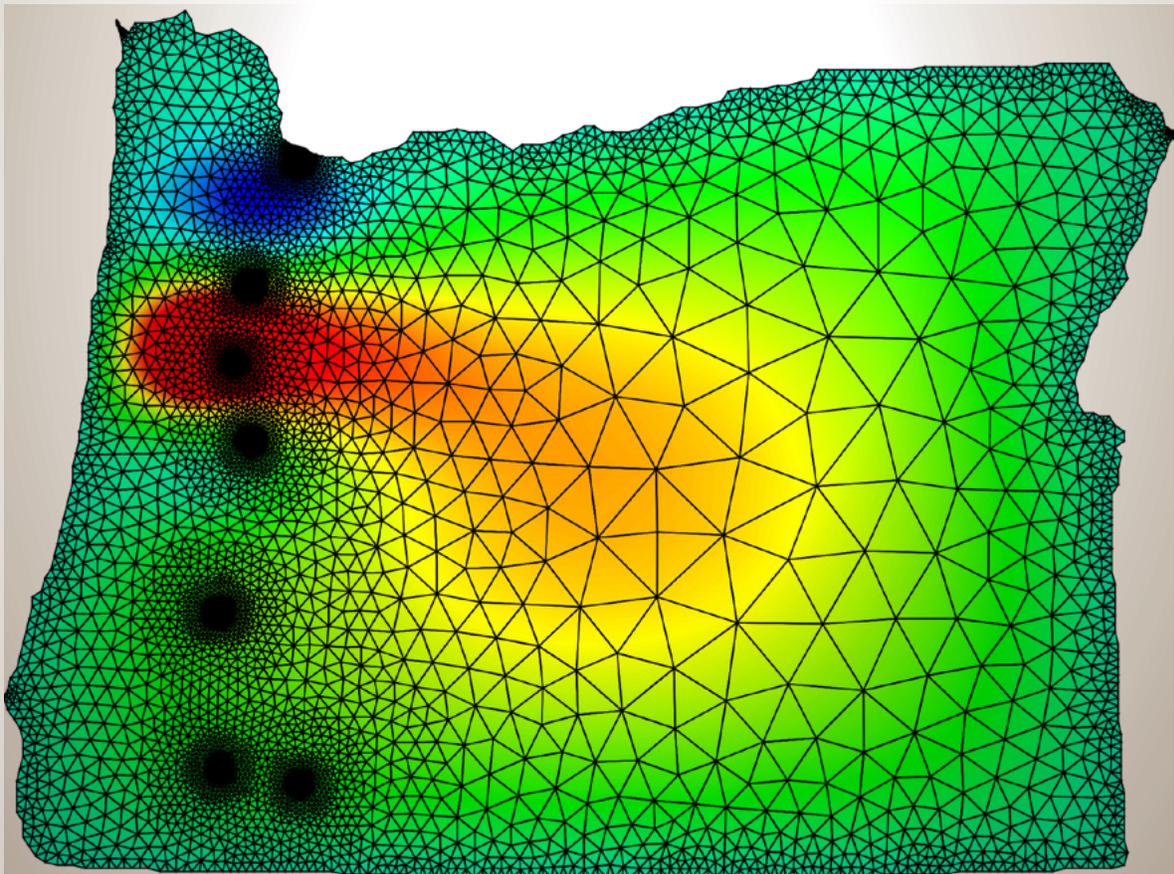


WINTER 2015

Math in the Valley

Featuring alumni, faculty, student and departmental news



Editor

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Dennis Garity

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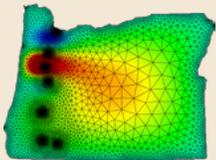
Publisher

Department of Mathematics

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Oregon State University

Corvallis, OR 97331

On the cover

The logo for the Cascade Computational and Applied Mathematics Seminar is actually a Finite Element solution to "Nonlinear Flow in Oregon" created by mathematics professor Malgorzata Peszynska and students in MTH 654/659 Finite Elements from fall 2013.

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College of Science



Math in the Valley 2015

Contents

- 2** **Spotlight: Research Experience for Undergraduates**
- 4** **New faculty**
- 6** **Recent alumni**
- 7** **Alumni honors and news**
See where in the world our graduates have landed.
- 8** **Student and faculty honors**
Awards, internships, seminars, published books and much more.
- 10** **Retired faculty news**
- 11** **Pop quiz**
How many do you recognize?
- 12** **Gifts and grace**
- 14** **Retrospect**
A look back at how integral mathematicians have been to Oregon State University
- 16** **Grants awarded**
- 17** **In memoriam**

Past and future

Mathematical events

Greetings from the Mathematics Department of Oregon State University!

It has been far too long since we have reached out to our alumni and friends with a printed newsletter.

We hope that this publication will be the first of a series of annual communications to share new and exciting developments in our department, to celebrate accomplishments, to look forward to the future, as well as to honor the legacy of our past.



Enrique Thomann

Interim Mathematics Head

APR
5
2014
Cascade Computational and Applied Mathematics Seminar

Cascade is an event for researchers interested in Computational and Applied Mathematics in the area of Cascade Mountains.

APR
19
2014
Cascade Topology Seminar

The Cascade Topology Seminar was supported in part by grants from the National Science Foundation, the Pacific Institute for the Mathematical Sciences, the College of Science and the Math Department.

MAR
1-3
2015
Infinite Possibilities Conference (IPC)

The IPC is a national conference designed to promote, educate, encourage and support minority women interested in mathematics and statistics.

APR
12
2014
6th annual Northwest Undergraduate Mathematics Symposium

The symposium, supported in part by grants from Pi Mu Epsilon, featured new faculty member Patrick De Leenheer as keynote speaker.

MAY
17
2014
34th Annual Oregon Invitational Math Tournament

American Mathematical Society (AMS) representative Mike Breen and DePaul University Professor William Butterworth hosted the contest. This year's overall winner was Ashwin Sah of Jesuit High School in Portland.

MAY
12
2015
2015 Lonseth Lecture and Departmental Awards Ceremony

The Lonseth lecture series was established in 1985 to honor A.T. Lonseth, Professor Emeritus and former chair of the Mathematics Department. Our honored guest speaker for the 2015 Lonseth Lecture is Professor Emeritus Harold Parks.

Get in touch

We would like to hear about you and any activities that would be of interest to our mathematics community.



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Corvallis, OR 97331



The Best
SUMMER

Is One Well Spent

**Spotlight: Research Experience
for Undergraduates**

The Research Experiences for Undergraduates (REU) program is a National Science Foundation funded program designed to support active research participation by undergraduate students.

Oregon State University has been a site for an 8-week summer REU program in mathematics and theoretical computer science continuously since 1987, when the NSF first began funding such programs. In the early years, the OSU mathematics REU program was directed by Paul

Cull and Robby Robson, and was later directed by Dennis Garity for 18 years from 1992-2009. In recent years, Holly Swisher has been directing the program.

PROGRAM FEATURES

A single director oversees the program and keeps track of how each student and project is progressing. A dedicated and enthusiastic staff of research mathematicians and computer scientists work closely with and advise students on projects. An REU colloquium series is held throughout

the program, which allows us to present an overview of the profession of mathematics, both in terms of mathematical talks as well as career paths and opportunities.

We provide ideal working conditions including a large shared office, resources such as computers, supplies, and the library, as well as housing and transportation. We place a strong emphasis on learning the process of research, including the formulation of questions, reading the literature, and working cooperatively

with the staff and other students.

In addition, the students are trained in giving presentations on their work, both at the beginning and the end of the program, and the REU helps with travel funds for students to present their research during the year following the summer program.

We also work on fostering a sense of camaraderie among the participants through research and social activities. For example, we hold regularly scheduled teas, and also encourage the students to collaboratively design a t-shirt that we print for the students and faculty at the end of each summer. We target students from a range of large and small public and private colleges and universities with an aim of reaching students who would not otherwise be exposed to the research process.

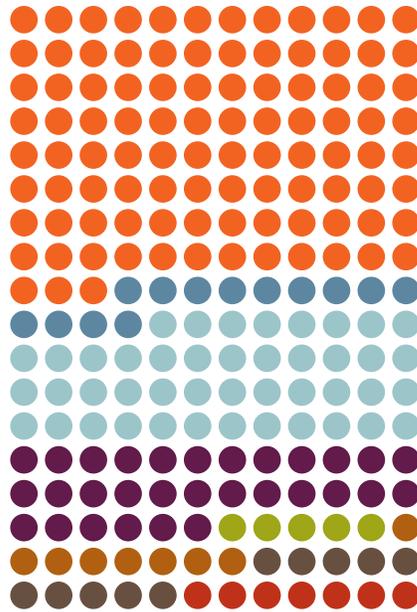
Another important feature of the mathematics REU at Oregon State is that it is a collaboration between the Department of Mathematics and the School of Electrical Engineering and Computer Science. Starting in 1992, the NSF grants were submitted by both Dennis Garity (PI) of the Department of Mathematics, and Paul Cull (co-PI) of the School of Electrical Engineering and Computer Science. The most recent application continues this tradition, as it was submitted by both Holly Swisher (PI) of the Mathematics Department, and Glencora Borradaile (co-PI) of the School of Electrical Engineering and Computer Science.

SUPPORT

In addition to support from the NSF, we have been tremendously grateful

to the Department of Mathematics, the College of Science, the College of Engineering, the Research Office, and the Provost for their help in funding the program. Without their support, we would be unable to be competitive with many private institutions in the recruitment of talented students.

RESEARCH EXPERIENCE FOR UNDERGRADUATES



Started **1987**
Years run: **26**
Avg students/year: **10**
Students to date: **252**
STEM PhDs: **57**
Math PhDs: **44**
Currently earning a STEM PhD: **30**
Post-docs: **5**
Assistant professors: **8**
Associate professors: **10**
Full professors: **7**
2005-2011 participants receiving or earning a STEM PhD: **47%**

PROGRAM SNAPSHOT

BENEFITS

Having an REU program in mathematics at OSU has a number of benefits. Part of our program involves recruiting 1-3 of our students each summer from the OUS system itself. This gives a tremendous opportunity for those OSU students selected, as they are exposed not only to mathematical research but also to talented students from all over the country.

In addition to the benefit to OSU students, the REU provides an opportunity to showcase OSU to students from other universities, with an eye toward potential recruitment. In particular, Justin Webster, a post-doc in the department from 2012-2014, participated in the 2007 REU

program at OSU. We have also recently had Kevin McGown as a post-doc, who participated in the 2002 REU program at OSU and was an undergraduate student at OSU.

STATISTICS

The OSU mathematics REU

program has had a rich and successful history of engaging undergraduate students in mathematical research. Moreover, we have had great success in recruiting future mathematicians. To date, 252 students have participated in the program, 57 of which have gone on to receive a PhD in a mathematics related field. These include 30 who are currently post-docs or tenure-track professors.

Our mathematics REU program has also had a fantastic track record of recruiting women into the mathematical sciences. Over the entire history of the program

over 45% of the students have been female, and during the most recent four year grant cycle 50% of the students have been female. Moreover, of the former students who are now currently post-docs or tenure-track professors, over 36% are female.

FUTURE

We are excited and hopeful about continuing the longstanding and successful REU program in mathematics at Oregon State University! The REU grant proposal with PI Holly Swisher and Co-PI Glencora Borradaile in EECES, was recently renewed for the next three years.

For more information, please visit: math.oregonstate.edu/~math_reu



Patrick De Leenheer

Professor

Before coming to OSU, Dr. De Leenheer was in the Mathematics Department at the University of Florida from 2004 to 2013. He is currently a professor of mathematics and integrative biology. His research interests are in mathematical biology, differential equations and control theory.



Mary Beisiegel

Assistant Professor

Dr. Beisiegel comes to Oregon State University from Harvard's Center for Education Policy Research and the National Center for Teacher Effectiveness (NCTE). She is interested in teacher preparation and teachers' mathematical knowledge in elementary, secondary, and postsecondary mathematics.

Juan Restrepo

Professor

Dr. Restrepo joins us after 17 years at the University of Arizona where he held joint appointments in mathematics, physics and atmospheric sciences. Specializing in applied mathematics research, Restrepo's interests are uncertainty quantification, ocean dynamics, climate, pollution transport and acoustics.



Elaine Cozzi

Assistant Professor

Dr. Cozzi spent a year at Drexel as a visiting assistant professor before coming to OSU in 2011. Cozzi's research interests are in mathematical fluid mechanics, with a particular focus on properties of weak solutions to differential equations modeling fluid motion. Her research is currently supported by a 3-year NSF grant.



Radu Dascaluic

Assistant Professor

Dr. Dascaluic comes to OSU from the University of Virginia, where he was a Whyburn instructor. His research interests include partial differential equations, fluid dynamics, turbulence, and dynamical systems with a focus on the long-time behavior of nonlinear partial differential equations.



Ren Guo

Assistant Professor

Dr. Guo was a Dunham Jackson assistant professor at University of Minnesota before joining OSU in 2011. Guo's research interests lie in geometry, topology and their applications. He is working on circle packing, discrete conformal geometry, hyperbolic surfaces, geometry and quantization of Teichmüller space.

David Koslicki

Assistant Professor

Dr. Koslicki held postdoctoral research positions at Drexel and Ohio State before joining Oregon State in 2013. Koslicki's research involves utilizing symbolic dynamics approaches to analyzing biological problems, as well as using convex optimization techniques to study microbial communities.



Aditya Adiredja

Dr. Adiredja is a postdoctoral scholar with an interest in student thinking and learning about challenging topics in undergraduate mathematics, and issues of equity and diversity in undergraduate mathematics education. He earned a Ph.D. in Mathematics Education from University of California, Berkeley in 2014.



Thomas Humphries

Dr. Humphries held a postdoctoral position at Memorial University, where he worked on production optimization for oilfield development. He joined OSU in 2013 as a postdoctoral scholar, where he continues to work on applied optimization and medical imaging reconstruction problems.



Anushaya Mohapatra

Anushaya Mohapatra is a postdoctoral scholar working with Professor Patrick De Leenheer. She is interested in dynamical systems, neural networks and population models. Anushaya received her PhD from the University of Houston in 2013.



Veronika Vasylykivska

Dr. Vasylykivska earned her PhD from OSU in 2012 and works with Dr. Nathan Gibson as a postdoctoral scholar. Her research interests are uncertainty quantification techniques and numerical analysis of the systems of ordinary/partial differential equations involving random parameters.

Meet your new

Faculty and postdoctoral scholars

Find more detail online at: math.oregonstate.edu/people

Elise Lockwood

Assistant Professor

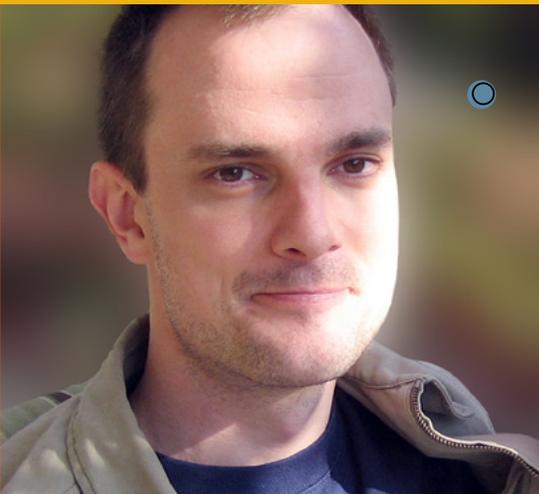
Dr. Lockwood held a postdoctoral position at the University of Wisconsin - Madison before joining Oregon State University in 2013. Her research focuses broadly on post-secondary student thinking and learning, and she particularly studies the teaching and learning of combinatorial tasks.



Clayton Petsche

Assistant Professor

Before joining Oregon State in 2011, Dr. Petsche held positions at the University of Georgia, the CUNY Graduate Center, and Hunter College. Petsche's research spans parts of number theory, algebraic geometry, and dynamical systems, and has been supported by the National Science Foundation.



Recent

Alumni

New mathematicians, past postdocs and visitors

 More detail and Master's graduates: math.oregonstate.edu/alumni

Our alumni continue to enhance the reputation of the Department of Mathematics at Oregon State University through their notable accomplishments, groundbreaking research and vast contributions to advancing the field of mathematics. We salute you all, from the class of 2014 to all of the classes before them.

Graduates

 **F. Patricia Medina, 2014**

“Mathematical treatment of methane hydrate and adsorption models”

Advisor: Malgo Peszynska

 **Patcharee Wongsason, 2014**

“3D cone beam reconstruction formulas for the transverse-ray transform with source points on a curve”

Advisor: David Finch

 **Kyle Bradford, 2013**

“Adiabatic and stable adiabatic times”

Advisor: Yevgeniy Kovchegov

 **Katthaleeya Daowsud, 2013**

Continued fractions and the divisor “at infinity on a hyperelliptic curve: examples and order bounds”

Advisor: Thomas Schmidt

 **Zachary A. Gelbaum, 2013**

“Some results in probability from the functional analytic viewpoint”

Advisor: Harold Parks

 **Erica S. Rode, 2013**

“Gaussian random fields related to Levy’s Brownian motion: representations and expansions”

Advisor: Mina Ossiander

 **Noppadon Wichitsongkram, 2013**

“Representations of fractional Brownian motion”

Advisor: Mina Ossiander

 **Torrey Johnson, 2012**

“Branching random walk and probability problems from physics and biology”

Advisor: Edward Waymire

 **Pongdate Montagantirud, 2012**

“Classifying seven dimensional manifolds of fixed cohomology type”

Advisor: Christine Escher

 **Veronika Vasylykivska, 2012**

“Stochastic analysis of flow and transport in porous media”

Advisors: Mina Ossiander and Malgo Peszynska

Postdocs

 **Tushar Das, 2012-13**

“Dynamical systems, geometry and Diophantine approximation”

Currently an assistant professor at the University of Wisconsin La Crosse.

 **Justin Webster, 2012-14**

“Partial differential equations”

Currently a postdoc at North Carolina State University

 **Veronika Vasylykivsa, 2012-14**

Uncertainty quantification

PI: Nathan Gibson

Funded by the Bonneville Power Administration Grant

Currently a postdoc at the National Energy Technology Laboratory in Albany, OR.

Research associate

 **Stefano Guerra, 2012-14**

Algebraic geometry

Currently a courtesy faculty in Department of Mathematics

Visiting professor

 **Catherine Searle, 2012-14**

Differential geometry

Funded by the College of Science

Scholar award to Christine Escher

Currently an assistant professor at Wichita State University

Stuart Boersma '94

received the 2013 Distinguished Teacher Award from the Pacific Northwest section of the Mathematical Association of America. Dr. Boersma earned his PhD under Tevian Dray and is currently at Central Washington University.

Don Hickethier '10

worked on a project with an honors "math and art" class that ultimately led to the creation of a large ceramic mural that adorns the entrance to the college. Dr. Hickethier earned his PhD under Tevian Dray and is currently the Science and Mathematics Division Chair at Flathead Valley Community College.

Donal O'Regan '85

has been honored with election to the Royal Irish Academy, the principal learned society in Ireland. Dr. O'Regan received his PhD in mathematics from OSU in 1985. During his graduate work, O'Regan worked with John Lee and Ron Guenther, and John served as his major professor for the doctoral thesis. He is currently at the National University of Ireland, Galway.

Alumni

Honors

and news around the world



Kyle Bradford '13

is now a postdoctoral fellow at University of Nevada Reno. Kyle earned his PhD under Yevgeniy Kovchegov.

Michelle Zandieh '97

received the 2013 Distinguished Teacher Award from the Southwestern Section of the Mathematical Association of America. Dr. Zandieh earned her PhD under Tom Dick and is currently at Arizona State University.

Carrie Manore '11

received the 2013 National Science Foundation's Science, Engineering and Education for Sustainability (SEES) Postdoctoral Fellowship. Dr. Manore earned her PhD under Vrushali Bokil and is currently at Tulane University.

Joe Umhoefer

(Advisor: Peszynska) obtained a **summer internship** with the DOE-NETL (Department of Energy National Energy Technology Laboratory) for 2014.

Duncan McGregor

(Advisors: Bokil and Gibson) obtained a **summer internship** at Los Alamos National Labs for Summer 2013.

Patricia Medina

(Advisor: Peszynska) was awarded funding to participate in the IMA **workshop** “Careers in Industry” (April 2014).

Thomas Pitts

a third-year undergraduate mathematics major, was awarded a Barry M. Goldwater **scholarship** in 2013.

Rosie Leung

(Honors Thesis Advisor: Bokil, V.) has been awarded a 2012 Graduate Research **Fellowship** by the National Science Foundation. Rosie has also received a Boeing Fellowship from the University of Washington.

Tevian Dray

has been selected as the recipient of the 2014 Elizabeth P. Ritchie Distinguished Professor **Award**, the University’s highest teaching award. ▶

Tevian Dray

was named a University Honors College **Eminent Professor** in 2012.

Elise Lockwood

the recipient of the 2012 Best Paper **Award** for the 15th Annual Conference on Research in Undergraduate Mathematics Education, for the paper: “A model of students’ combinatorial thinking: the role of sets of outcomes.”

Mary Flahive

was awarded Olaf Boedtker **Award** for Excellence in Academic Advising by the College of Science in 2012.

Student + faculty



Tim Costa

(Advisor: Peszynska) was awarded funding to participate in the IMA **workshop** “Careers in Industry” (April 2014).

Tim Costa

(Advisor: Peszynska) will present a paper at the 2014 **World Congress** on Computational Mechanics.

Duncan McGregor

(Advisors: Bokil and Gibson) received funding to participate in the London Mathematical Society (LMS) Durham Research **Symposium** on: “Building bridges: connections and challenges in modern approaches to numerical partial differential equations”, held at Durham University, July 2014.

Edward Waymire

was awarded the 2014 Carver **Medal** from the Institute of Mathematical Statistics (IMS). ▶

Edward Waymire

was awarded the F.A. Gilfillan **Award** for Distinguished Scholarship in Science. The award recognizes distinguished scholarship in science over a substantial period of time. Dr. Waymire will present a Gilfillan lecture next year.

Tevian Dray

was awarded the 2014 Distinguished Teaching **Award** from the PNW section of the MAA.

Holly Swisher

will be co-organizing a semester **program** on “Computational Aspects of the Langlands Program” at ICERM for Fall of 2015.

Vrushali Bokil

co-organized an Investigative **Workshop**, “Vector Transmission of Plant Viruses” at the National Institute for Mathematical and Biological Synthesis (NIMBioS), March 2014.

David Koslicki

attended the **program** “Mathematical, Statistical and Computational Aspects of the New Science of Meta-genomics”, at the Isaac Newton Institute for Mathematical Sciences at Cambridge University, UK in March 2014.

Edward Waymire

served as an invited **guest editor** to the Bulletin of the American Mathematical Society in March 2014, for the occasion of 2013 as the International Year of Statistics.

Edward Waymire

became **past-president** of the Bernoulli Society for Mathematical Statistics and Probability in August of 2013, after having served the previous two years as president. This has involved public addresses and published articles addressing the mission of the Bernoulli Society, delivered around the world.

Yevgeniy Kovchegov

received a Simons Foundation Collaboration **Grant** for Mathematicians for 2013–2018.

Tevian Dray

published The Geometry of Special Relativity, CRC Press (an A K Peters book), Boca Raton, FL, 2012

Tevian Dray

published Differential Forms & the Geometry of General Relativity”, CRC Press (an AK Peters Book), 2014.



Tevian Dray

Tevian Dray received the Elizabeth P. Ritchie Distinguished Professor Award, the University's highest teaching honor. Dray is the only College of Science faculty to receive the award since 2008.

Dray also recently received the 2014 Distinguished Teaching Award of the Pacific Northwest section of the Mathematical Association of America.

“Good teaching is a joint effort between teacher and student,” said Dray. “I am deeply moved by these awards, which recognize my good fortune in having been able to work with many, many dedicated students.”

 math.oregonstate.edu/dray-awards



Edward Waymire

The Institute of Mathematical Statistics (IMS) has awarded Edward Waymire the 2014 Carver Medal. He was recognized for his manifold contributions to the IMS in various capacities, but in particular for exceptional service to the Annals of Applied Probability far beyond his role as its editor.

“To be entrusted by my peers with stewardship over major activities of our profession has been rewarding in its own right,” said Waymire. “The Carver Medal really speaks to the altruistic spirit of my many distinguished colleagues from around the world who share in the research, education, and outreach missions of our profession. It is this connection that gives me the greatest satisfaction.”

 math.oregonstate.edu/waymire-award

honors



Edward Waymire

was appointed to the AMS Data **Committee** by the president of the American Mathematical Society and will serve a three year term beginning January, 2014.

Malgorzata Peszynska

has been appointed to the editorial **board** of the SIAM Journal on Numerical Analysis (SINUM) as an Associate Editor.

Bill Bogley

was **elected** to Phi Kappa Phi in spring 2012. Founded in 1897 at the University of Maine, Phi Kappa Phi is the nation's oldest, largest, and most selective collegiate honor society for all academic disciplines.

Nathan Gibson

has been **promoted** to associate professor with tenure.

Steve Scarborough

has been **promoted** to senior instructor I.

Vrushali Bokil

was **promoted** to associate professor with tenure in 2012.

Holly Swisher

was **promoted** to associate professor with tenure in 2012

Malgo Peszynska

was **promoted** to professor in 2012.

Retired

Stuart Newberger

Retired: 1996

Stuart received his PhD from M.I.T. in 1964, spent 5 years on the mathematics faculty at UC Berkeley and then joined Oregon State University in 1969. He still lives in Corvallis.

Gary Musser

Retired: 1996

Gary received his PhD from the University of Miami in radical theory in 1970, was at Northern Illinois University for two years and then joined OSU in 1972. He coauthored the successful textbook, *Mathematics for Elementary Teachers*, in 1988 with William Burger, who was also in the department, and in 2012 revised the 10th Ed with Blake Peterson, formerly at OSU and now at Brigham Young University. Gary has lived in sunny Las Vegas since his retirement.

Betty Fein

Retired: December 1999

Betty received her PhD from UCLA in 1968 and joined the department in 1970. She plans on staying in the Corvallis area.

Richard Schori

Retired: July 1, 2001

Richard received his PhD from the University of Iowa in 1964 and joined the department in 1978. He lives in Henderson, NV, and although he is not active in mathematics, he does attend about every second Annual Meeting and an occasional Topology conference. He continues to travel quite a bit and has a couple writing projects in progress.

Burton Fein

Retired: July 2002

Burton received his PhD from the University of Oregon in 1965 and joined the Department of Mathematics in 1970. He plans on staying in the Corvallis area.

Ronald Guenther

Retired: January 2003

Ronald received his PhD in Applied Mathematics in August, 1964 from the University of Colorado, Boulder. He plans to stay in Corvallis.

John Lee

Retired: 2009

John received his PhD from Stanford in 1969, arriving at OSU the same year. He had numerous career-long collaborations that even followed him into retirement. His collaborators included former colleagues Phil Anselone on approximation theory and Ron Guenther and Andrzej Granas on nonlinear differential equations. Lee now devotes his time pursuing his mathematical interests and volunteering as an instructor and counselor in the IRS/AARP Foundation Tax-Aide program assisting low- to moderate-income taxpayers.

Lea Murphy

Retired: June 2010

Lea received her PhD from Carnegie-Mellon University in 1980 and joined the OSU Mathematics Department the same year. She divides her time between Corvallis and British Columbia, pursuing interests in Scottish fiddle and sea kayaking.

Hal Parks

Retired: June 2011

Hal received his PhD from Princeton in 1974, was a J.D. Tamarkin instructor at Brown, then joined the Department of Mathematics at OSU in 1977. He still resides in Philomath. When not traveling, he continues his mathematical work.

Barbara Edwards

Retired: July 2011

Barbara received her PhD from The University of Pennsylvania in 1997 before joining the Department of Mathematics faculty. She plans to remain in the Corvallis area, continue doing evaluations for NSF grants for a few years and travel.

Dennis Garity

Retired: July 2013

Dennis received his PhD from the University of Wisconsin in 1980, spent one year on a postdoc at the University of Tennessee, and joined the Department of Mathematics at OSU in 1981. He plans on staying in the Corvallis area. He received a three-year grant from the government of Slovenia for 2014–2017 to continue collaboration with his colleague in Slovenia.

Other retirees

David Carter, Francis Flaherty, J. Wolfgang Smith, Donald C. Solmon, Howard Wilson

 You can find a full list of our emeritus faculty online:
math.oregonstate.edu/emeriti

Pop quiz

How many do you recognize?



Answers

- A _____
- B _____
- C _____
- D _____
- D _____
- E _____
- E _____
- E _____
- E _____
- F _____
- G _____
- G _____
- H _____

Find the answers online:
math.oregonstate.edu/valley/pop

Making an impact

Jerry Jacoby was raised in Parkrose, Oregon, the son of a blue-collar family. His parents instilled in him the value of a higher education from the time he was a toddler. He always knew he was going to college and he always knew it would be OSU.

After graduating from OSU with a degree in Physics, Jerry joined the Army. He knew after a year that the Army was not the career path he wanted to pursue and he came back to OSU to earn a second degree, this one in Mathematics. He stayed to get his Master's degree in Mathematics, specializing in Numerical Analysis.

He and his wife went to campus every morning at 8. She worked in a horticulture lab doing analysis on fertilizers and Jerry would stay at the library all day, leaving only for class and meetings with his major professor, Joel Davis. Jerry recalls vividly his experiences with Dr. Davis and the influence the professor had on him, pushing him to be a top student.

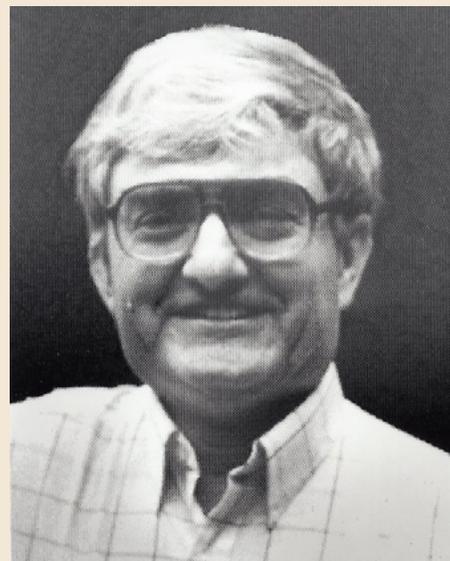
Jerry went on to a long and productive career at Los Alamos National Laboratory. He says "Joel Davis was instrumental in my graduate education and my subsequent career success. My education at OSU taught me a marketable skill which enabled me to have a career that provided me with a generous pension."

In 2000, Jerry experienced what he called a "spiritual crisis" that led him to look for ways of charitable giving that would both have a lasting impact and be personally meaningful. He began making contributions in support of a computational physics library fund at OSU (remembering those many hours spent in the library).

More recently, Jerry has sought to honor his major professor, Joel Davis. (Joel passed away tragically as the result of injuries suffered in a bicycle accident only two weeks after he retired in 1995.) Through a generous recurring gift, Jerry has created a Joel Davis Faculty Scholar Award in Numerical Analysis. The first recipient of the award is Robert Higdon.

Carly Davis, Joel's widow, and other members of Joel's family were on hand at the 2013 Lonseth Lecture award ceremony where the award was announced with Jerry on hand to share remembrances and to personally congratulate Dr. Higdon on the award.

The Mathematics Department is deeply grateful for Jerry Jacoby's generosity in honoring Dr. Joel Davis, a much beloved faculty member who touched the lives of so many students, faculty, and staff.



Jerry Jacoby's gift honors his major professor Joel Davis (pictured)

with gifts + grace

Hello Oregon State University,

I am a Husky.

Make no mistake.

My wife and I each graduated from the University of Washington. Both of our fathers returned from WWII and graduated from the UW under the GI Bill. We have supported the UW now for generations.

Indeed I am a Husky.

Something truly amazing happened last October. A short story here if I may. Mary and I have a daughter and three sons. Our

children are all grown and have now departed our home to follow their lives, their interests and passions. Our daughter has children and lives in San Diego. Mary and I have many blessings. Providence granted Mary and me a wonderful gift last autumn; and Oregon State University is an integral part of this gift.

For the first time Mary and I attended an away Husky football game – the 2013 game at OSU. And schedules lined up so that all three of our sons could attend with us. Given that one son is a field biologist, another is a junior officer serving on a submarine, and

“our baby” is graduating this May from West Point with ensuing duties “somewhere in the world” – the gift is that we were together in Corvallis. And we do not know when we shall all be together again.

But the amazing part of the trip was the kindness, grace and unconditional hospitality extended by the Beaver Fans to our family. I had no concept that football fans from an opposing school could be so kind and hospitable. I WAS TRULY AMAZED AT THE BEAVER COMMUNITY! I will not forget this cordial hospitality.

Entertainment is fun. Being together with family is a blessing. And I am now (while still a Husky) a real Beaver Believer.

Please accept this humble gift to the OSU Department of Mathematics in our sincere thanks to you all. Please use this gift for scholarships.

Very truly yours,

James P. Rohrback

*University of Washington
Mathematics Alumnus, 1975*

MAKE A GIFT

If you would like to make a gift to support the Mathematics Department, please visit:

math.oregonstate.edu/give



Exceptional leadership can inspire and transform a department. Good leaders can shape history and chart the path to change and progress. The Department of Mathematics has benefited from some extraordinary leaders during the past 150 years. Our department chairs have served as strong leaders with inspiring leadership for faculty and have played a pivotal role in the department's success. Perhaps more importantly, the strong values and leadership of our chairs has been critically important to shaping and growing the department.

We have taken a look at our first 100 years and identified department chairs who served as strong leaders and who inspired our students, faculty and alumni as well as the University to achieve phenomenal success. We owe much to them and are a better department because of them.

Retrospect

By Harold Parks, Professor Emeritus

Oregon State University began its formative period as Corvallis Academy in 1855. Located at 5th and Madison, Corvallis Academy was the first community school in the area. A few years later the name was changed to Corvallis College. A college building was completed in 1859. Despite the name change to Corvallis College, no college curriculum was offered until 1865 when a four-year, collegiate-level, liberal arts curriculum was added to the Primary and Preparatory Departments. That college curriculum required three years of Latin, three years of Greek, three years of mathematics, and a senior year emphasizing ethics, morals, and religious training. While the first college catalog is unavailable, the second catalog, dated 1867-68, lists R. N. Armstrong, Esq., as the professor of mathematics. At that time, the college was owned and operated by the Columbia Conference of the Methodist Episcopal Church, South.

OSU cites 1868 as the year of its founding. In that year, Corvallis College reincorporated as a degree-granting "literary" institution of higher education, and on October 27, 1868, the Oregon Legislature designated Corvallis College to be the Agricultural College of the State of Oregon (OAC).

● Emery

Beginning in 1867 and continuing until 1883, each college catalog shows Rev. Joseph Emery (1833-1924) as the sole professor of mathematics. Emery and the first president, W. A. Finley, were brothers-in-law. After President Finley resigned in June 1872 because of his wife's ill health, the next president, B. L. Arnold, did not arrive in Corvallis until September 1872. In the interim, Professor Emery served as acting president. In 1885

Emery left Corvallis to become an agent for the U.S. Indian Agency at Klamath (now Klamath Falls). It is not known what motivated Emery to leave Corvallis.

● Letcher

After the departure of Emery, there were two short-term mathematics professors: Olin J. Wimberly, then T. P. Branch. The next long-term professor of mathematics was John Davidson Letcher (1853-1938). Professor Letcher graduated from Virginia Military Institute in 1873 with a degree in Civil Engineering. He came to the State Agricultural College of Oregon in 1888 as both professor of mathematics and engineering and of military science and tactics. Professor Letcher's father, also named John, was a noted Virginia politician who served as Virginia's governor during the turbulent period from December 31, 1859, until January 1, 1864.

When President Arnold suddenly died on January 30, 1892, at age 52, Professor Letcher served as acting president for four months. Professor Letcher was a finalist for the permanent presidency, but John M. Bloss was chosen instead after a national search. We may speculate that Letcher was extremely disappointed to not be chosen, because he stayed at Oregon Agricultural College only until 1894 when he became professor of mathematics at the University of Oregon.

● Skelton

The 1894-95 OAC catalog indicates a vacancy for the position of professor of mathematics and engineering.



Joseph Emery
1867-1883



John Letcher
1888-1894

The 1895-1896 catalog shows that the position had been filled by Gordon Vernon Skelton (1866-1939) who continued as the professor of mathematics until 1907. The catalogs from 1895 through 1907 show Skelton as not only a professor of mathematics, but also of various combinations of engineering, civil engineering, and mining engineering. In 1906, Professor Skelton was put in charge of a new Department of Civil Engineering.

● Johnson

According to the college catalog, in 1895 when G. V. Skelton assumed the position of professor of mathematics,

the Mathematics “Department” also gained a second member: Charles Leslie Johnson (1872-1942?). Johnson held the degree of Bachelor of Science which he earned at Oregon State in 1892. In the 1903-04 catalog, Johnson has the title assistant professor of mathematics. Johnson was promoted to professor of mathematics in 1907. In the 1908-09 catalog, Skelton is no longer listed as a professor of mathematics, and the Mathematics Department consists of Prof. Johnson and four instructors: Nicholas Tartar, B.S., Harry Lynden Beard, B.S., Edward Benjamin Beaty, B.S., Simon N. Caceres, C.E. Mr. Beard was also the Director of the Cadet Band, and Mr. Caceres was also an Instructor in Spanish.

Education. Put briefly, the liberal arts were concentrated in Eugene and sciences and technology were concentrated in Corvallis. The faculty at OAC in 1931-32, was under-qualified for the new role of the department. Consequently, Professor William Edmund Milne (1890-1971), who had been at the University of Oregon since 1919, was transferred to Oregon State, where he served as department head until he retired in 1955.

Milne was well qualified to lead the Oregon State Mathematics Department into its new role. He had earned a PhD at Harvard University (under the direction of Dunham Jackson) and in the period from 1918 to 1931 had published five papers in

statistics. In 1955, Statistics was formed as a separate department. It was also in 1955 after the retirement of Milne that Arvid Turner Lonseth (1912-2002) became chairman. Lonseth, a native of Bellingham, Washington, had received his PhD at Berkeley in 1939 under the direction of Hans Lewy. He had been teaching at Northwestern University prior to 1948, when he joined the Mathematics Department at OSU. Lonseth’s principal research interests were in approximate solutions of integral equations and error theory. Under Lonseth’s leadership, the department moved quickly and strongly into computers. In 1957, Oregon State became the first educational institution in Oregon to acquire an electronic computer. That



Gordon Skelton
1895-1907



W.E. Milne
1932-1955



Charles Johnson
1908-1932



A.T. Lonseth
1955-1968

Charles Johnson continued to head the Mathematics Department through the academic year 1931-32. In 1931-32, the department had 2 professors (Johnson and Beaty), 1 associate professor, 3 assistant professors, and 5 instructors. No member of the department had a doctorate. The department was part of the School of Basic Arts and Sciences. Departments in the School of Basic Arts and Sciences offered no major work and granted no degrees.

● Milne

Between academic years 1931-32 and 1932-33, drastic changes were made to the Oregon State System of Higher

the Transactions of the American Mathematical Society. During World War I, Milne had served at the Army’s Aberdeen Proving Ground where he became interested in solving the equations of ballistics, which had to be done numerically. By the time he came to Oregon State, he was recognized as an expert in the new field of numerical analysis. The year after Milne’s death, the new computer center was named for him.

● Lonseth

From 1932 on, the OSU Mathematics Department grew along lines emphasizing applicable analysis and

computer was an ALWAC. It was joked that ALWAC was an acronym for “Arvid Lonseth Wants A Computer,” but in fact the acronym was for “Axel L. Wenner-Gren Automatic Computer.”

Lonseth, in addition to nurturing the development of computing and of applied mathematics, also made appointments in other areas: algebra, geometry, topology, and mathematics education. Thus, by the time he stepped down as chairman in 1968, the department had acquired expertise in all major areas of mathematics.

We will share the next installment of our history from 1968 to the present in an upcoming newsletter.

Grants awarded

John Templeton Foundation

● **Tevian Dray** and Corinne Manogue have been awarded a grant from the John Templeton Foundation to continue their work on *An octonionic description of fundamental particles* for the period 2012-15.

Department of Energy

The recent Department of Energy National Engineering Technology Laboratory proposals selected for funding for the 2013-2014 academic year include the following:

● PI **Nathan Gibson** and Co-PI **Vrushali Bokil**'s proposal *Applying Computational Methods to Determine the Electric Current Densities in a Magnetohydrodynamic Generator channel from the External Magnetic Flux Density Measurements*

● PI **Malgo Peszynska** and Co-PI **Mina Ossiander**'s proposal *Cumulative Evaluation of Spatial Risk and Uncertainty in Support of CO₂ Storage Evaluation*

● PI **Malgo Peszynska** and Co-PI **Mina Ossiander**'s proposal *Risk Reduction of CO₂ Storage with Stochastic Simulations*

● PI Marta Torres (CEAOS) and Co-PIs Rick Colwell (CEAOS) Dipankar Koley (Chemistry) and **Malgo Peszynska**'s proposal *Feasibility of Biogeochemical Sealing of Wellbore Cements: Lab and Simulation Tests*

National Science Foundation

● **Yevgeniy Kovchegov** (PI) and Andrey Morgun's (Co-PI, College of Pharmacy) research proposal *Unexpected Correlations in Biological Networks* has been selected for funding by the NSF's Division of Mathematical Sciences for the period 2014-17.

● **Enrique Thomann** and **Edward Waymire**'s research proposal *Branching Markov Chains and Stochastic Analysis Associated with Problems in Fluid Flow* has been selected for funding by the NSF's Division of Mathematical Sciences for the period 2014-17.

● **Justin Webster**'s research proposal *Analysis and Control of Mathematical Models of Fluttering Plates* has been selected for funding by the NSF's Division of Mathematical Sciences for the period 2014-17.

● Corinne A. Manogue (PI; Physics), **Tevian Dray**, David Roundy (Physics), Emily van Zee (Physics), and Eric Weber (Education) have been awarded a grant under NSF grant DUE-1323800 to study representations of partial derivatives across multiple disciplines. This work continues both the *Vector Calculus Bridge Project* and the *Paradigms in Physics Project* for the period 2013-16.

● **Mary Beisiegel** is a co-PI on an NSF DRK12 funded project *Exploring Methods for Improving Teachers' Mathematical Quality of Instruction*. PI: Heather Hill, Harvard Graduate School of Education, co-PI: Rebecca Mitchell, Boston College, for the period 2012-15.

● **Elise Lockwood** (co-PI) has received a 3-year, \$1.5 million National Science Foundation REAL grant through the Education for Human Resources Division. *Generalizing Among Multiple Mathematical Areas* explores how to support student success in transitioning to higher mathematics, a transition that many students find difficult. Amy Ellis is the PI from the University of Wisconsin, Madison. Other co-PIs include Eric Weber (OSU College of Education) and Erik Tillema (Indiana University-Purdue University Indianapolis).

● **Patrick De Leenheer** (PI) and Sergei S. Pilyugin (co-PI, Department of Mathematics, University of Florida) have received a \$285,800 grant for *Modeling the Interplay of Ecology and Effectiveness of Marine Protected Areas* under NSF's Mathematical & Physical Sciences (MPS) division.

Bonneville Power Administration

● **Nathan Gibson** is co-PI for a grant from the Bonneville Power Administration: *Development of a state-of-the-art computational framework and platform for the optimal control of multi-reservoir systems under uncertainty* for the period 2012-14.

In memoriam



Bent Petersen

April 2014

Bent was a professor of mathematics from 1968 to 2008. He was known for his dry humor, quick wit and intellectual curiosity. In 2008, Bent retired from Oregon State and enjoyed reading scientific journals, collecting swords and taking walks around the lovely town of Yachats.



Phil Anselone

December 2013

Phil was an OSU graduate ('57), professor of mathematics and served as department chairman (1983-1988) before retiring to Depoe Bay. Phil was an avid bridge player who enjoyed classical music, travel, hiking, photography, wine and classic movies. Phil had a strong desire to inspire and encourage talented calculus students, conducting an honors seminar for many years. Shortly after Phil's death, the Mathematical Association of America published a manuscript of resource materials based on those seminars. The book was a joint project with John Lee and was extremely important to Phil and his family right up until his final days.



Mysore Narasimhan

January 2012

Mysore was a professor of mathematics from 1966 to 1992 at Oregon State, where he taught, conducted research in applied mathematics and mentored graduate students. His doctoral diploma from the Indian Institute of Technology was personally conferred by Prime Minister Nehru of India. Mysore was known for his humility and kindness. Mysore and his wife, Rohini, resided in Corvallis until 1993, when they retired to Portland.



Larry Chen

January 2010

Larry was an active member of the analysis and probability research groups, and an extremely popular and award-winning professor for 23 years. He also received the 2005-06 Department of Mathematics graduate faculty award for excellence in teaching.

Building diversity:

Infinite Possibilities



African-American, Hispanic/Latina, and Native American women have been historically underrepresented in the mathematical and statistical sciences. In 2012, less than 2% of the doctoral degrees in the field were awarded to American women from underrepresented minority groups. The Departments of Statistics and Mathematics are proud to host the 5th Infinite Possibilities Conference (IPC) **March 1-3, 2015**, together with Oregon State University and Building Diversity in Science—a nonprofit organization that encourages diverse students to enter STEM disciplines.



With a mission of educating and empowering women, IPC strives to create new frontiers by building on the undaunted spirit of women in the mathematical and statistical sciences. IPC selected OSU to host its 2015 conference site because of the University

and the College's strong commitment to enhancing diversity and promoting excellence among women in mathematics and statistics.

The conference attracts underrepresented minority women in these fields, including junior faculty as well as undergraduate and graduate students. Attendees have the unique opportunity to interact with established women mathematicians and statisticians within a professional conference environment.

The College's new Vernier Program for Mentoring and Diversity in Science will lend support to the conference, augmenting dollars from federal agencies and industry. The program focuses on building leadership in science among women, underrepresented minorities, and first-generation college students with strong potential.

Register. Donate. Volunteer. diversityinscience.org/infinite-possibilities-conference



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