

# THE NANOSECOND



Photo by Gwen Davis

REU participants listed on page 4.

## 2009 REU Participants

We had a great group of students this summer in the REU program! This outgoing bunch showed dedication to their research and a strong desire to make the most out of their REU experience at PSU. From all of us on the REU team, thanks for a fantastic summer!

## The Nanosecond: REU's New Newsletter

The REU program has published its first quarterly newsletter *The Nanosecond*. Originally designed by past program assistant Gwen Davis, the purpose of this electronic newsletter is to keep REU stakeholders updated on program information.

*The Nanosecond* will serve to:

- Summarize recent research and funding highlights,
- Share with prospective REU participants program information,
- Keep REU alumni in the loop with authorship and publication announcements,
- Feature available scholarships and academic opportunities,
- Profile team members for the REU family, and
- Provide information about upcoming events.

Have an item you would like to see in the newsletter? Contact the REU program assistant, Jennifer Knutson, at [reuga@pdx.edu](mailto:reuga@pdx.edu)

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## Miller Program Supporting Sustainability Research and Education

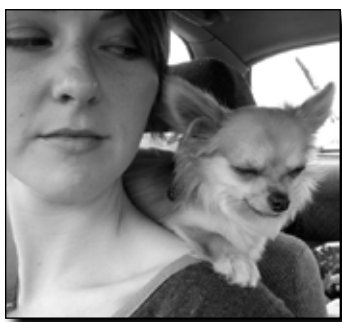
Recently, PSU received a \$25 million challenge grant from the James F. and Marion L. Miller Foundation. The university will match another \$25 million in the next 10 years, dedicating the funds exclusively to strengthen its role as a national leader in sustainability research and education.

Dr. Jiao applied for and received funding from this grant to use as seed money to support five highly-motivated PSU undergraduate students in an REU-like program to work on sustainability-related research—such as solar cell and microbial fuel cell fabrication—with faculty mentors in the physics department.

Since our NSF-sponsored REU program mainly focuses on recruiting students from outside of PSU, this grant-sponsored pilot project allowed Dr. Jiao to extend the impact of the REU program among PSU students and generate support and interest within the university.

## REU Program Assistant Change

Gwen Davis, the REU program assistant from June 2008 to August 2009, has graduated from PSU with her Master's degree in Technical Writing and an emphasis in Public Administration. Gwen has moved to eastern Washington where she has bought a house and has started her position as General Manager of Inland Family Dentistry in Walla Walla, Washington.



While serving as the program assistant, Gwen not only carried on the work of previous program assistants, but made substantial improvements to the administration of the program by beginning an [REU blog](http://reupdx.blogspot.com/) (<http://reupdx.blogspot.com/>) to keep participants updated throughout the summer program, updating websites for the program and Dr. Jiao, and streamlining the REU application process and other paperwork. She also provided significant support to Dr. Jiao and her team.

Join us in bidding Gwen a fond farewell and wishing her the best of luck in her new home and career. A huge thank you from Dr. Jiao, her team, and the REU participants for a job well done! Gwen, you will be missed.

## DR. JUN JIAO, REU PI



**Background** Dr. Jun Jiao holds an M.S. in Physics and a Ph.D. in Materials Science and Engineering from the University of Arizona, and is currently a professor of physics and electrical and computer engineering. She is also the director of the Center

for Electron Microscopy and Nanofabrication at Portland State University.

**Research** Dr. Jiao's lab is focused on the develop-

ment of nanofabrication techniques for the property-controlled growth of nanotubes and nanowires, and the investigation of carbon nanotubes and semiconductor nanowires as building blocks for nanoelectronic devices and as the new generation of electron field emitters.

**REU** Her devotion to undergraduate research and education includes advising more than 90 undergraduates—with an emphasis on female and minority students—on NSF-funded Research Experience for Undergraduates (REU) projects during summers at PSU, and involving high school students in cutting-edge nanoscience research.

## REU on Facebook!



Join past, present, and future REU participants on Facebook at the [Portland State REU Program](#) fan page.

Like *The Nanosecond* (this newsletter), our presence on Facebook means you hear about recent research and funding highlights, authorship and publication announcements, scholarship information, and other academic opportunities, but in real time. It also allows participants to stay connected to each other.

Portland State REU Program Facebook features include:

- **Wall:** Quick updates on new information and a place for members to post their thoughts.
- **Info:** Website information for REU, NSF, Dr. Jiao, and PSU Physics
- **Photos:** See current and past participants and events all in one place
- **Discussions:** A collection of like information; for example, find grant information under the topic of Potential Grants and Other Opportunities

Search “Portland State REU Program” and become a fan!

## New REU Program Assistant



As of August 2009, Jennifer Knutson joined Dr. Jiao's team as the new REU program assistant. Jennifer was an REU intern this summer to learn the ropes of the position and help ease the transition between assistants.

Jennifer has 10 years of career experience, specifically with project management and technical writing. She has held positions with museums, extension services, and high-tech companies.

One of the resources she brings to Dr. Jiao's team is her experience with Adobe InDesign, a high-powered graphic design software, which will be taught to team members as a new tool for designing and creating research posters.

Jennifer is currently completing a bachelor's degree with an emphasis on technical writing. She will begin the master's in writing program fall 2010.

Jennifer can be reached at [reuga@pdx.edu](mailto:reuga@pdx.edu).

## DR. ERIK SÁNCHEZ, REU Co-PI



**Background** Dr. Erik Sánchez earned his Ph.D. at the Pacific Northwest National Lab in near-field microscopy while attending Portland State University. He then continued at Harvard University in the Chemistry and Chemical Biology Department.

**Research** Dr. Sánchez's Nano-Development Lab focuses on the development and implementation of nano-scale imaging techniques. His current research encompasses a variety of fields including near-field optics, charged beam technology, and 3D FDTD electromagnetic modeling.

**Spare Time** When not in the lab, Dr. Sánchez enjoys using 3D graphic design software to generate graphics, communing with nature while dogsledding, researching minerals, and stargazing. He volunteers at the Rattlesnake Mountain Observatory in Washington automating the telescope focusing system and caring for its optics.

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## Dr. Jiao's Website Gets a Facelift

Gwen Davis spent months toiling on updating and improving Dr. Jiao's website. The new site features easy access to frequently used information, clear navigation options, and well-written information about Dr. Jiao, her team, and her research.

The website was officially updated August 2009 and can be viewed at <http://web.pdx.edu/~jiaoj/>

## Research Posters: Design Software



A little-known option for creating research posters is a graphic design program called InDesign. This software, by Adobe, gives the user myriad options to manipulate photos, text, colors, and layout.

The REU program assistant, Jennifer Knutson, has experience with this software and would like to share her knowledge with REU participants and members of the physics department. If you are interested in receiving training, contact Jennifer at [reuga@pdx.edu](mailto:reuga@pdx.edu)

## A Summer of Science and Friendship

An REU poem by Bradford Paik

This summer was exciting; it's hard to say in words,  
What it's like to spend all day, hanging out with nerds.

Our inner geeks took flight, "MOSS SPERM AND SEM!"  
If my memories were rocks, they would surely be all gems ( moss covered gems).

And please remember to be safe with sodium and water,  
Else your parents will have to say, they have no son or daughter.

Our studies were diverse: computers to biology,  
And thanks to Dr. Flower, we can all act ethically.

I've learned a lot of science and am scared of nanobots,  
A genius, I will sound like when I reference quantum dots.

Nerds or not, through this program, we proved to be the best,  
We're off the scale and charts in a coolness/science test.

This program was a blast and this last claim is so true,  
In a lab, I'd work all day, if my lab mates all were you.

## 2009 REU Participants

From the photo on page 1, REU participants are listed in order from left to right:

William Branham

Lauren Cummings

Chris Marsh

Morgan Bassford

Andrew Pearson

Aaron Besser

Cliff Kim

Jona Johnson

John Heineck

Nick Budak

Bradford Paik

Anne Phillip

Kim Fong

Portland State University



Jennifer Knutson, Program Assistant

[reuga@pdx.edu](mailto:reuga@pdx.edu)

[www.reu.pdx.edu/news](http://www.reu.pdx.edu/news)

Portland State University

PO Box 751

Portland, OR 97207-0751