

In the OPASsphere – September 2, 2009

A service of the Oregon Pre-Engineering & Applied Sciences Initiative (OPAS) funded by ETIC

To subscribe or get more info, please contact Jo Oshiro - jo_oshiro@ous.edu or 503.725.2910

Submissions must be short and use embedded links rather than attached documents!

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Job Search

- The National Alliance for Partnerships in Equity Education (NAPE) is looking for an Assistant Director -- http://www.napequity.org/e107_images/custom/Assistant%20Director%20Job%20Announcement.pdf

Events – Announcements

- **National Academy of Engineers Symposium on K-12 Education**, Release of the Committee Report – Understanding and Improving K-12 Engineering Education, September 8, 2009, Washington DC -- <http://www.nae.edu/engineeringink12.aspx> -- Project Summary -- <http://www.nae.edu/Programs/TechnologicalLiteracy/K-12EngineeringEducation.aspx> -- *Thanks to Celeste Baine.*
- Explore **technology and design for social change** with an interactive panel and workshops at the Springboard Social Innovation Forum! -- <http://www.springboardinnovation.org/forum.html> -- featuring leaders from The Lemelson Foundation, National Center for Women & IT, TechShop and others. Join us at **TechShop Portland** (<http://portland.techshop.ws>) on **Wednesday, September 9, 2009 from 6-9pm**. \$10 at the door.
- **Engineering Education Service Center's 2009 Poster Contest now open to students** – prize is \$200 cash – for more info, see <http://www.engineeredu.com/EESCPsterContestFall2009.pdf> -- for previous winners, see <http://www.engineeredu.com/store/posters.html> . *Thanks to Celeste Baine.*
- The Junior Engineering Technical Society (**JETS**) **National Engineering Design Competition (NEDC)** registration is now open at www.jets.org/nedc. The NEDC is an annual engineering design competition for students in grades 9–12. Teams of students design and build an assistive technology device to help a person with a disability. NEDC teams can win prizes, including a trip to Washington, DC, and cash for their schools. NEDC is a cross-curricular and service learning program that:
 - educates young people about careers in engineering,

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- increases disability awareness, promotes community involvement,
- inspires a spirit of engagement and a willingness to help others.
- see 2009 winners at <http://www.jets.org/programs/nedc/winners.cfm>
- **Linus Pauling Memorial Lecture Series, 2009-2010** -- <http://www.isepp.org/> -- launches its nineteenth season at the Arlene Schnitzer concert Hall on Thursday, October 15th 2009 with Dr. Andrew Weil on Why Health Matters. The series explores the latest discoveries altering our understanding of the universe and ourselves. Also on this seasons' slate: **Freeman Dyson, Howard Rheingold, Donald Tomalio, Scott Borg & Susan Greenfield**. All events start with a book-signing reception in the lobby at 6:00 pm with presentations at 7:00 pm.
- **SAVE THE DATE: Equity in the Classroom** -- <http://techstart.org/classroomequity> --**Year 2 Workshop, Saturday November 7, 2009 at the OPAS office near PSU**. The TechStart Education Foundation -- <http://techstart.org> – the Oregon Computer Science Teacher's Association (OCSTA) and OPAS are collaborating on this workshop to help teachers implement best practices in their environments, using ideas and experiences of other teachers. The workshop is supported by funding from the National Girls Collaborative Project -- <http://www.psctl.org/ngcp/> -- but **our focus is K-12 computer science and engineering initiatives for girls, ethnic or racial minorities and other underrepresented populations**. TechStart has secured funding for 2009-2010. Last year, this program provided nearly \$8,000 in grant funding and in-kind donations to six teachers from elementary to high schools in Oregon. Come hear their stories, and discuss how to put their knowledge to work in your classroom or school. Online registration is coming. More info will be posted here as plans develop, or contact Jo Oshiro via jo_oshiro@ous.edu
- **Supercomputing Conference 2009 – November 14-20, 2009**, Oregon Convention Center . An Outreach Day for High School teachers and students, slated for Saturday November 14 at or near the PSU campus is under discussion. More here as it develops; in the meantime contact Jo Oshiro via jo_oshiro@ous.edu.

Weblinks

- The **Software Association of Oregon** has a new website and tagline “Connect to Innovate” – www.sao.org

Funding

- **ODE has issued an RFP for technology in the classroom** (not limited to computers – think robots, multimedia, probes) -- <http://www.ode.state.or.us/news/announcements/announcement.aspx?=5115> -- Deadline for application is Oct 23. There is a webinar on Sept 16. Page 3 of the RFP lists the districts that are eligible for the funds. *Thanks to Tom Thompson.*
- The Oregon University System (**OUS**) is **seeking grant proposals** to conduct projects that implement the strategy developed by the Engineering & Technology Industry Council (ETIC) and the Oregon Pre-engineering & Applied Science (OPAS) Initiative. Only non-profit entities are eligible to apply and receive these grants. Additional information about ETIC can be found at www.oregonetic.org while information about OPAS can be found at opas.ous.edu. This RFP provides for two grant opportunities. The first is to offer a High School

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Internship Program. The second is to create a Computer Science Pre-College Curriculum and Professional Development Program. Eligible entities may submit a proposal for one or both grant opportunities. OUS reserves the right to award both grant opportunities to a single entity. More info --

<http://www.ous.edu/bapp/bopps/view/1545>

- **Intel Awards \$20,000 to ACE Academy's Engineering Program --**
<http://www.acecharterschool.org/images/Intel%20Awards%2020000%20Grant%20to%20ACE%20Academys%20Engineering%20Program.pdf> – ACE uses the Project Lead the Way (PLTW) curriculum. *Thanks to Tom Thompson.*

Equity

- See **Persistence, Engagement and Migration in Engineering Programs** under Research.
- See **Raising Rigor, Getting Results** under Research.

Articles

- **Former NASA Engineer Calls For More "Forward-Looking" Science In Virginia Classrooms**, Hampton Roads Virginian-Pilot, August 13, 2009 -- <http://hamptonroads.com/2009/08/his-mission-rescue-kids-sputnikera-science> -- reports, "After a three-decade career as a NASA engineer, Jim Batterson knows science," and "as a former teacher and School Board member in Newport News, he also knows education." Batterson is currently "leading a campaign to modernize the science that is taught in Virginia," and to that end has "called on the state Board of Education to do away with 'Sputnik-era science' and embrace organic chemistry, particle physics, nanotechnology and engineering, particularly in high school." Batterson pointed out because of "rapid changes" in technology, "what students learn, particularly in high school courses like physics and chemistry, should be forward-looking. He also believes that engineering principles should be spread throughout the science curriculum and not be considered technology skills." *Thanks to Don Domes.*
- **PSU Wins Contract for More Microgravity Research Aboard International Space Station --**
<http://www.me.pdx.edu/news/index.php?action=121&nid=354> -- M. Weislogel, Y. Chen, and student team were recently funded >\$500k for a 3-year contract with NASA to conduct microgravity fluid mechanics experiments aboard the International Space Station. The research continues along established lines for this group and consists of up to 14 handheld, astronaut-performed experiments that are expected to fly to ISS beginning 2010. The research topic concerns capillary fluidics and is particularly interesting over large length when the impact of body forces (i.e. gravity) are substantially reduced. The group is also expected to continue their microfluidics ground-based research as well as support a German-USA experiment slated also to fly to ISS in 2010. *Thanks to Kris Nieman.*

Research

- **Persistence, Engagement and Migration in Engineering Programs** by Matthew W. Ohland (Purdue), Sheri D. Sheppard (Stanford) Gary Lichtenstein (Stanford) Ozgur Eris (Olin) Debbie Chachra (Olin) Richard A. Layton (Rose Hulman), JEE July 2008. Records from the Multiple-INstitution Database for Investigating Engineering Longitudinal Development (MIDFIELD) and the National Survey of Student Engagement (NSSE) indicate

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engineering majors are like most college students with respect to persistence in major, persistence by gender/ethnicity, racial/ethnic distribution, and grade distribution. Biggest differences: dearth of female students and in-migration of majors. This paper won the Wickendon Award in 2008 -- 19 pg pdf. For an excellent research brief on this paper from the Center for the Advancement of Engineering Education (CAEE), University of Washington is click here. Upshot: Engineering's hot buttons should be recruitment more than retention.

- **More Myth Busting:** A new policy brief from the National Center for Education Statistics (NCES), “**Students Who Study Science, Technology, Engineering, and Mathematics (STEM) in Postsecondary Education**” (<http://nces.ed.gov/pubs2009/2009161.pdf>), examines student entrance into and persistence toward degree completion in STEM fields after high school. While STEM majors accounted for only 14 percent of all undergraduates enrolled in higher education in 2003-2004, NCES found that after six years of initial college enrollment, STEM entrants did better than non-STEM entrants in terms of bachelor’s degree attainment and overall persistence. *Thanks to Di Saunders.*
- **Will teaching spatial reasoning eliminate the need for support strategies for women?** IWITTS Recruiting Women Technoblog, Donna Milgram, August 4, 2009 -- <http://iwitts.com/blog/?p=168> . Includes a link to curricular materials with teachers guide for a 12 hour spatial reasoning unit. Jo notes that while women as a group tend to have less facility with spatial reasoning skills, anyone with fewer such skills, regardless of gender, will benefit from this type of training. Better spatial reasoning skills are correlated with persistence in the engineering disciplines.
- **Raising Rigor, Getting Results** -- <http://www.nga.org/Files/pdf/0908APREPORT.PDF> -- the National Governor’s Association Center for Best Practices report on a set of grants for pilot programs to expand participation in AP courses, particularly by underrepresented minorities, with promising results. Michele McNeil of EdWeek reported on this August 10 -- <http://www.edweek.org/ew/articles/2009/08/10/01nga.h29.html?tkn=ZPZF1qjBeaxmYQc6NTKshTuKX3R3cD1fLN00>

Who’s Who

- New Workforce STEM Coach serving Clark, Cowlitz, Wahkiakum counties in Washington and Columbia County in Oregon: Welcome to Manlio Castillo -- MCastillo@ESD.WA.GOV or 360.690.6654 -- <http://www.swwdc.org/workingnews/2009aug/workingnews-4.html> . *Thanks to Shelley Parker.*

Field Reports

- **Beaverton Firm Will Produce Cheaper Quantum Dots**, Chris Spitzer, The Oregonian, August 10, 2009 -- http://www.oregonlive.com/business/index.ssf/2009/08/beaverton_firm_will_produce_ch.html -- which matters because cheaper quantum dots make portable solar panels a viable alternative to batteries. New manufacturing technologies aim to reduce the cost to 0.2% of current cost thanks to Voxel, Inc.’s access to research resources at ONAMI’s UO facility.

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Data

- **Spending more outside the classroom may pay dividends in [college] graduation rates --**
<http://blogs.wsj.com/economics/2009/08/17/spending-more-outside-classroom-may-pay-dividends-in-graduation-rates/> -- particularly at schools with higher minority enrollment, more Pell grants, and lower SAT scores; note that these schools are already behind schools with higher SAT scores.

PLTW

- In the near future, Jo expects to updates on status and plans to increase the number of schools in Oregon with access to PLTW and its rich curricular resources and infrastructure.

Redux

- OUS website with career and school info on engineering and computer science aims at high school students
– <http://getreal.ous.edu/>

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