. He is an avid rock climber and is a sometime professional photographer.

Randy Shi is a social worker at the Women's School of Virtue and Wisdom, in China. He is currently applying for grad school. He has a desire to have a spouse, but maybe not a child, in the near future. He loves to ask professors to buy him a drink.

Ryan Rishi has been putting his dual degree (Music and CS) to work as a Software Engineer at Jelli, Inc, where they are creating a programmatic audio ad-tech platform. He's been slowly playing more gigs, and he's found a place to teach drums on the weekends.

Class of 2017

Parker Newton is pursuing his Ph.D. in Computer Science at U.C. Riverside. He works in cryptography under the supervision of Professor Silas Richelson on problems in pseudo-randomness.

Publications of the Faculty

Gerald L. Alexanderson: “Gauss and the *Disquisitiones Arithmeticae*.” (with L. F. Kłosinski) *Bulletin of the American Mathematical Society* 53(1) (2016), 117 – 120.

“Newton’s Principia.” *Bulletin of the American Mathematical Society* 54(1) (2017), 117 – 122.

Glenn D. Appleby, “Flows on Honeycombs and Sums of Littlewood-Richardson Tableaux.” (with Tamsen (Whitehead) McGinley) *Journal of Combinatorics*. 6(3) (2015) 353–394

José Barría: “The strong closure of the simultaneous similarity orbit of some pairs of finite rank operators.” *Linear Algebra and its Applications* 438 (2013) 2770 - 2776

Frank A. Farris: “Domain Coloring and the Argument Principle.” *PRIMUS*, Special Issue on Revitalizing Complex Analysis (2017), 1 – 18.

Leonard F. Kłosinski: “The Putnam Competition: Origin, Lore, Structure.” *A Century of Advancing Mathematics* (2015) 387–392.

“Gaspar Schotts *Cursus Mathematicus*.” (with G. L. Alexanderson) *Bulletin of the American Mathematical Society* 52(3) (2015), 497 – 501.

Tamsen (Whitehead) McGinley: “Matrix Pairs over Valuation Rings and R-Valued Littlewood-Richardson Fillings.” (with Glenn D. Appleby) *Linear and Multilinear Algebra*, 61(8) (2012) 1-53.

Nicolette Meshkat: “Identifiability results for several classes of linear compartment models.” (with S. Sullivant and M. Eisenberg) *Bulletin of Mathematical Biology* 77(8) (2015) 1620-1651.

“Identifiable reparametrizations of linear compartment models.” (with S. Sullivant) *Journal of Symbolic Computation* 63 (2014) 46-67.

Daniel Ostrov: “Optimal Strategies for Traditional versus Roth IRA/401(k) Consumption During Retirement” (with J.A. DiLellio) *Decision Sciences* 48 (2017), 356-384.

“Efficient Trading in Taxable Portfolios” (with S.R. Das, Y.D. Ding, and V. Newell) *Journal of Investment Strategies* (forthcoming)

Edward F. Schaefer: “Explicit decent for Jacobians of prime power cyclic covers of the projective line.” To appear in *Transactions of the American Mathematical Society*.

“The distance from a point to its opposite along the surface of a box.” (with S. Michael Miller) *Pi Mu Epsilon Journal* 14 (2) (2015), 143 – 154.



Rondo I

by Bruce Beasley

Located to the right of the DeSaisset Museum

Richard A. Scott: “Eulerian cube complexes and reciprocity.” *Algebraic and Geometric Topology* 14, no. 6 (2014), 3533–3552.

“Kazhdan--Lusztig cells in planar hyperbolic Coxeter groups and automata.” (with M. Belolipetsky and P. Gunnells) *International Journal of Algebra and Computation* 24, no 5 (2014), 757–772.

Dennis C. Smolarski, S.J.: *How Not to say Mass* (3rd ed.), New York: Paulist Press (2015)

Changes in the Department

The first student to receive a bachelor's degree in mathematics from the University of Santa Clara was Bernard McGuire in 1961. The second graduating class of four mathematics majors in 1962 had in it: Alan Beal, Neil Botsford, Lee Cook and **Leonard Kłosinski**.

In 1975 the Department graduated 27 mathematics majors and no computer science majors; the computer science degree did not yet exist. Ten years later there were 10 students receiving a degree in mathematics and 50 in computer science.

In 2008 there were 13 graduating mathematics majors and 3 graduating computer science majors; but in 2012 the numbers were 18 in mathematics and 2 in computer science; in 2014 it was 20 and 21. In 2017 it was 13 and 41.

In 1974 with 31 graduating mathematics majors, eight received a total of 19 teaching assistantships, research assistantships or fellowships at such places as Stanford University, University of California-Berkeley, University of California-Los Angeles, University of Michigan, University of Illinois, and Pennsylvania State University. In 2017 the numbers were down.

Answer to question on page 3

The mystery building on page 3 is Montgomery Hall or Montgomery Labs. The building held classrooms, offices and laboratories for the School of Engineering. The classrooms had blackboards that spanned three walls. The special, unique features of the classrooms on the second floor were the undulating floors and the holes in the floors allowing one to look down into the labs. The building was demolished when Mayer Theater was built. And though it looked as if it was ready to fall down, the contractors hired to demolish it found that it did not want to come down.

Section Teaching Award

Frank Farris is the 2018 recipient of the Award for Distinguished College or University Teaching of Mathematics given by our MAA Section. Frank is the first person at Santa Clara to receive this award from the Golden Section. Previously the Golden Section was called the Northern California, Nevada, and Hawaii Section, and prior to that it was called the Northern California Section. Previous winners of this award at Santa Clara have been Paul Halmos, Jean Pedersen, Leonard Kłosinski, Gerald Alexanderson and Dennis Smolarski, S.J. Six awards given to one university is a record. Self nomination for the award is not allowed.



Fray Junipero Serra
lifesize sculpture by O Dale Smith
Located between O'Connor Hall, Mayer Theater,
Nobili Hall

Frank Farris 's Digital Art

Frank Farris has long been known for his talents as a singer in Gilbert and Sullivan operettas as well as musical theater in general. But now he is being recognized for a different kind of art: computed images. His work grew from a mathematical motivation to find all possible ways to create patterns with functions. It has progressed to creating digitally rendered scenes in which the patterns are only one feature. In the past year four universities have mounted exhibitions of his mathematical art: Bowdoin College, Cornell University, Pacific University, and Temple University. Several pieces of his art have been on display in O'Connor 1, and in Vari Hall.



Frank Farris with some of his art at Temple University, 2017

Department Gift Funds

Each year the Department spends tens of thousands of dollars on summer salary for students doing research with faculty, sending students to conferences, and sending students to the Budapest Summer Math program. If you'd like to support these efforts, please visit www.scu.edu/giving/ then click on the "Give Now" button, select "College of Arts and Sciences", select "College of Arts and Sciences Departments", and then select "Mathematics and Computer Science Gift Fund. Thank you.

In Memoriam

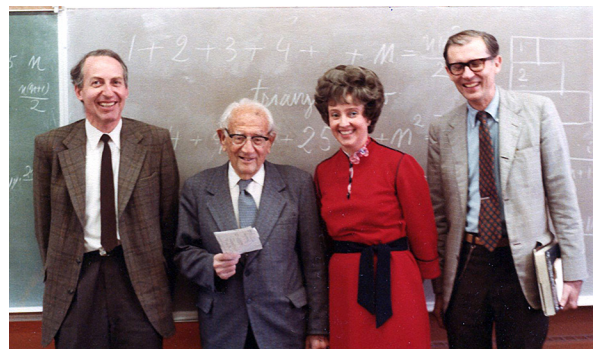


James Lee Hafner, Ph.D.
October 21, 1954 - October 24, 2015

Jim was born in Monterey, CA. He earned his undergraduate degree in mathematics from Santa Clara University in 1975 and completed his doctorate in theoretical mathematics at the University of Illinois at Urbana-Champaign.

Jim began his post-academia career at the Princeton Institute for Advanced Studies. He taught for two years at CalTech, then for three years at University of California at San Diego, where he was a National Science Foundation Postdoctoral Fellow. He joined the IBM Almaden Research Division in San Jose and worked in number theory, complexity theory, image databases and storage system and storage protocols. During Jim's 29 year career with IBM he earned more than 47 patents and was designated a Master Inventor. His last years at IBM were spent working in the Advanced Storage Technologies Department. Jim was also a frequent Putnam grader.

An Image from the Past



Henry O. Pollack (MAA president and director of the Mathematics and Statistics Research Center at Bell Labs), George Polya (distinguished professor at Stanford University) Jean Pedersen, Gerald Alexanderson. 1976

History

Do you remember or were you ever aware that the Fibonacci Association was headquartered at Santa Clara University from 1975 to 1980. The meetings of the board occurred in the Sussman room and two rooms in the basement of O'Connor were used for the publications of the Association including the Fibonacci Quarterly.

STATEMENT
THE FIBONACCI ASSOCIATION
UNIVERSITY OF SANTA CLARA
SANTA CLARA, CALIFORNIA 95053

TO:

ARE YOUR NAME AND ADDRESS CORRECT? IF NOT, PLEASE CROSS OUT AND CORRECT ANY ERROR.
PLEASE CHECK MEMBERSHIP CATEGORY DESIRED. ANNUAL FEE

REGULAR MEMBER

SUSTAINING MEMBER I

SUSTAINING MEMBER II
(INCLUDES A BOUND COPY OF THE QUARTERLY SENT AT THE END OF THE YEAR)

INSTITUTIONAL MEMBER

PLEASE ENCLOSE THIS NOTICE WITH YOUR PAYMENT
MAKE CHECKS PAYABLE TO:
FIBONACCI ASSOCIATION
PLEASE REMIT TO: **PROF. L. F. KLOSINSKI**
FIBONACCI QUARTERLY
UNIVERSITY OF SANTA CLARA
SANTA CLARA, CA. 95053

ENTER AMOUNT HERE \$ _____
PUBLICATIONS ORDERED ON
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TOTAL REMITTANCE →	\$ _____
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Awards

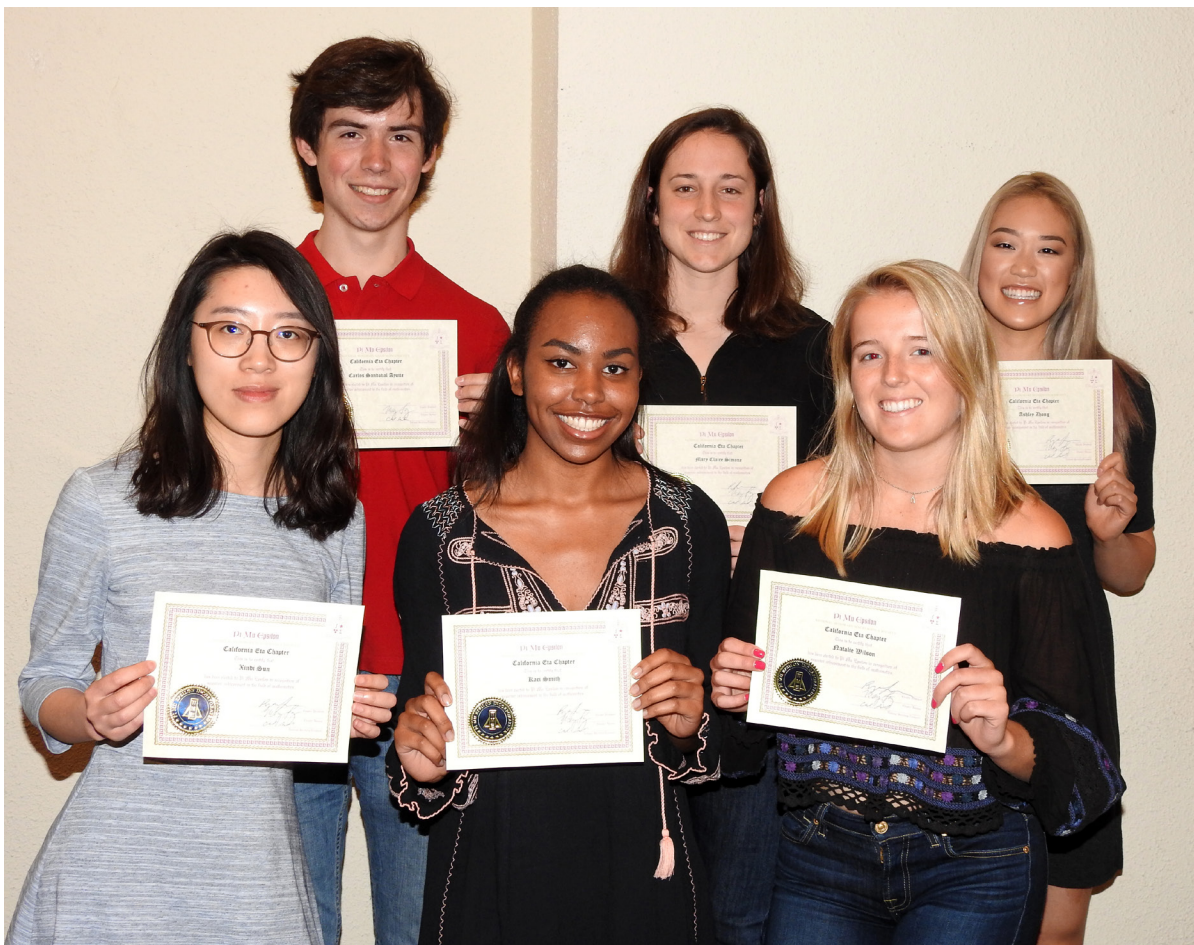
Three faculty have received University honors in recent years.



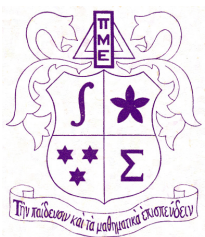
Nicholas Tran was named the 2014 – 2015 School of Engineering Adjunct Lecturer of the Year.

Daniel Ostrov won the University's Brutocao Award for Curriculum Innovation for his work leading the Department's effort to revise our calculus curriculum (2016).

Natalie Linnell won the College's Logothetti Teaching Award for mentoring students and co-creating a Digital Humanities course for the English Department (2017).



Pi Mu Epsilon initiates: Back row: Carlos Sandoval Ayotte, Mary Simone, Ashley Zhong
Front row: Xindi Sun, Kaci Smith, Natalie Wilson



The Pi Mu Epsilon initiation took place in Nobili Hall at 4:30 on May 8, 2018. Seven students were accepted into our honor society although only six were able to attend the initiation ceremony; late afternoon classes (which are common now) prevented Connor Moore from attending.

The awards banquet, formerly the Pi Mu Epsilon dinner, followed the ceremony in the Adobe Lodge. A total of 50 people were in attendance including students, faculty, alumni, and special guests Anne Evans and Richard Prenoveau. Ms. Evans is the daughter of George Evans, former faculty member of the Department, after whom the Evans Prizes are named. Alumni who were present included, Dalton Johnson (2016), Marie (Fagiano) Piccardo (1974), Michael Piccardo (1972), and Gene Magpayo (1985). As dessert was being served, Ed Schaefer presented the various annual awards. Dinner ended at about 7:15 although some conversations continued until 8:00 p.m.



Anne Evans



Richard Johnson
Paul R. Halmos Prize in Mathematics



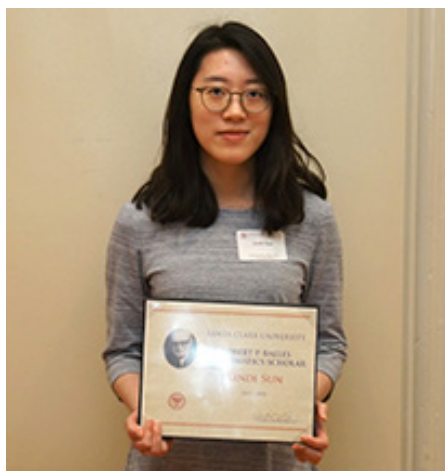
Beau Hsia
George W. Evans II Prize (Putnam 2nd place
(tie))



Pratul Saini
Abraham P. Hillman Prize (1st place)



Shaunak Mashalkar
Abraham P. Hillman Prize (3rd place)



Xindi Sun
Robert P. Balles Mathematics Scholar

Other prize winners were: **Timothy Shur** (George W. Evans II Prize (Putnam 1st place)), **Sinclair Chen** (George W. Evans II Prize (Putnam 2nd place (tie))), **Justin Liu** (Abraham P. Hillman Prize (3rd place)).

The **Paul R. Halmos Prize** is awarded to the senior student with an outstanding academic record judged to have distinguished himself or herself in mathematics or computer science beyond the standard coursework.

The **Robert P. Balles Mathematics Scholar Award** is given to the mathematics major entering his or her senior year with the highest cumulative grade point average in mathematics courses

completed in the student's first three years at Santa Clara.

The **George W. Evans II Prize** is given to the students placing highest in the William Lowell Putnam Mathematical Competition.

The **Abraham P. Hillman Prize** is given to the first year students who demonstrate excellence in mathematical study and achievement, determined by a competitive examination each spring.

Paul R. and Virginia P. Halmos Endowed Professor



Thomas Banchoff and Oras Phongpanangam

Paul and Virginia provided the University with funds to endow a chair with the intent of bringing to the campus a distinguished senior mathematician for one or two quarters. The holder of the chair could teach a course but was primarily to be a mentor or colleague to our faculty and students.

The first person to hold this chair was Thomas Banchoff retired from Brown University and past president of the MAA.

Tom taught the geometry course in the winter of 2018 and he did research with Dani Demeter and Oras Phongpanangam during the winter and spring quarters. Tom wanted to provide a stereographic projection of a surface

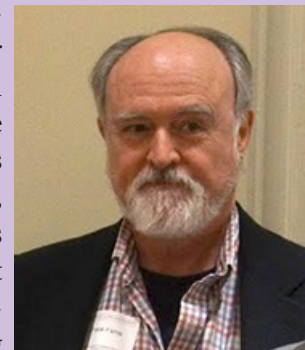
in four-space to a three-dimensional space represented in virtual reality. In addition, he wanted to let the user rotate the surface in four-space and then experience the stereographic projection. Dani Demeter had already created tools that could easily display objects in 3-d through virtual reality. Oras was enlisted to figure out how to use Dani's tools to display the stereographic projection after manipulation.



Peter Ross dog sledding

The Department has a New Chair

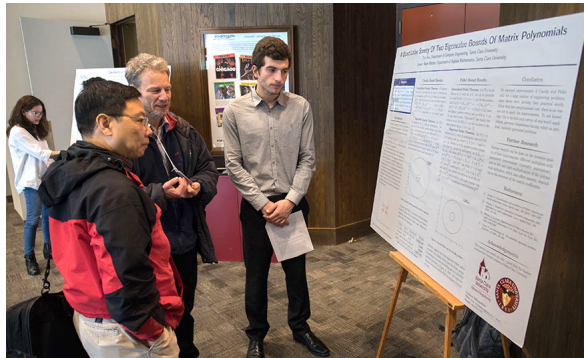
Frank Farris will become the seventh chair of the Department in September, 2018. He follows in the footsteps of Edward Schaefer, Glenn Appleby, Dennis Smolarski, S.J., Robert Bekes, Gerald Alexander, and Irving Sussman.



Golden Section meeting at Santa Clara

The Golden Section of the Mathematical Association of America held its annual meeting at Santa Clara on March 4, 2017. This is the third time that our Section has met at Santa Clara; the other dates were, February 8, 1969 and March 3, 2001. There have been 79 meetings of our Section. There were five invited speakers including our own Nicholette Meshkat who spoke on Parameter “identifiability of biological models.”

In addition to the talks there was a mathematical art exhibit and a student poster session in which Tim Shur, a senior in our Department, made a presentation on “A Quantitative Survey of Two Eigenvalue Bounds of Matrix Polynomials.”



Tim Shur (center holding paper)



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