Good News Around the Department

Spring 2014

AWARDS

Kristin Boreen was recently awarded the prestigious annual Washington State University President's Employee Excellence Award, which is given to five WSU employees who demonstrate "productivity…; innovative problem solving; positive working relations with students, the public, and co-workers; and community service," according to the WSU Office of the President website. Employees are nominated by their departments; as finance/budget manager, Boreen has done a great deal to help the department in terms of both finances and rapport with students, faculty, and others. The Department of Physics & Astronomy is proud of her and her wonderful work. More information on the award: http://president.wsu.edu/office/awards/excellence-awards/index.html; news story: http://news.wsu.edu/2014/02/20/five-earn-presidents-employee-excellence-awards-4/#.UyddqfmwKQ4

Daniel (Dan) Plotnick (Ph.D., Marston) earned a Student and Young Presenter Paper Award in the area of Signal Processing in Acoustics at last year's Acoustical Society of America (ASA) meeting, held December 2013 in San Francisco. Additionally, he placed second in the Dr. William R. Wiley Research Exposition's oral competition (Engineering and Physical Sciences), held this February at WSU. The ASA paper results can be found at http://www.acosoc.org/student/reports/sanfrancisco.html

Sabreen Yamini Dodson and Doerte Blume received awards from the College of Arts and Sciences: the 2014 Administrative Professional Excellence Award and the College of Arts and Sciences Mid-Career Achievement in Scholarship and Creative Activities Award, respectively.

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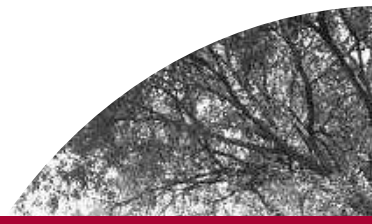
Kelvin Lynn will be promoted to Regents Professor on August 16, 2014. Lynn joins three other distinguished physics faculty members: J. Thomas Dickinson, Yogendra Gupta, and Mark Kuzyk.

Xiangyu (Desmond) Yin (Ph.D., Blume) was granted a Group on Few Body Systems (GFB) Travel Award of $650 by the American Physical Society (APS). Yin plans to attend the APS Division of Atomic, Molecular and Optical Physics (DAMOP) meeting in Madison, Wisconsin, from June 2-6, 2014.



STUDENTS

Senior Molly Wakeling presented a poster at SURCA (the WSU Showcase for Undergraduate Research and Creative Activities) this March and received the Crimson Award (the highest-level SURCA award, which consists of $300 and a certificate). The poster was also accepted at the American Physical Society (APS) annual meeting in Savannah, Georgia, April 5-8, 2014. The research, titled "Charge States of Th-229m: Path to Finding the Half-Life," was Wakeling's project as an intern at the Lawrence Livermore National Laboratory in Livermore, California. She plans to return there this summer. Additionally, she is scheduled to be honored with the Outstanding Senior Award from the College of Arts and Sciences at an award ceremony on May 9, 2014.

The WSU chapter of OSA-SPIE (Optical Society of America - The International Society for Photonics and Optics) did an outreach event at Pullman's Sunnyside Elementary School. The 30-minute program for 3rd-5th graders talked about sound: resonance, the Doppler Effect, and beat frequencies. Graduate students Elizabeth Bernhardt (Ph.D., Kuzyk), Josef Felver (Ph.D., Dexheimer), and Veronica Ruiz (M.S., Worthey) participated. More information here: http://wsu.osahost.org/outreach/

Noah Austin, a double major in physics and music and a 2013 departmental scholarship recipient, was involved in a recent large-scale effort to classify insects in the Elwha Valley that lived there before the elimination of several area dams. Full article: http://news.wsu.edu/2013/12/18/insects-studied-to-understand-changing-elwha-ecosystem/#.UtBwKvRDseg

Spring 2014

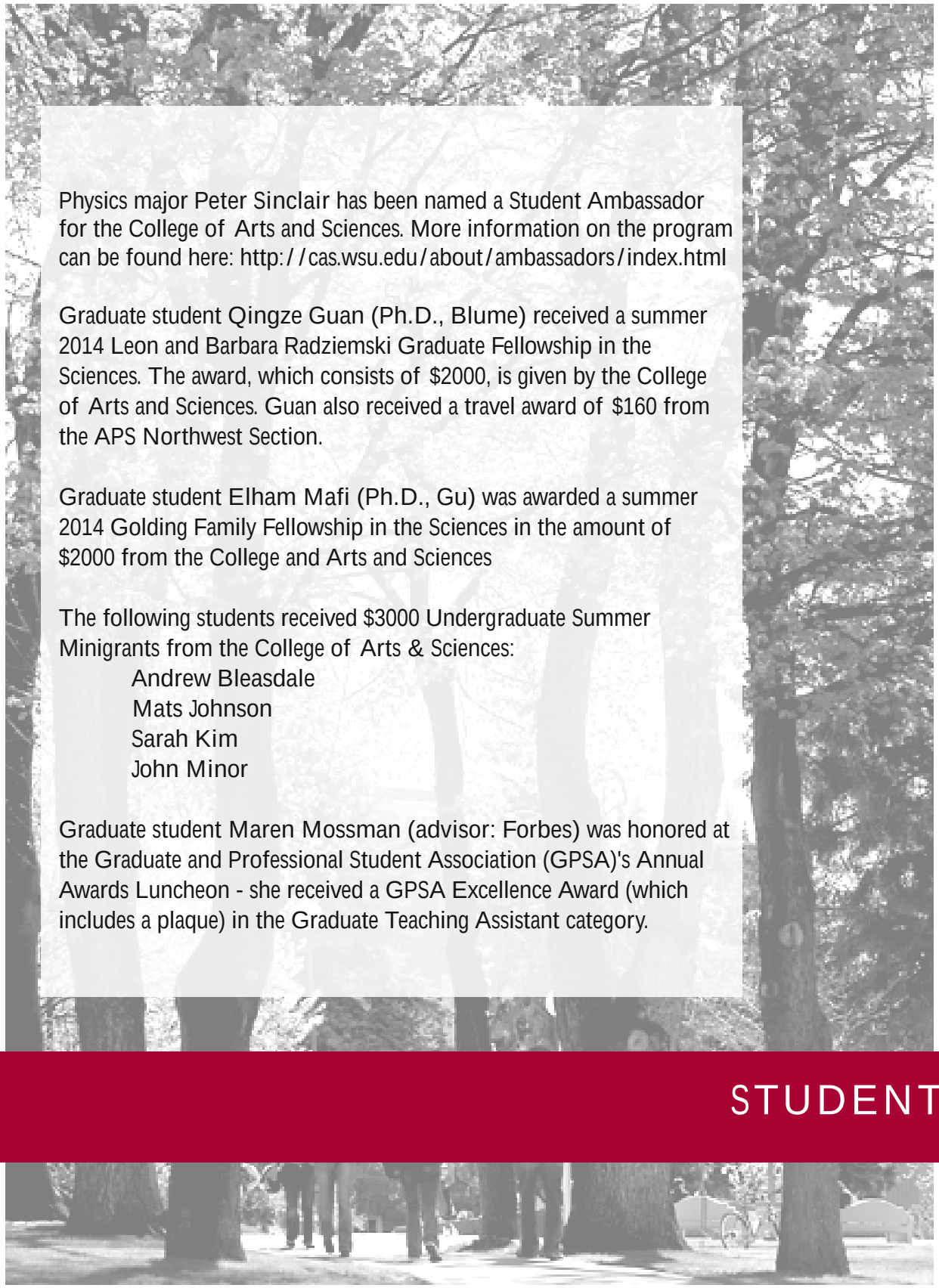
Ph.D.
Gustav Borstad (Choong-Shik Yoo)
Christopher Hamner (Peter Engels)
Michele Moore, Materials Science
(Jonathan Wisor, WWAMI, WSU Spokane)

B.S.
Jesse Kysar
Jesse Miller
Molly Wakeling

Student papers

Yin, X. Y., Gopalakrishnan, S., & Blume, D. (2014). Harmonically trapped two-atom systems: Interplay of short-range s-wave interaction and spin-orbit coupling. Phys. Rev. A, 89, 033606.

Gharashi, S. E., Yin, X. Y., & Blume, D. (2014). Molecular branch of a small highly elongated Fermi gas with an impurity: Full three-dimensional versus effective one-dimensional description. Phys. Rev. A., 89, 023603.



Physics major Peter Sinclair has been named a Student Ambassador for the College of Arts and Sciences. More information on the program can be found here: http://cas.wsu.edu/about/ambassadors/index.html

Graduate student Qingze Guan (Ph.D., Blume) received a summer 2014 Leon and Barbara Radziemski Graduate Fellowship in the Sciences. The award, which consists of $2000, is given by the College of Arts and Sciences. Guan also received a travel award of $160 from the APS Northwest Section.

Graduate student Elham Mafi (Ph.D., Gu) was awarded a summer 2014 Golding Family Fellowship in the Sciences in the amount of $2000 from the College and Arts and Sciences

The following students received $3000 Undergraduate Summer Minigrants from the College of Arts & Sciences:

Andrew Bleasdale
Mats Johnson
Sarah Kim
John Minor

Graduate student Maren Mossman (advisor: Forbes) was honored at the Graduate and Professional Student Association (GPSA)'s Annual Awards Luncheon - she received a GPSA Excellence Award (which includes a plaque) in the Graduate Teaching Assistant category.

STUDENTS

FACULTY

R&D Magazine recently highlighted one of Michael Forbes' projects at the University of Washington, which used one of the "largest supercomputing calculations ever performed" to understand an MIT experiment's unexpected results. See it on http://www.rdmag.com.

Philip Marston gave a seminar at Stanford University on "Acoustical and Optical Radiation Force and Scattering Anomalies" (February 5, 2014). The talk focused on "how the underlying wave-field geometry influences radiation forces." More information here: http://hepl.stanford.edu/seminar/140205_Marston.html

Doerte Blume and Sukanta Bose are working with the University of Washington's Institute for Nuclear Theory (INT).

> Blume is co-organizing a program called "Universality in few-body systems: Theoretical challenges and new directions," which focuses on experimental and theoretical work with regard to potential universality beyond the two- and three-body problems. The program involves morning presentations from participants and afternoon discussions. During the last week of the program, Blume and co-organizers plan to host a five-day "Few-body Universality in Atomic and Nuclear Physics: Recent Experimental and Theoretical Advances" workshop. More information here: http://www.int.washington.edu/PROGRAMS/14-1/

> Bose is co-organizing a month-long summer workshop on "Binary Neutron Star Coalescence as a Fundamental Physics Laboratory." This program brings together international experts in nuclear physics, numerical astrophysics, and gravitational-wave physics as well as astronomers to brainstorm on how the electromagnetic and gravitational wave signals emitted by merging neutron stars and black holes can be used to understand the properties of matter under very high pressures, as much as a nonillion (1 x 10E30) atmospheres. That in turn can help answer how heavy elements are formed and what triggers some of the most energetic explosions in the universe, called gamma-ray bursts. More information here: http://www.int.washington.edu/PROGRAMS/14-2a

Matthew McCluskey, department chair, gave the faculty address at the 2014 CrimsonReads "1st Annual Celebration of Faculty Authored Books" (April 3, 2014).

Guy Worthey published two papers:

> Worthey, G., Tang, B., & Serven, J. (2014). Individual alpha elements, C, N, and Ba in early-type galaxies, Astrophysical Journal, 783, 20

> Worthey, G., Danilet, A. B., & Faber, S. M. (2014). The LickX spectra, Astronomy and Astrophysics, 561, A36

DR. WILLIAM R. WILEY EXPOSITION 2014
(STUDENT PRESENTATIONS)

Fatemeh Hossein Nouri
Numerical Simulation of Magnetized Accretion Disk around a Spinning Black Hole

Kasey Lund
Nitrogen Desorption from CVD Diamond

Elham Mafi
Electronically Driven Amorphization in Phase-Change In2Se3 Nanowires

Dan Plotnick
Near-field to Far-field Conversion for Acoustic Reflection Tomography: an Algorithm for Sonar Experiments

Samaneh Tabatabaei
Branched Polyethylenimine will Attach and Insert into Zwitterionic and Negatively Charged Supported Lipid Bilayers in a pH and Temperature Dependent Manner

Xin Tao (Materials Science)
Two-Dimensional In2Se3 Thin Layers for Phase-Change Memory Applications

Molly Wakeling*
Charge States of Th-229m: Path to Finding the Half-Life

*undergraduate

ALUMNI

Daily, K. M. (Ph.D. 2012, Blume), & Blume, D. (2014). Tunable high-temperature thermodynamics of weakly-interacting dipolar gases. Phys. Rev. A., 89, 013606.

Rizal Hariadi (B.S. 2003) is studying "tractable biologically-relevant problems using physics and engineering principles and methods" at the University of Michigan, where he is a post-doc. In 2011, Hariadi earned his Ph.D. in applied physics from Caltech.

Benjamin Anderson (Ph.D. 2013, Kuzyk) is now working at the Institute for Shock Physics as a postdoctoral research associate; he is a member of the Applied Sciences Laboratory (ASL).

Likun Zhang (Ph.D. 2012, Marston) was published in Physical Review Letters as an Editor's Suggestion, as well as being featured in Physics:

> Zhang, L., & Swinney, H. L. (2014). Virtual seafloor reduces internal wave generation by tidal flow. Phys. Rev. Lett., 112, 104502.
> The article can be found here:
> http://journals.aps.org/prl/abstract/10.1103/PhysRevLett.112.104502
> Feature here:
> http://physics.aps.org/synopsis-for/10.1103/PhysRevLett.112.104502

Enamul Khan (Ph.D. 2011, Dickinson) had three articles published recently:

> Khan, E. H. (2014). Optical signatures of photoinduced Zn vacancies in ZnO single crystal. Journal of Applied Physics, 115(1), 013101.
>
> Khan, E. H., Langford, S. C., Dickinson, J. T., & Boatner, L. A. (2013). The interaction of 193-nm excimer laser radiation with single-crystal zinc oxide: The generation of atomic Zn line emission at laser fluences below breakdown. Journal of Applied Physics, 114(8), 083102.
>
> Khan, E. H., Langford, S. C., Dickinson, J. T., & Boatner, L. A. (2013). The interaction of 193 nm excimer laser radiation with single-crystal zinc oxide: Neutral atomic zinc and oxygen emission. Journal of Applied Physics, 114(5), 053511.

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DEPARTMENT

Planetarium

The WSU Planetarium (located in Sloan Hall 231) hosted several shows this spring, ranging from Stargazing 101 to more complex "journeys" meant to help the audience understand the seasons and what might be out there in the larger galaxy.

Most of the shows were presented by Kaylan Petrie, a mathematics and science education doctoral student at WSU who has done similar presentations elsewhere. Guy Worthey described the aim of the shows as "Connecting people to their world. People have a hunger to know their universe, and modern society has paradoxically distanced us from many things that people experienced before the invention of the light bulb."

"Stargazers" received star charts for Stargazing 101 - Worthey said it was gratifying to "see students' eyes light up" as they figured out how to make them work.

Worthey has been working with the planetarium since 2001 along with Michael Allen. 25,000 schoolchildren have visited in that time, Worthey said. The planetarium anticipates adding a "low-fidelity digital projection system" built here at WSU to give attendees a sense of "the benefits that a professional projector could bring" - donations are welcome at http://secure.wsu.edu/give/. Please choose "Search by keyword" and enter "Department of Physics Development Fund." Thank you!

Alumni Contributions

Did you know that the department has two new HP Z220 workstations and two 22" monitors? Alumni Bobbie Riley (B.S. 2009) and Kevin Daily (Ph.D. 2012, Blume) recently donated them to the department as a way to help students and to encourage them to help make the department even better through their own contributions. The computers can be found in the undergraduate study lounge (Webster 748) and the computing room (Webster 926). The department sincerely thanks these two alumni for their thoughtful and generous gifts.