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Research & Strategic Partnerships: Quarterly Review, Volume 1, Issue 4

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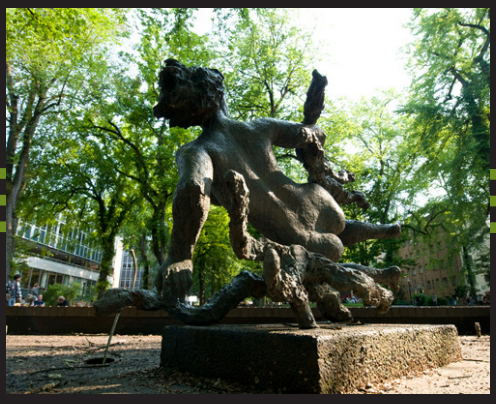

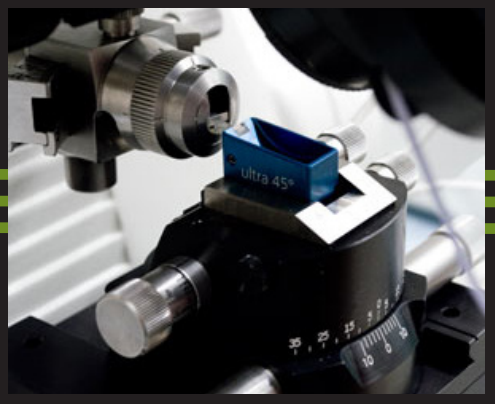

Research & Strategic Partnerships

Quarterly Review

Summer, 2014

Research & Strategic Partnerships

Quarterly Review, Volume I, Issue IV

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Research & Strategic Partnerships

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Research & Strategic Partnerships
Quarterly Review

Summer, 2014


Mark Sytsma, Associate Vice President, Research

This fourth issue of the Research and Strategic Partnerships (RSP) Quarterly Review highlights both the outward- and inward-facing aspects of PSU's research enterprise. Ours is a university built on partnerships, and nowhere is this better demonstrated than in the just-opened Collaborative Life Sciences Building in South Waterfront, conceived, designed and executed in close coordination with OHSU and OSU. Some of the largest biomedical breakthroughs to come from the CLSB may be discovered at the smallest scales using electron microscopy techniques advanced by our Center for Electron Microscopy and Nanotechnology. PSU is a player in nanoscience in large part because Portland is home to companies like FEI and Intel that develop and use these futuristic devices. But PSU partners not only with high tech industry. Local nonprofits like the Portland Housing Center, which seeks to broaden access to homeownership, look to PSU faculty to help design creative solutions. And infusing enthusiastic energy into all of these partnerships are our students; a few of the dozens of research projects on display in this spring's Student Research Symposium are summarized in this issue.

Partnerships alone do not sustain a successful research portfolio. Behind the scenes and out of the spotlight, talented staff members and their administrative systems find funding opportunities, submit proposals, set up grants, promote and commercialize results, and oversee regulatory compliance. Much like the insurance policy you have but hope you don't need, the Office of Research Integrity keeps a watchful eye on PSU's expanding and highly diverse research activities, making sure that faculty, administrators, and student researchers "color within the lines" set by federal and state regulations and policies. These dedicated professionals work diligently to allow PSU's programs to grow in the face of increasingly stringent regulatory requirements.

Directing traffic at the busy intersection of internal and external aspects of RSP's activities is Associate Vice President and longtime Environmental Science and Management Professor Mark Sytsma. Juggling a dizzying array of administrative demands, while also maintaining one of PSU's largest research programs, Dr. Sytsma has been the glue holding RSP together for the past three and a half years. Among the accomplishments during his watch have been the total revamping of our Sponsored Projects Administration operation, the inauguration of PSU's first electronic research administrative system, professionalization of the Office of Research Integrity, and expansion of key partnerships with environmentally-oriented organizations like the U.S. Geological Survey and the Smithsonian Environmental Research Center. At the same time, research conducted by his Center for Lakes and Reservoirs continues to shape state, regional, and national policies on invasive species, water quality, and ecosystem health. Working with faculty colleagues from across PSU, Dr. Sytsma is currently inventorying our water-related expertise with the goal of further leveraging our research capabilities in this crucial area.

Continuing to improve PSU's research standing in the face of increased competition for funding and decreased state support is a complex exercise dependent on the creativity of faculty, staff, students, administrators, alumni, donors, and outside partners. PSU is fortunate to have outstanding contributors in all of these categories.

Jonathan Fink
Vice President,
Research & Strategic Partnerships

Inside this Issue

An Embodiment of Partnership, Research and Education - 2 • The Center for Electron Microscopy and Nanofabrication - 3
Assuring the Integrity of PSU Research - 4 • Recipients of the First Faculty Research Excellence Awards - 5
Language Instruction gets a 21st Century Makeover - 6 • Getting Your House in Order - 7
The Student Research Symposium - 8 • Improving Water Quality With Nanotechnology - 9
Funding in Support of Major PSU Initiatives - 10 • Research Snapshot: Awards Received - 11
Research Snapshot: Proposals Submitted - 13 • Research Snapshot: Expenditures - 15
Faculty Publications - 15 • Doctoral Degrees Conferred - 17

Research & Strategic Partnerships
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Written and compiled by
Shaun McGillis | Communications Coordinator | IIP/RSP

An Embodiment of Partnership, Research and Education for Oregon

By Jonathan Fink

Realizing Portland State's aspiration of becoming one of the nation's top urban-serving research universities depends heavily on our ability to collaborate. No partnership is more central to this goal than the one with Oregon Health and Science University (OHSU).

The PSU-OHSU relationship crossed a major threshold in June with the opening of the Collaborative Life Sciences Building (CLSB) at South Waterfront, which besides PSU and OHSU also includes Oregon State University's School of Pharmacy.

The gleaming, airy, sustainable CLSB combines interdisciplinary functionality with inspiring design. Soaring walkways crisscross the multi-story atrium, allowing undergraduate, graduate, and medical students, post-docs and their mentors to pass between the building's twin towers to use state-of-the-art laboratories, conference rooms, and large, fully mediated lecture halls. Tall east-facing windows and an outdoor courtyard showcase the Willamette River, the new Tilikum Crossing Bridge, and the Oregon Museum of Science and Industry (OMSI).

Although the building's main tenants are predominately affiliated with OHSU, PSU will have a major presence as hundreds of undergraduate life science students shuttle from the Park Blocks to South Waterfront to attend lecture and laboratory classes. Travel between the two sites will become considerably easier a year from now with the opening of TriMet's Orange Line, which will connect the south end of PSU's campus with the CLSB.

As its name suggests, the CLSB is designed to promote collaboration among the three universities, each of which will participate in some inter-university and some school-specific research laboratories. PSU Chemistry and Biology faculty members Rob Strongin, Jeff Singer, Rahul Ragavan, and Steve Reichow will be among the inaugural occupants of the new labs. The close interaction among PSU, OHSU, and OSU faculty, post-docs, and graduate students should lead to new research grants, as well as new interdisciplinary course offerings.

The CLSB opening inspired some of these same PSU faculty to develop innovative, outcome-focused degree path-ways featuring a series of revamped, highly engaging laboratory and lecture courses. This new program, funded in part by the Provost's Challenge initiative, will likely expand the already robust pipeline of PSU graduates going on to medical and scientific studies at OHSU. The planned OHSU-PSU School of Public Health will offer another excellent opportunity for educational partnerships.

Impressive as it is, the CLSB is just an early step in the creation of the "Innovation Quadrant," a technology-focused economic development region stretching from PSU's campus across the Willamette to OMSI and the Central Eastside warehouse district. OHSU plans to invest over a $1B in the riverfront site, driven by a major challenge grant from Phil and Penny Knight and funding from the Oregon Legislature. Thanks to expanding collaboration with OHSU, PSU is likely to participate in many of the future buildings. Tilikum Crossing will also provide rapid connectivity to relatively inexpensive real estate with the potential to attract high tech startups. These activities will be further catalyzed by the nearby presence of the highly successful Portland State Business Accelerator and the OTRADI Bioscience Incubator.

Stay tuned for more collaboration to come!

The Collaborative Life Sciences Building at a Glance*

Size

650,000 square feet (including parking).

Features

Lecture halls, classrooms, labs, specialty research centers, offices, simulation centers and a state-of-the-art facility for the OHSU School of Dentistry. **View the Collaborative Learning Environments diagram for more details.**

Location

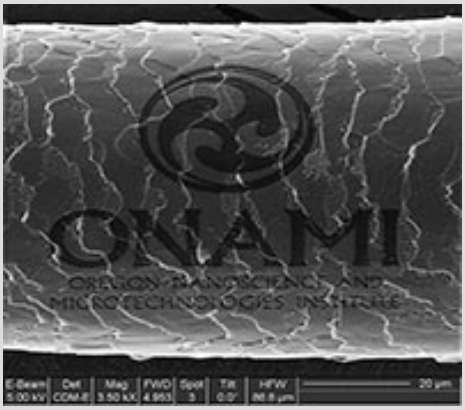
OHSU's new Schnitzer Campus, in Portland's South Waterfront District, south of the Marquam Bridge and north of the Ross Island Bridge. The building is the first on the Schnitzer Campus, marking a significant next step in turning a former industrial site into a vibrant inner-city community. The building will be accessible by streetcar, Portland Aerial Tram and a new light rail line, planned to open September 2015, that will connect South Waterfront with southeast Portland.

Funding

The $295 million Collaborative Life Sciences Building & Skourtes Tower was funded by $110 million in state bonds, $92 million in OHSU institutional funding, $83 million in OHSU philanthropy (including a $40 million anonymous gift to OHSU, and $10 million from Bonnie and Gene Skourtes, D.M.D.), and $10 million from TriMet.

*Source OHSU

The Center for Electron Microscopy and Nanofabrication



Consider that a single sheet of standard 8½" x 11" paper is about 100,000 nanometers thick, and that there are whole branches of science and industry that now focus on materials only a few nanometers in size. In this bizarre world, normal properties and behaviors may no longer apply, opening the door to new industrial and scientific applications, like clothing that cleans itself, and solar collectors that can be painted onto any surface.

Over the last 40 years, advances in the field of nanoscience have paralleled breakthroughs in the technology of electron microscopy (EM). Largely because of its high tech industries, Oregon has a large complement of companies that make and use electron microscopes. As a result, in 2003 Oregon's Legislature, industries, and universities created the **Oregon Nanoscience and Microtechnologies Institute** (ONAMI), one of three Signature Research Centers intended to stimulate technology-related economic development. ONAMI placed facilities at a number of universities to help solidify the state's leadership role in this emerging sector.

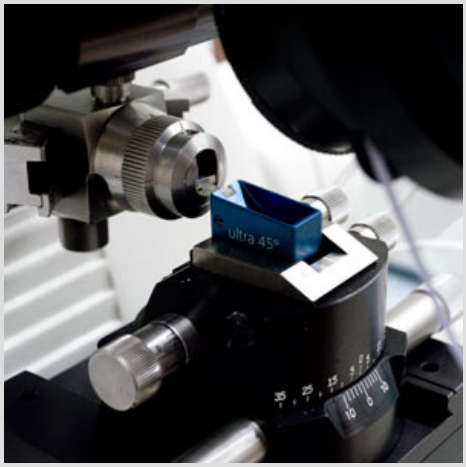
PSU's part of ONAMI is the **Center for Electron Microscopy and Nanofabrication** (CEMN), which supports the nanoscience and nanotechnology research activities and collaborations of more than 200 faculty, post-doc and student researchers at Oregon's universities, and promotes partnerships and interactions between PSU and industry. PSU's participants, from the departments of Physics, Chemistry, Geology, Mechanical and Materials Engineering, and Electrical and Computer Engineering, conduct externally-funded research projects on diverse topics that include nanomaterials synthesis, nanodevice fabrication, nanometrology development, green chemistry, micro-scale energy, and chemical systems.

Besides strengthening PSU's capabilities, the instruments, resources and personnel at CEMN help members of the high-tech community meet their needs through consultations, training and certification, and analytical services. Since its inception, CEMN has collaborated with over 60 companies.

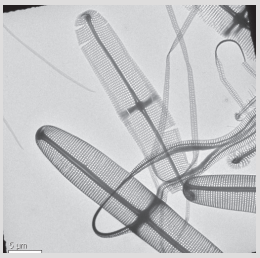
CEMN's latest addition, a powerful X-ray Photo-electron Spectroscopy Microprobe allows commercial partners, faculty, and students to map out chemical variations on surfaces in far greater detail than has previously been possible.

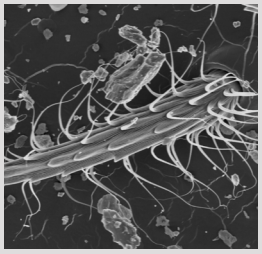
CEMN also hosts one of PSU's most active science outreach portfolios. Opportunities such as the Oregon Saturday Academy's Apprenticeship in Science and Engineering summer program, Partners in Science Program, the Intel Northwest Science Expo and others, allow K-12 students, many from communities under-represented in STEM fields, to learn about and explore the fascinating worlds revealed by PSU's powerful electron microscopes, while gaining hands on experience with the methods and tools used by professional scientists and engineers. CEMN Director Jun Jiao has won a steady stream of large federal and industry grants and contracts, including some that focus on undergraduate training.

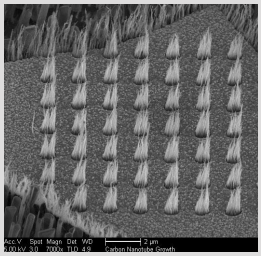
Innovations in nanoscience and nanotechnology hold the promise of profound impacts in applications ranging from medical devices to green energy. Some of the best-established players responsible for those discoveries (such as Intel) have sizable operations here, alongside up-and-coming startups like Energy Storage Solutions and Pacific Light Technologies. This mix of industrial leaders and rising stars assures that the demand for CEMN's facilities and services, along with PSU graduates who know how to use them, will remain strong well into the foreseeable future.

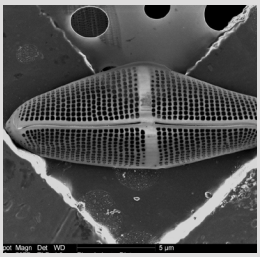


LEARN MORE ABOUT TOOLS AND SERVICES AVAILABLE AT CEMN









Assuring the Integrity of PSU Research

At Portland State University, the Office of Research Integrity (ORI) helps faculty and students achieve the highest standards of research integrity in the use of human subjects, animal care and use, potentially bio-hazardous agents, financial conflict of interest, and responsible conduct of research. ORI accomplishes this by developing policies and procedures that help faculty and students comply with regulations and by providing administrative support for required research ethical review committees.

Regulations and best practices promote adherence to sound moral and ethical principles in research. When they are followed, they increase the value and impact of research. When not met, however, there exists the possibility of revocation of funding, the invalidation of results, findings of research misconduct, and the risk of damage to the reputations of involved faculty, students, and institutions.

ORI supports regulatory mandated committees charged with reviewing, approving, and monitoring university research. Without the oversight of these committees, federal funding for research would not be available to PSU faculty and students.

The committees ORI oversees include the Institutional Review Board (IRB) tasked with reviewing research involving people to safeguard the wellbeing of subjects; the Institutional Animal Care and Use Committee (IACUC), which assures research involving vertebrate animals conforms with animal care and use standards; and the Institutional Biosafety Committee (IBC) that reviews research activities involving recombinant DNA and potentially bio-hazardous materials seeing that they meet NIH requirements.

Also coordinated by ORI is the Financial Conflict of Interest Committee (FCOI), which examines research activities where an individual's financial interests may affect or appear to affect their activities related to externally sponsored programs. Finally, ad-hoc Research Misconduct committees are convened when necessary to investigate allegations of research misconduct, i.e., falsification, fabrication, or plagiarism.

Within the last year, ORI, under the direction of Lorraine McConnell, has developed electronic processes and website resources yielding a more streamlined, accessible format for faculty and students whose research requires consideration by the abovementioned committees.

ORI's staff is available to answer questions students and faculty might have and to provide guidance and counseling throughout the application, review, and monitoring processes. IRB Administrator Eve Chapman is a Certified IRB Professional and the primary contact for all questions regarding human subject research at PSU; Chapman also provides in-person IRB training and consultations to faculty and students upon request. In June, Research Integrity Specialist Shannon Roth, with eight years of experience in higher education, research administration and a wealth of knowledge concerning IRB processes, joined the ORI team.

Recently, ORI formed a Research Integrity Advisory Group to help set priorities and steer long-term activities now and in the future. If you are interested in serving on this group please contact ORI Director Lorraine McConnell at 503-725-5484 or lorrain2@pdx.edu.

Over the past few years, ORI has strengthened PSU's reputation as an institution compliant with federal and state regulations, increasing the credibility and impact of PSU research. Moving forward, ORI plans to continue streamlining the processes involved in assuring the integrity of faculty and student research, introducing electronic records and engaging faculty in an open dialogue for the purpose of making further improvements to services.

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Office of Research Integrity

Recipients of the First Faculty Research Excellence Awards*

Portland State University has awarded its first Faculty Research Excellence Awards to James Pankow, Steve Thorne and Ed Zaron in recognition of the originality, impact and productivity of their research programs.

The Office of Research and Strategic Partnerships established the three new awards this year to highlight faculty research accomplishments and the importance of research to the University's mission. Each award comes with a $1,500 honorarium.

"There are many great researchers at PSU who are well respected by their colleagues around the country and around the world. We want these awards to help spread the word about their ground-breaking work," said Jonathan Fink, vice president for Research and Strategic Partnerships. "Their research provides economic, cultural and social benefits to the community, and it provides our students with the cutting-edge information they need to be successful in an increasingly globalized and competitive world."

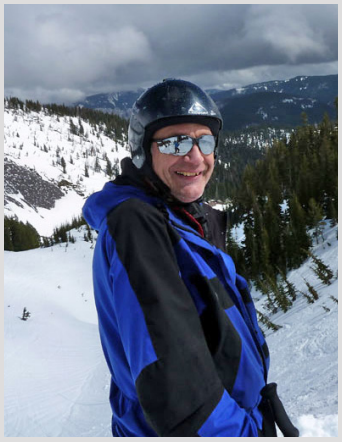
Portland State faculty conducts about $60 million in funded research each year, in addition to a variety of unfunded research in areas as diverse as foreign languages and business. Awards were given to a senior faculty member with a rank of professor, a junior tenure-track faculty member with a rank of assistant or associate professor, and a non-tenure track research faculty member.

The senior awardee, James Pankow is one of the world's leading environmental chemists, working on problems of air and water pollution, climate change, and the health effects of tobacco. He is a professor in the Chemistry and Civil and Environmental Engineering departments and is PSU's first homegrown member of the National Academy of Engineering. Last year he received a large grant from the M.J. Murdock Charitable Trust to set up PSU's fastest supercomputer.

The junior awardee is Steve Thorne, an applied linguist and associate professor in the Department of World Languages and Literatures. Trained as a classical linguist with expertise in Urdu and Hindi, he has more recently branched into cutting-edge applications like the use of computer games and other technology for second language acquisition. Since coming to PSU in 2010, he has published 25 articles, book chapters, and conference proceedings, and has been equally successful with funding agencies and in the classroom.

Ed Zaron, the research faculty awardee, is a physical oceanographer in the Department of Civil and Environmental Engineering who uses fluid dynamics to model coastal processes. His work on tides has gained national recognition, particularly as it relates to the hazards associated with climate change. His grant writing has been highly successful, with a 70 percent success rate. He collaborates with many of the country's leading oceanographers.

This year's award finalists, all nominated by their deans, were: Talya Bauer, Management; Loren Lutzenhiser, Urban Studies and Planning; Raul Caul, Mechanical & Materials Engineering; Andrew Mashburn, Psychology; Robert Scheller, Environmental Science & Management; Lauren Simon, Management; and Nathalie Huguet, Community Health.



Professor James Pankow
Senior Faculty Awardee

Associate Professor Steve Thorne
Junior Faculty Awardee with PSU
President Win Wiewel

Research Assistant Professor
Ed Zaron
Research Faculty Awardee

*Source: Suzanne Pardington, University Communications

Language Instruction gets a 21st Century Makeover

In the last 20 years, computers and the Internet have made it possible for people to connect with other languages and cultures more easily than has ever been possible before. Across the globe, nearly 3 billion people have access to the web where they log on to social media sites, online gaming platforms and other web-based forums. They're connecting for business, personal and political purposes, for entertainment, education and curiosity. At Portland State University, **Dr. Steve Thorne** is asking, *can this technology improve language learning and cultural literacy in and out of the classroom?*

Dr. Thorne is an Associate Professor of Second Language Acquisition in the Department of World Languages and Literatures and recipient of PSU's 2014 Faculty Research Excellence Award for Junior Faculty. His research interests include the use of new media such as online gaming and augmented reality for language instruction, communication across cultures, the revitalization of endangered indigenous languages, and applications of sociocultural theory to language development.

"Most of the work I do as an applied linguist," Dr. Thorne said, "looks at processes of second language acquisition that let us know something about language, its function and structure, all of which helps us understand something about the human condition, about humans as social and cultural creatures."

In the Provost's Challenge-funded project "**Mobile and Augmented Reality Resources for Learning**," Dr. Thorne is combining social interaction, role-playing, and 21st century technology to help students learn a second language. The project brings together a team of student software developers with language instructors in the World Languages and Literatures and Applied Linguistics departments, and the Intensive English Language Program to change the way students learn language. In the project, Dr. Thorne and his colleagues use augmented reality (AR), place-based technologies and smartphones to move learning opportunities out of the classroom and into the built environment of PSU and beyond.

AR is the combination of computer-generated sensory input with a live view of physical surroundings. Used as a learning tool, this approach to language instruction roots students in relevant and socially important contexts as they practice the language they are learning.

"So far, we have developed games for students from the English as a Second Language program, and those studying French, Spanish, Japanese, and Russian, and we're working on a few other languages," Dr. Thorne said. "It's based on oral narration tasks. But instead of an abstract task focusing on theoretical concepts like the 'aboutness' of language and its perceived systematicity, grammaticality, and appropriate lexical choices, the students are practicing the language in realistic contexts. The idea is to keep the task language-relevant and language-focused, but integrated with communication out in the real world where it makes sense."

Students play the game using smartphones at locations around Portland State University. In groups of three, they take on the role of time-traveling visitors from a future Earth in which global climate change has irreparably damaged the environment. They are here to investigate the *dawn and dusk* (as Dr. Thorne puts it) of green technologies no longer available in their dystopic future. As the students navigate PSU's campus, their objective is to think about, observe and discuss the sustainable technologies they encounter in the foreign language they're studying in the classroom.

Researchers like Dr. Thorne are recasting language instruction through the use of 21st century communications technologies and placing language learning in social activities where it is more easily integrated with cultural surroundings.

Read About Other Projects Dr. Thorne is Involved In

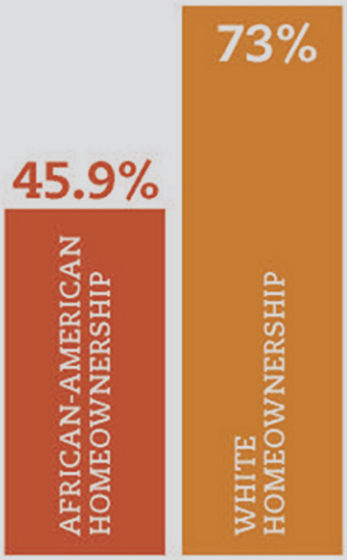
Getting Your House in Order

After the economy crashed in 2008, most buyers dropped out of the housing market. Two years later, many potential homebuyers started showing renewed interest and the sector began to pick up again.

But according to a report published by the Portland Housing Center (PHC), a nonprofit organization that serves, consults and educates first time homebuyers, by 2010 it was clear that African-Americans were not rejoining the market at rates comparable to those of other races and ethnicities. In response, PHC set strategic goals for increasing African-American participation in its financial services.

PORTLAND HOUSING CENTER

Portland State UNIVERSITY



"Getting Your House In Order" (GYHIO) is a model for African-American financial education intended to increase participation in PHC services and raise rates of homeownership. This innovative program takes a novel approach: teaching financial fitness through a culturally specific lens that incorporates African-American history, culture, experience and community into course materials.

In order to help design, launch and evaluate a GYHIO pilot program, PHC turned to Associate Professor of Urban Studies and Planning Lisa K. Bates whose research focuses on social justice issues as they relate to housing policy and planning. Together, Dr. Bates, Dr. Rhea Combs of the Smithsonian's National Museum of African-American History and Culture and PHC worked with participants and Portland's African-American community to determine what kind of outreach and educational programs would be of greatest value to them.

Dr. Lisa K Bates

Participants learned about the African-American community's experiences with money and financial institutions, such as histories of discriminatory and predatory practices, all within an African-American sociocultural and cultural-historical context. The theory behind the course was that an understanding of the influences of stress and uncertainty related to suspect or actual racism and racial stereotyping on financial behaviors and decision making, as well as an understanding of the benefits of self-efficacy, would help participants achieve their personal goals.

"Our hope was that by sharing experiences, the participants would learn to recognize when their feelings were affecting their decision making abilities and to look at those feelings explicitly and consciously and ask which were promoting positive practices and behaviors and which were not," said Dr. Bates.

Bates gathered data on participants in six cohorts taking the GYHIO course. Much of the data indicated the pilot program was a remarkable success. With a trial run now wrapped up, Dr. Bates and the PHC believe GYHIO could be implemented nationwide in an effort to increase homeownership among African-Americans. Similar approaches could also be developed for other groups.

According to Bates, increasing homeownership among minority populations is an essential step for combating poverty and inequity in the U.S. For many Americans, much of their net worth is in their home. Homeownership is also the primary vehicle for families to pass wealth from one generation to the next.

By encouraging first-time buyers to purchase homes, helping them get into those homes and showing them how to improve their financial fitness, organizations like PHC, along with researchers and urban planners like Dr. Bates, are working to create a more balanced distribution of wealth, security and wellbeing for all Americans.

The Student Research Symposium

This past May, scores of students gathered in Smith Memorial Union to present their research projects and learn from their peers. Below are summaries of some of those projects.

Health & Hygiene on the Streets of the Rose City

(read the full article here)

Recently, graduate students from the School of Social Work under the direction of Instructor Lisa Hawash and the Poverty: Policy & Programs (SW 525) course she teaches, partnered with Portland's Sisters Of The Road Cafe on a project promoting the adoption of a Homeless Bill of Rights in Oregon.

The students worked with advocates for the unhoused, healthcare professionals and members of Portland's unhoused community to develop a position paper on the benefits of including funding for hygiene centers for the unhoused population in a bill going before the Oregon Legislature during the 2015 session.

"The work we've done to make this Homeless Bill of Rights happen has been a learning experience for us all," said one of the students participating in the project. "And it has given me hope that we can have an impact on policies and systems where really big changes need to happen and are going to happen."

Radioactive Portland

(read the full article here)

PSU postbac student Selicity Icefire was curious about radon gas. Specifically, she was curious about E.P.A. recommendations stating that winter is the best time to test for residential radon.

While working with Emeritus Professor Scott Burns on a statewide map of radon concentrations in Oregon, Icefire noticed a lack of information about the seasonality of radon test results. With insufficient data, she wondered, *do we really know if winter is the best time to test?*

Icefire contacted the E.P.A. with her question and it turned out, they couldn't provide an answer.

Eager to find out, Icefire pored over 15,000 test records provided by the state.

"When I looked at the data," Icefire said, "I saw a significant difference between testing in the summer and winter. As it turns out, the E.P.A.'s recommendation was correct."

Icefire's curiosity provided evidence to support the E.P.A.'s claim, but what if she had found the opposite? Projects like this give students essential experience with how research can shape public health and other policy issues.

The Cully Neighborhood Youth Project

(read the full article here)

The racially diverse Cully neighborhood in NE Portland has some of the city's highest rates of poverty. In 2010, a coalition of community-service organizations established Living Cully: A Cully Ecodistrict to introduce new environmental assets into the community and combat poverty.

One of the major initiatives launched by the coalition was the development of the Thomas Cully Park and Community Garden. At this year's symposium undergraduate students from the School of Community Health, under the direction of Assistant Professor Kelly Gonzales, presented "Cully Neighborhood Youth Project: Perceptions of Cully Park, Safety and Health."

The project involved gathering, analyzing, and disseminating visual and spatial data on the perspectives of Cully's youth in order to provide community members and development partners a snapshot of how young people conceive of the new park, its potential health benefits, and the hurdles children might encounter when trying to access and use it.

"I think part of what Living Cully and the PSU research team are trying to achieve is getting the community to work together and supporting them as they keep moving forward on the changes they want to see in their neighborhood," said Dechen Dolkar, one of the students who worked on the project.

The Cully Neighborhood Youth Project is an example of how PSU faculty and student partnerships with the community can bring about positive changes that make Portland a better place to live for us all.

Searching for the Origins of Life

(read the full article here)

How did life on Earth begin? One idea is that a particular RNA molecule called a ribozyme was the culprit.

One group of these ribozymes can store genetic information, synthesize proteins and splice RNA—all the ingredients needed to turn simple molecules into the more complex stuff life is made of. Ph.D. student Tharuka Jayathilaka, working with Professor Niles Lehman, is investigating this group of ribozymes and harnessing their capacity to splice RNA into smaller fragments in order to get at an answer to the question: if DNA and enzymatic proteins evolved from RNA, then how did RNA form without DNA; and under what circumstances? The answer may show how small fragments of RNA led to DNA and life.

"Essentially, we're trying to find out how small the pieces of RNA molecules might have been that could have sparked life on earth," Jayathilaka said.

Improving Water Quality with Nanotechnology

www.pdx.edu/research/iip

In 1974, Congress passed the Safe Drinking Water Act authorizing the U.S. Environmental Protection Agency (E.P.A.) to establish standards for drinking water to safeguard public health against naturally-occurring and man-made contaminants in rivers, lakes, reservoirs, springs, and groundwater supplies. As a part of a broad portfolio of water-related research, PSU faculty and students are using the latest nanotechnology to help implement regulations like these.

Trichloroethylene (TCE) is one of the compounds the E.P.A. regulates. Commonly used as an industrial solvent and in consumer products such as liquid paper, adhesives, paint thinners and spot removers, TCE poses major health risks that include: liver and kidney damage, arrhythmias, cancer and adverse reproductive and developmental effects.

The common method for removing TCE from water is to use granular activated carbon (GAC) filtration, similar to the approach used to clean hobbyists' fish tanks. However, for large-scale purification operations such as those at industrial manufacturing plants or commercial laboratories, GAC filtration of TCE is too slow and releases too many toxic byproducts that must be removed and safely stored; both factors increase overall costs at public and private water treatment facilities.

To solve this problem researchers in the lab of Dr. Jun Jiao, joint Professor of Mechanical & Materials Engineering and Physics, sought a catalytic additive that could be incorporated into existing purification systems in common use, rather than requiring the creation of an entirely new industrial system. Dr. Jiao and her colleagues developed a simple process to hybridize gold-palladium (AuPd) nanocrystals with a number carbon substrates including activated carbon. When H_2 is added to TCE-tainted water passing through carbon filters enhanced with AuPd, the nanocrystals become catalysts that remove the TCE from water. With this low

cost method of manufacturing carbon-supported AuPd catalysts, it is possible to greatly improve the ability of large-scale filtration systems already in place in industrial, commercial and municipal water treatment facilities to remove TCE from waste water supplies.

Initial lab results show that Dr. Jiao's method increases the rate of degradation of TCE and similar compounds by several times compared to the traditional use of activated carbon. In large-scale operations, this increased efficiency could lower the cost of materials, maintenance, and hazardous waste disposal. In the long run, public health is the real beneficiary of this innovative technology. Eliminating TCE and its toxic byproducts altogether guarantees it will not enter the environment where it poses serious health risks.

RSP's **Innovation & Intellectual Property** team is working with Dr. Jiao to find partners interested in further developing this patent-pending technology. Initial studies have shown the carbon-supported AuPd catalyst to be effective not only for TCE, but also for the explosive, TNT, and the active ingredient in tear gas, 2-CAP. Dr. Jiao and her colleagues are showing that innovations at the nanoscale can have potentially huge impacts.

PSU Lands Federal Grant for Ecodistrict Energy Project

Author: Wendy Culverwell
Story in *The Portland Business Journal*

Portland State University has secured a federal grant to pay for energy upgrades that promise to transform an entire downtown neighborhood.

PSU used $2.1 million of its own money to leverage a $1.5 million grant from the U.S. Economic Development Administration to support a series of projects that will improve energy efficiency in the "SoMa" neighborhood — the downtown Portland neighborhood south of Southwest Market Street.

The two-year, three-part undertaking includes:

Replacing an old boiler at PSU's West Heating Plant with efficient new equipment.

18 campus buildings and three private buildings will get new power meters and corresponding software that will allow it to be more efficient about how it uses energy.

Staff, students and visitors will be able to visualize energy use on campus via seven 90-inch monitors paired with a high-powered computer in a "visualization theater."

"This grant will position Portland State as a leader in energy efficiency research," said Erin Flynn, associate vice president in PSU's Office of Research and Strategic Partnerships. "We've always considered our campus a 'Living Laboratory' for sustainable practices, but this project pushes boundaries and will provide a model for other dense urban neighborhoods across the country."

The SoMa area is one of the city of Portland's original EcoDistricts.

"This project investment is a significant win for SoMa and for the ecodistrict concept," said Bob Naito in a press release.

Naito is a Portland developer, co-chair of the SoMa board of directors, and owner of a building that will receive the upgraded metering system.

"We know that having a robust district strategy for energy efficiency can be an attractor for business. This work will allow us to prove that theory while continuing to enhance the livability and sustainability of our neighborhood."

*re*THINKing PSU Receives a Boost

PSU is one of seven public urban universities that have been selected to each receive $225,000 to support the development and assessment of new models for higher education.

The award from the Association of Public and Land-grant Universities and the Coalition of Urban Serving Universities with support from the Bill and Melinda Gates Foundation will go to help expand PSU faculty, staff and student capacity to significantly accelerate university-wide transformations to reduce the cost of and time to degrees for students. Funds will aid the development and implementation of plans related to three *re*THINK areas of focus:

1. Pathways to Success - a coordinated route for community college students to pursue a PSU degree; 2. Degree Completion - to advance the State of Oregon's ambitious goal for educational attainment (40-40-20); and 3. PSU Flexible Degrees - well- articulated pathways for undergraduates who attended college without receiving college credentials.

*re*THINK PSU is a program meant to deliver an education that serves more students with better outcomes, while containing costs through curricular innovation, community engagement and effective use of technology.

Howard Hughes Medical Institute Awards PSU $2 Million to Improve Science Education*

PSU is receiving a $2 million grant from the Howard Hughes Medical Institute (HHMI) for efforts to improve science education.

The grant is intended to help schools focus on significant, sustained improvement in retaining students in the science, technology, engineering and mathematics (STEM) disciplines.

PSU hopes to decrease the student failure rate in key science and math courses, increase the rate at which students continue through course sequences, improve their learning experiences and help them develop a "positive science identity."

A big part of achieving these goals will be to introduce a more collaborative approach to the teaching in which students will engage with each other in discussing real-world problems. Students, especially underrepresented minorities who often don't see themselves as future scientists, will benefit from this approach, said PSU chemistry professor Gwen Shusterman, PI on the grant application.

"We're trying to change the perceptions about what science is," Shusterman said. "Science is not just a bunch of facts. It's about real problems. By being presented with problems students can relate to in their everyday lives, they will be more engaged and the information they learn will be more retainable."

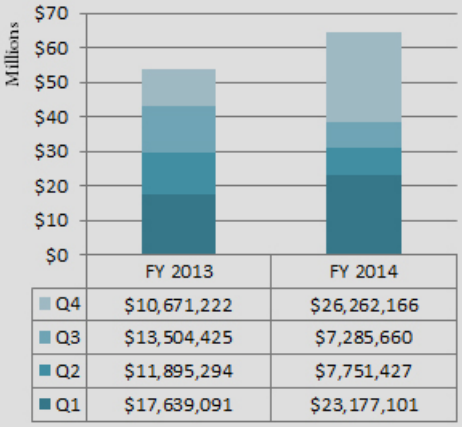
Part of the grant will pay for a new assistant professor at PSU specializing in how science is taught. PSU also will hold seminars over the summer to train faculty in collaborative teaching styles.

*Source: John Kirkland, University Communications

Research Snapshot

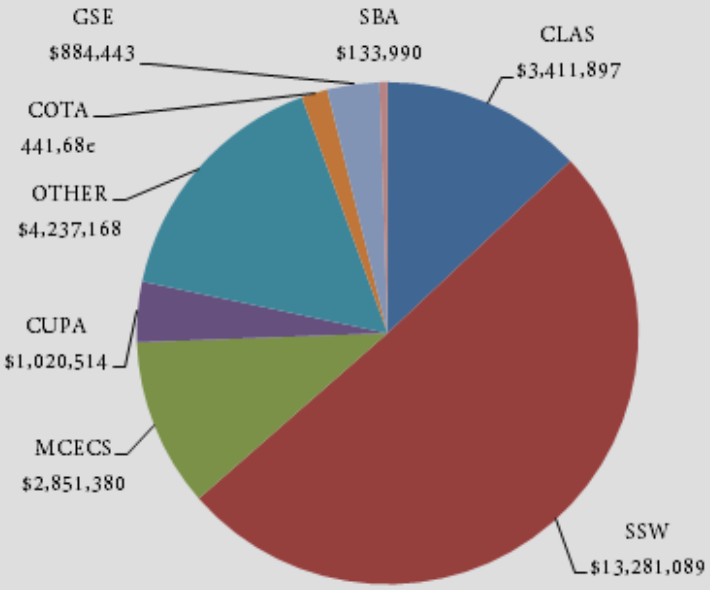
Fourth Quarter, Fiscal Year 2014

Awards by Quarter



	FY 2013	FY 2014
Q4	$10,671,222	$26,262,166
Q3	$13,504,425	$7,285,660
Q2	$11,895,294	$7,751,427
Q1	$17,639,091	$23,177,101

Awards Received Q4, 2014



Selected Awards

View the Complete List of Awards
http://www.pdx.edu/research/awards-fy14-q4

Andrews, Sona, Becker, William, *Regional STEM Hub Grant*, **OTHER/CLAS**, $600,000, Oregon Department of Education, New Award
Banis, David, *Geospatial Support for the Pacific Region National Wildlife Refuge System*, **CLAS**, US Fish & Wildlife Service, $10,000, New Award
Bodegom, Erik, *The Effect of the Potential Well Size on the Performance of Digital Imagers*, **CLAS**, M.J. Murdock Charitable Trust, $15,000, New Award
Cahn, Katharine, *Child Welfare Partnership 2013-2015 Project Agreements*, **SSW**, Oregon Department of Human Services, $12,155,128, New Award
Carder, Paula, *Oregon Integrated Housing Services Initiative*, **CUPA**, Cedar Sinai Park, $49,615, New Award
Carey, Christopher, *Commercial Sexual Exploitation of Children in the Portland Metro Area*, **CUPA**, Oregon Department of Human Services, $35,441, New Award
Clark, Michael, Smyth, John, *Religion, Secularism, and Political Belonging (RelSec)*, **CLAS**, University of Arizona, Andrew W. Mellon Foundation, $37,614 New Award
Curtis, Renee, *Portland Multifamily Recycling*, **CUPA**, City of Portland, $135,000, New Award
Daasch, W. Robert, *Systematic Statistical Outlier Screening*, **MCECS**, Semiconductor Research Corporation, $55,000, New Award
Deardorff, Pam, *Statewide Training and Certificate Scholarship Program*, **GSE**, Oregon Community Foundation, $100,000, Amendment
De LaVega, Esperanza, *Futures Project*, **GSE**, US Department of Education, $389,107, Amendment
Delcambre, Lois, Recktenwald, Gerald, *Cyber Discovery 1.0*, **MCECS**, $152,950, Department of Homeland Security, New Award
Dusicka, Peter, Griffin, Corey, Hu, Huafen, Palleroni, Sergio, Sailor, David, *Interdisciplinary, Research-based Engineering and Design (IRED) Green Building Scholars Program*, **MCECS/COTA**, $630,979,National Science Foundation, New Award
Dill, Jennifer, McNeil, Nathan, *2014 Transit Oriented Developments Survey*, **CUPA**, Metro, $27,394, New Award
Eckhardt, Cara, *Defining Infant Rapid Weight Gain to Best Predict Childhood Obesity*, **CUPA**, $88,449, National Institutes of Health, New Award
Elliott, Debra, *2014 Portland Residential Wood Combustion Survey*, **OTHER**, Department of Environmental Quality, $46,146, New Award

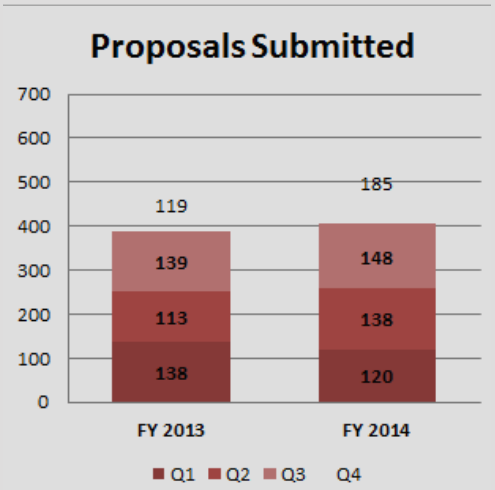
Research Snapshot

Selected Awards, Continued

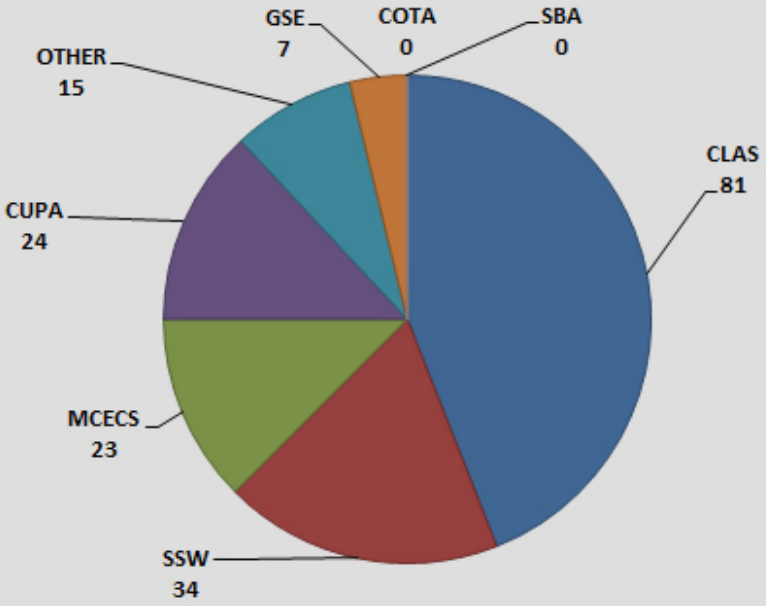
Elliott, Debra, *Household Hazardous Products Phone Survey*, **OTHER**, METRO, $55,381, New Award
Ervin, David, I*ntegrating Human Behavioral & Agronomic Practices to Improve Food Security by Reducing the Risk & Consequences of Herbicide-Resistant Weeds*, **OTHER,** Iowa State University, US Department of Agriculture, $24,516, New Award
Green, Beth, *OCF P-3 Evaluation Technical Assistance*, **SSW,** Oregon Community Foundation, $55,000, New Award
Huguet, Nathalie, *Economic Contraction and Alcohol-related Suicides: A Multilevel Analysis*, **CUPA,** University of California, Los Angeles, National Institutes of Health, $57,894, New Award
Iwata-Reuyl, Dirk, *Emerging Roles of Threonylcarbamoyladenosine in Translation and DNA Maintenance*, **CLAS**, University of Florida, National Institutes of Health, $88,870, Amendment
Lafrenz, Martin, *Biodiversity CoRegional Research Institutedors*, **CLAS**, Metro, $25,000, New Award
Jiao, Jun, *OMI: Fabrication of High-quality Large-Area Graphene for the Development of All-Carbon Interconnects*, **MCECS,** $98,000, Intel, New Award
Kagan, James, *Oregon Wetlands Prioritization and Conservation*, **CLAS**, Environmental Protection Agency, $155,626, New Award
Koenenkamp, Rolf, *High Resolution Photoemission Microscopy on Femtosecond Time Scales*, **CLAS**, Department of Energy, $210,000, Amendment
Mashburn, Andrew, Roeser, Robert, Skinner, Ellen, *Testing the Efficacy of Mindfulness Training for Teachers on Improving Classroom Settings for Early Adolescents*, **CLAS**, $450,000, William T. Grant Foundation, New Award
Miller, Thaddeus, *Community Watershed Stewardship: 2012-14*, **CUPA**, City of Portland, $36,049, Amendment
Neal, Margaret, *Evaluation of AARP Age Friendly Communities Program and Development of Livability Index*, **CUPA**, American Association of Retired Persons, $27,158, New Award
Nguyen, Mau Nam, *Variational Analysis of Optimal Value Functions and Applications to Nonsmooth Optimization*, **CLAS**, $112,288, National Science Foundation, New Award
Pan, Yangdong, *Klamath River Long-term Periphyton Community Characterization*, **CLAS**, Kier Associates, $16,735, New Award
Nielsen-Pincus, Max, *Economics Research Support for the 2014 Alaska Timber Demand Project*, **CLAS**, USDA Forest Service, $17,226, New Award
Peyton, David, *Preclinical development of novel small molecule malaria drugs that overcome drug resistance*, **CLAS**, Oregon Nanoscience and Microtechnologies Institute, $26,840, New Award
Podrabsky, Jason, *Regulation of Extreme Anoxia Tolerance via microRNAs in Embryos of the Annual Killifish Austrofundulus Limnaeus*, **CLAS**, $198,123, National Science Foundation, New Award
Raghavan, Rahul, *Novel RNAs that Promote Coxiella Burnetii Pathogenicity*, **CLAS**, $70,000, American Heart Association, New Award
Reysenbach, Anna-Louise, *Collaborative Research: Enhancing expertise in archaeal taxonomy: Classical and molecular-based monographic research of the Nanoarchaeota*, **CLAS**, National Science Foundation, $121,010, Amendment
Rosenstiel, Todd, *Proposal for Preliminary Quantification of Total VOC Fluxes*, **CLAS**, Greenwood Resources, $33,916, New Award
Cal Santiago, Raul B., *Collaborative Research: Measurement and Modeling of Air Entrainment and Ash Distribution in Weak Volcanic Plumes*, **MCECS**, $98,110, New Award
Scheller, Robert, *Modeling Bird Habitat in Nevada*, **CLAS**, Great Basin Bird Observatory, $17,000 , New Award
Sennott, Samuel, I*nclusive Shared Storybook Reading Project*, **GSE**, Oregon Department of Education, $49,769, New Award
Shaker, Lee, *Collaboration with Peripheral Vision International*, **CLAS**, Tides Foundation, $27,500, New Award
Shelton, Rollin, *Community Integration Specialists for Recovery Outcomes (CISRO Project)*, **SSW**, Oregon Health Authority, SAMHSA, $169,611, New Award
Stedman, Kenneth, *Extreme Virus Merphology: The Structure and Assembly of SSV1, the Prototypical Fusellovirus*, **CLAS**, National Science Foundation, $127,559, Amendment
Strongin, Robert, *Cochlear Trafficking and Hair Cell Uptake of Aminoglycosides*, **CLAS**, Oregon Health and Science University, National Institutes of Health, $54,726, Amendment
Sundt, Jody, *Building the Capacity to Deliver Smart Probation: A Research Strategy to Promote Fidelity to Correctional Best Practices*, **CUPA**, Oregon Department of Corrections, US Department of Justice , $72,950, New Award
Sytsma, Mark, *Aquatic Weed EDRR*, **CLAS**, Oregon Watershed Enhancement Board, $48,452, New Award
Sytsma, Mark, *Joint Program for Collaboration and Cooperation in Research, Education, and Outreach*, **OTHER**, US Geological Survey, $308,000, Amendment
Talke, Stefan, *Improving Estuarine Transport Models Using Satellite Measurements*, **MCECS**, Office of Naval Research, $106,308, Amendment
Thomas, Evan, *Impact Evaluation of DelAgua Health & Development Programs Rwanda Carbon Program*, **MCECS**, DelAgua Health Rwanda (Implementation) Limited, $321,675, New Award
Walker, Janet, *Exploring Factors Linked to Qatari Students' Post-secondary Academic Persistence and Success*, **SSW**, $229,193, Qatar University, Qatar National Research Foundation, New Award
Wells, Scott, *Cherry Creek Reservoir Hydrodynamic and Water Quality Model Peer Review*, **MCECS**, Cherry Creek Basin Water Quality Authority, $23,717, New Award
Widenhorn, Ralf, *Interpreting Activation Energies in Charged-Coupled Devices*, **CLAS**, M.J. Murdock Charitable Trust, $15,000, New Award
Weislogel, Mark, *Geometry-Driven Capillary Flows*, **MCECS**, National Aeronautics and Space Administration, $205,000, Amendment
Zurk, Lisa, *Analysis of Eigenspace Dynamics with Application to Array Processing*, **MCECS**, Office of Naval Research, $147,945, Amendment

Research Snapshot

Fourth Quarter, Fiscal Year 2014



Proposals Submitted Q4, 2014



Selected Proposals

View the Complete List of Proposals

http://www.pdx.edu/research/proposals-fy14-q4

Bank, Lewis, Blakeslee, Jennifer, Miller, Keva, Steele, Joel, *Evaluation of the 'Enhanced Intervention for the Friends of the Children Mentoring Program*, **SSW**, Office of Juvenile Justice and Delinquency Prevention, $2,499,600, 45%/45%/5%/5% PI

Barsanti, Kelley, *Attributing changes in particulate matter levels to changes in anthropogenic and biogenic emissions using modern multi-scale models and historical data records,* **MCECS**, USDA Forest Service, $490,663, 100% PI

Barsanti, Kelley, Pankow, James, Peyton, David, Strongin, Robert, *Toxicant Production and Mitigation in the Electronic-Cigarette Reaction Vessel*, **CLAS**, National Institutes of Health, $3,597,498, 25%/25%/25%/25% PI

Barsanti, Kelley, Butenhoff, Christopher, George, Linda, Liberty, Robert, Mitchell, Melanie, Parra, Jeremy, Recktenwald, Gerald, Rice, Andrew, Sailor, David, Scheller, Robert, Shandas, Vivek, Wang, Liming, *Urban System Science for Sustainable Atmospheres*, **MCECS/CLAS/CUPA**, National Science Foundation, $11,999,753, 4%/4%/24%/4%/4%/4%/4%/4%/18%/4%/4%/18%/4%

Bass, Robert, Flynn, Erin, Charla, Mathwick, *Business and Technology Development support for an airborne wing energy system*, **MCECS/RSP/SBA**, Oregon BEST, $150,000, 33%/34%/33% PI

Becker, William, Crespo, Carlos, Estes, Suzanne, Fallon, Ann Marie, Keller Tom, Labissiere, Yves, Richardson, Dawn, Strongin, Robert, *Enhancing Cross Disciplinary Infrastructure and Training at Oregon (EXITO)*, **CLAS**, National Institutes of Health, $24,200,000, 2%/25%/20%/2%/25%/2%/12%/2% PI

Brown, Julie, Falco, Ruth, Loman, Sheldon, *The Culturally Responsive Special Educator (CReST) Project*, **GSE**, US Department of Education, $1,249,846, 45%/10%/45%

Borgmeier, Christopher, De Pry, Randall, Loman, Sheldon, Pinkney, Chris, *Leading the Implementation of High Quality Intensive Tiered Services for Students with Emotional and Behavioral Disorders: Leadership Consortia in EBD (LCEBD)*, **GSE,** University of Connecticut, US Department of Education, $656,495, 25%/25%/25%/25% PI

Research Snapshot

Selected Proposals, Continued

Buckley, Brad, *Apoptosis in Cold-Adapted Organisms: Life and Death at the Cellular Level in Antarctic Fishes*, CLAS, National Science Foundation, $735,135, 100% PI

Carder, Paula, Stephanie Farquhar, Townley, Greg, *Developmental Research on the Organization and Delivery of Housing with Supportive Services*, **CUPA** National Institutes of Health, $395,082, 34%/33%/33% PI

Chaille, Christine, Laurence, Wendi, *Exploration is Primary: Virtual Innovation Collaboratives to Support PK-3 Teacher Engagement and Development in the Scholarship of STEM Teaching, Learning and Assessment*, **GSE,** US Department of Education, $2,392,889, 50%/50% PI

Chang, Heejun, Morse, Jennifer, Strecker, Angela, *Sustainable Urban River Systems for Human Well-being: An Interdisciplinary Research Network,* **CLAS**, University of Georgia, $959,071, 51%/27%/22%

Chang, Heejun, Fink, Jonathan, Kelly, Kirk, Podrabsky, Jason, Rosenstiel, Todd, CC*IIE Networking Infrastructure: PSU Research & Science Network DMZ, CLAS, National Science Foundation, $500,000, 30%/5%/5%/30%/30%

Clifton, Kelly, Dill, Jennifer, Freybote, Julia, *Learning Cities: The Sustainable and Economic Reinvention of Rapidly Changing Cities*, **OTREC**, Northwestern Unversity, National Science Foundation, $428,378, 50%/25%/25% PI

Courcelle, Justin, *Adaptive mechanisms for surviving in an oxygenized environment: development of redox sensitive replication*, **CLAS**, National Aeronautics and Space Administration, $398,733, 100% PI

Curry-Stevens, Ann, Wahab, Stephanie, *Building Practice-Based Evidence: Piloting a Community-Based Evaluation System in A Safe Place Family Justice Center, SSW*, National Institute of Justice, $802,350, 89%/11% PI

Green, Beth, *Improving Outcomes for Young Children Affected by Substance Abuse: A Relationship-Focused Enhancement of the Parent-Child Assistance Program (PCAP-Enhanced) in Washington State*, **SSW**, University of Washington, Administration for Children and Families, $1,073,073, 100% PI

Fergadiotis, Gerasimos, *Assessment of anomia: Improving efficiency and utility using item response theory*, **CLAS**, National Institutes of Health, $421,409, 100% PI

Figliozzi, Miguel, Nordback, Krista, *Investigation of Bicycle and Pedestrian Continuous and Short Duration Count Technologies in Oregon*, **MCECS/OTHER**, Oregon Department of Transportation, $137,000, 25%/75% PI

Fountain, Andrew, *Collaborative Research: Assessing changing patterns of human activity in the McMurdo Dry Valleys using a digital photo archive*, **CLAS**, National Science Foundation, $186,968, 100% PI

Halimi, Shpresa, *LMI countries and USA mid-level professionals exchange program: Mutual learning for sustainable economic empowerment*, **CUPA**, US Department of State, $732,019, 100% PI

Hu, Huafen, Sailor, David, *Sustainability Research Network for Urban Assessment, Resiliency and Adaptive Capacity*, **MCECS**, City University of New York, National Science Foundation, $1,198,654, 40%/60% PI

Hugo, Richard, Ruzicka, Alex, *Impact-Driven Segregation and chemical transformation in ordinary chrondites*, **CLAS**, National Aeronautics and Space Administration, $662,236, 60%/40%

Huguet, Nathalie, *Firearms, alcohol and suicide: A national postmortem analysis*, **CUPA**, University of California, Los Angeles, National Institutes of Health $244,644, 100% PI

Koroloff, Nancy, Walker Janet, *Healthy Transitions Evaluation Consortium*, **SSW**, Research Triangle International, Substance Abuse and Mental Health Services Administration, $627,065, 50%/50% PI

Lehman, Niles, *RNA Interaction Networks: Critical Components of the RNA World*, **CLAS**, University of Missouri, National Aeronautics and Space Administration, $225,847, 100% PI

McCaffrey, Robert, Rudolph, Maxwell, *Geodetic Measurements to Identify Locations of Strain Rates for Enhance Geothermal Systems*, **CLAS**, Idaho National Laboratory, Department of Energy, $276,100, 80%/20% PI

Mitra, Arnab, Neilsen-Pincus, Max, *Enhancing Ecological Approaches to Agriculture: Financing Local, Regional, and National Drinking Water Ecosystem Service Partnerships*, **CLAS**, US Department of Agriculture, $499,989, 25%/75% PI

Morse, Jennifer, *Collaborative Research: Cross-site, continental scale assessment of denitrification in agricultural soils*, **CLAS**, National Science Foundation, $773,849, 100% PI

Nicolaidis, Christina, Raymaker, Dora, *Advancing the Use of CBPR and Critical Systems Thinking to Reconcile Differing Patient and Stakeholder Perspectives on Patient Centered Outcomes for Autism Research*, **SSW**, PCORI, $1,060,001, 60%/40% PI

Perona, John, *Biological Sulfur Metabolism on the Anaerobic Earth*, **CLAS**, National Aeronautics and Space Administration, $859,038, 100% PI

Podrabsky, Jason, *Collaborative Research: Dimensions US-BIOTA-Sao Paulo: Evolution of annualism and diversification in killifishes (Cyprinodontiformes, Aplocheiloidei)*, **CLAS**, National Science Foundation, $921,334, 100% PI

Pommier-Satya, Summer, Turner, Shannon, *Project My Life Consilium, SSW, Friends of the Children*, **SSW**, USDOJ Office of Juvenile Justice and Delinquency Prevention, $648,076, 50%/50% PI

Sharp, Marion, *National Adoption Competency Mental Health Training Initiative*, **GSE**, Hunter College, Department of Health and Human Services, $,425,325, 100% PI

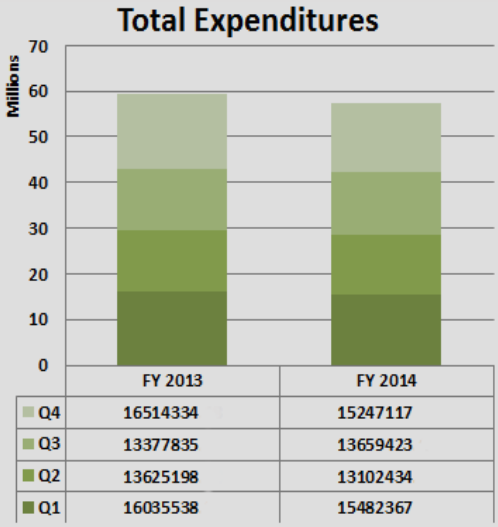
Singer, Laurel, *BLM Cooperating Agency Advisor Group (CAAG)*, **CUPA**, Bureau of Land Management, $100,000, 100% PI

Yatchmenoff, Diane, *Adverse Childhood Events and Trauma Collaborative Center (ACETCC)*, **SSW**, Oregon Health Authority, $785,000, 100% PI

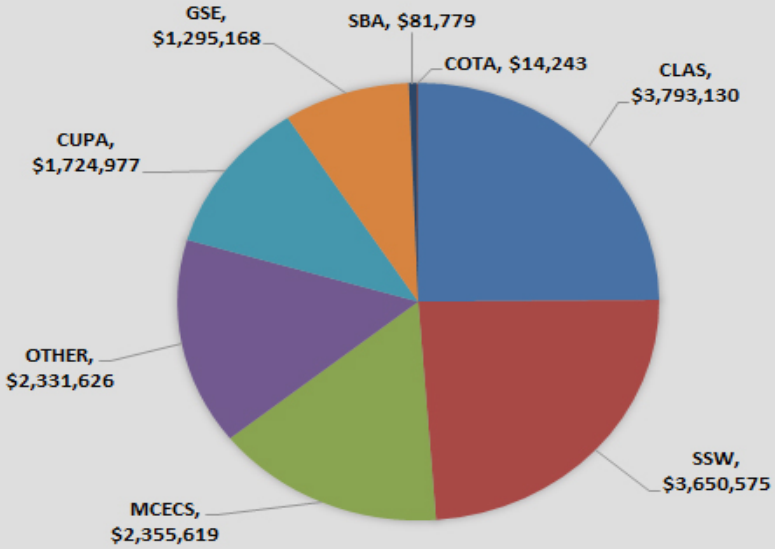
Research Snapshot

Fourth Quarter, Fiscal Year 2014

Research Expenditures Q4, 2014



	FY 2013	FY 2014
Q4	16514334	15247117
Q3	13377835	13659423
Q2	13625198	13102434
Q1	16035538	15482367



Q4 Publications

View the Complete List of Publications
http://www.pdx.edu/research/faculty-pubs-q4-fy14

Anderson, Skye N., and **Jason E. Podrabsky**. "The effects of hypoxia and temperature on metabolic aspects of embryonic development in the annual killifish Austrofundulus limnaeus." *Journal of Comparative Physiology* B 184.3 (2014): 355-370.

Banda, Peter, **Christof Teuscher**, and Darko Stefanovic. "Training an asymmetric signal perceptron through reinforcement in an artificial chemistry." *Journal of The Royal Society Interface* 11.93 (2014): 20131100.

Bhagat, Sanjai, and Brian Bolton. "Financial crisis and bank executive incentive compensation." *Journal of Corporate Finance* 25 (2014): 313-341.

Brown, Anna L., et al. "Synthesis, X-ray Opacity, and Biological Compatibility of Ultra-High Payload Elemental Bismuth Nanoparticle X-ray Contrast Agents." *Chemistry of Materials* 26.7 (2014): 2266-2274.

Buckley, Bradley A., **Michael S. Hedrick**, and Stanley S. Hillman. "Cardiovascular Oxygen Transport Limitations to Thermal Niche Expansion and the Role of Environmental Po2 in Antarctic Notothenioid Fishes." *Physiological and Biochemical Zoology* 87.4 (2014): 499-506.

Catania, Joseph A., Dennis Fortenberry, **Roberto Orellana**, M. Margaret Dolcini, and Gary Harper. "Translation of "At-Home" HIV Testing: Response to Katz et al. and Hurt and Powers." *Sexually transmitted diseases* 41, no. 7 (2014): 454.

Catlaw, Thomas J., and **Billie Sandberg**. ""Dangerous Government" Info-Liberalism, Active Citizenship, and the Open Government Directive." *Administration & Society* 46.3 (2014): 223-254.

Chang, Heejun, et al. "Spatial analysis of annual runoff ratios and their variability across the contiguous US." *Journal of Hydrology* 511 (2014): 387-402.

Chinn, Menzie D., Barry Eichengreen, and **Hiro Ito**. "A forensic analysis of global imbalances." *Oxford Economic Papers* 66.2 (2014): 465-490.

Chung, Haera, **Christof Teuscher**, and Partha Pande. "Design and Evaluation of Technology-Agnostic Heterogeneous Networks-on-Chip." *ACM Journal on Emerging Technologies in Computing Systems (JETC)* 10.3 (2014): 20.

Research Snapshot

Q4 Publications, Continued

Emil, Serap, and **Christine Cress**. "Faculty perspectives on programme curricular assessment: individual and institutional characteristics that influence participation engagement." *Assessment & Evaluation in Higher Education* 39.5 (2014).

Ervin, David, and Ray Jussaume. "Integrating Social Science into Managing Herbicide-Resistant Weeds and Associated Environmental Impacts." *Weed Science* 62.2 (2014): 403-414.

Hatch, Brigit A., DeVoe, Jennifer E., Lapidus, Jodi A., **Carlson, Matthew J.**, Wright, Bill J. "Citizenship Documentation Requirement for Medical Eligibility: Effects on Oregon Children." *Family Medicine* 46.4 (2014): 267-275.

Honadle, Beth Walter, **Marisa A. Zapata**, Christopher Auffrey, Rainer vom Hofe, and Johanna Looye, et al. "Developmental evaluation and the 'Stronger Economies Together' initiative in the United States." *Evaluation and program planning* 43 (2014): 64-72.

Ingle, Aaron, **Mithra Moezzi**, **Loren Lutzenhiser**, and Richard Diamond. "Better home energy audit modelling: incorporating inhabitant behaviours." *Building Research & Information* ahead-of-print (2014): 1-13.

Jacobs, Gloria E., **Castek, Jill, Pizzolato**, **Andrew**, **Reder, Stephen**, **Pendell, Kimberly**. "A Closer Look at Adult Digital Literacy Acquisition." *Journal of Adolescent & Adult Literacy* 57.8 (2014): 624-627.

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View the Complete List of Publications

Research Snapshot

Doctoral Degrees Conferred, Spring 2014

Tatiana Margarita Cevallos, Ed.D.
Dissertation Chair: Emily De La Cruz, GSE
Dissertation title: *Understanding Biliteracy: Exploring the Lived Experiences of Bilingual Reading Specialists*

Ana Cristina B. Costa, Ph.D.
Dissertation Chair: Donald Truxillo, CLAS
Dissertation title: *The Effects of Organizational Justice and Exercise on the Relationship between Job Stressors and Employee Health*

Caleb Matthew DeChant, Ph.D.
Dissertation Chair: Hamid Moradkhani, MCECS
Dissertation title: *Quantifying the Impacts of Initial Condition and Model Uncertainty on Hydrological Forecasts*

Daniel Paul Draper, Ed.D.
Dissertation Chair: Tom Chenoweth, GSE
Dissertation title: *Guiding the Work of Professional Learning Communities: Perspectives for School Leaders*

Oliver John Droppers V, Ph.D.
Dissertation Chair: Sherril Gelmon, CUPA
Dissertation title: *A Case Study of Collaborative Governance: Oregon Health Reform and Coordinated Care Organizations*

Patrick Michael Edwards, Ph.D.
Dissertation Chair: Yangdong Pan, CLAS
Dissertation title: *Macroinvertebrates and Excessive Fine Sediment Conditions in Oregon Coastal Streams*

Wei Feng, Ph.D.
Dissertation Chair: Miguel Figliozzi, MCECS
Dissertation title: *Analyses of Bus Travel Time Reliability and Transit Signal Priority at the Stop-To-Stop Segment Level*

Linda L. Florence, Ed.D.
Dissertation Chair: Tom Chenoweth, GSE
Dissertation title: *School District Bond Campaigns: Strategies That Ensure Successful Outcomes*

Amanda Harris, Ed.D.
Dissertation Chair: Ronald Narode, GSE
Dissertation title: Stories of Success: *Understanding Academic Achievement of Hispanic Students in Science*

Cheryl Anne Hodson Shirley, Ph.D.
Dissertation Chair: David Peyton, CLAS
Dissertation title: *The Antimalarial Activity of PL74: A Pyridine-Based Drug Candidate*

Laila Huneidi, Ph.D.
Dissertation Chair: Masami Nishishiba, CUPA
Dissertation title: *The Values, Beliefs, and Attitudes of Elites in Jordan towards Political, Social, and Economic Development*

Nicole Iroz-Elardo, Ph.D.
Dissertation Chair: Connie Ozawa, CLAS
Dissertation title: *Participation, Information, Values, and Community Interests Within Health Impact Assessments*

Ibrahim Iskin, Ph.D.
Dissertation Chair: Tugrul Daim, MCECS
Dissertation title: *An Assessment Model for Energy Efficiency Program Planning in Electric Utilities: Case of the Pacific of Northwest U.S.A.*

David Seiler Jarvis, Ph.D.
Dissertation Chair: Phillip Cooper, CUPA
Dissertation title: *Accountability Models in Policy Design: Understanding the Explanatory Power of the Four Major Accountability Models in Policy Tool Choices*

Sarah Elizabeth Lundy, Ed.D.
Dissertation Chair: Samuel Henry, GSE
Dissertation title: *Leveraging Digital Technology in Social Studies Education*

Veronika Margaret Megler, Ph.D.
Dissertation Chair: David Maier, MCECS
Dissertation title: *Ranked Similarity Search of Scientific Datasets: An Information Retrieval Approach*

Michael Mercer Mertens, Ph.D.
Dissertation Chair: James Strathman, CUPA
Dissertation title: *Implications of Local and Regional Food Systems: Toward a New Food Economy in Portland, Oregon*

Morgen Mhike. Ph.D.
Dissertation Chair: Reuben Simoyi, CLAS
Dissertation title: *Characterization of Methylene Diphenyl Diisocyanate Protein Conjugates*

Jenifer Marie Millan, Ed.D.
Dissertation Chair: Will Parnell, GSE
Dissertation title: *Exploring Reggio-Inspired Documentation: Lived Experiences of Elementary Teachers and Children*

Phyusin Myo Kyaw Myint, Ph.D.
Dissertation Chair: Phillip Cooper, CUPA
Dissertation title: *Spirituality and Religion in Women's Leadership for Sustainable Development in Crisis Conditions: The Case of Burma*

Research Snapshot

Doctoral Degrees Conferred, Spring 2014

Ramin Neshati, Ph.D.
Dissertation Chair: Tugrul Daim, MCECS
Dissertation title: *Participation in Technology Standards Development: A Decision Model for the Information and Communications Technology Industry*

Phillip Bruce Pearson, Ed.D.
Dissertation Chair: Dilafruz Williams, GSE
Dissertation title: *The Impact of School-Level Factors on Minority Students' Performance in AP Calculus*

Rosine Hanna Salman, Ph.D.
Dissertation Chair: Tugrul Daim, MCECS
Dissertation title: *Exploring Capability Maturity Models and Relevant Practices as Solutions Addressing IT Service Offshoring Project Issues*

Brian Sien, Ed.D.
Dissertation Chair: Tom Chenoweth, GSE
Dissertation title: *Bridging the Future to Postsecondary Readiness*

Susan Elizabeth Sienko, Ph.D.
Dissertation Chair: Wayne Wakeland, CLAS
Dissertation title: *Health and Well-being of Young Adults with Cerebral Palsy*

Ann Sitomer, Ph.D.
Dissertation Chair: Karen Marrongelle, CLAS
Dissertation title: *Adult Returning Students and Proportional Reasoning: Rich Experience and Emerging Mathematical Proficiency*

Richard Chad Sperry, Ph.D.
Dissertation Chair: Antonie Jetter, MCECS
Dissertation title: *Multi-Perspective Technology Assessment to Improve Decision Making: A Novel Approach Using Fuzzy Cognitive Mapping for a Large-Scale Transmission Line Upgrade*

Ilknur Mary Joy Nirmala Tekin, Ph.D.
Dissertation Chair: Dundar Kocaoglu, MCECS
Dissertation title: *Green Index: Integration of Environmental Performance, Green Innovativeness and Financial Performance*

Teri Lynn Tilley, Ed.D.
Dissertation Chair: Tom Chenoweth, GSE
Dissertation title: *Keeping Equity in Mind: Strategies for Continuing Equity Work Once Formal Training Has Ended*

Andreas Udbye, Ph.D.
Dissertation Chair: Lee Buddress, SBA
Dissertation title: *Supply Chain Risk Management in India: An Empirical Study of Sourcing and Operations Disruptions, their Frequency, Severity, Mitigation Methods, and Expectations*

Jennifer Wallin-Ruschman, Ph.D.
Dissertation Chair: Janice Haaken, CLAS
Dissertation title: *A Girl Power Study: Looking and Listening to the Role of Emotions and Relationality in Developing Critical Consciousness*

Maika Jolene Yeigh, Ed.D.
Dissertation Chair: Susan Lenski, GSE
Dissertation title: *Does Voluntary Reading Matter? The Influences of Voluntary Reading on Student Achievement*

Joseph M. Zenisek, Ed.D.
Dissertation Chair: Emily de la Cruz, GSE
Dissertation title: *How Do Youth and Adults at a Rural High School Conceptualize the Role of Student? An Investigation of the Student Role Identity Standard at the Intersection of Student and Teacher Perspectives*

Research & Strategic Partnerships

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