Welcome 2013 SPS summer interns!

New faces arrive at ACP today—undergraduate interns hosted by the Society of Physics Students. Please extend a warm welcome. We'll introduce them to you in an upcoming issue.

Director's Matters

Guest column by: Philip W. “Bo” Hammer, Associate Vice President, Physics Resources

Geophysics and industry

The AIP Corporate Associates partnered with AGU to organize a session entitled, “Capacity Building for Industrial Geophysics in Emerging Economies,” at the AGU Meeting of Americas in Cancun, on May 17. The session, chaired and co-organized by Martin Poitzsch of Schlumberger, featured four outstanding speakers who represented a variety of perspectives on how geophysicists contribute to local and global economies in areas such as energy, and also how they provide key insights into economic and social recovery after major natural disasters such as tsunamis. Other co-organizers were Rich Sears (formerly of Shell, now with Stanford University), Catherine O’Riordan, and Bo Hammer.

The first speaker was José Manuel Grajales Nishimura, director of Research and Graduate Training at the Mexican Institute of Petroleum (IMP). IMP is the research arm of Mexico’s national petroleum company, Pemex. Mexico is unusual among oil-producing nations, in that Mexican federal law requires that one percent of oil revenues be reinvested in research and development (Brazil has a similar law). As a result, IMP has a research budget of about $400 million per year. Nishimura described the opportunities and challenges his organization faces.
The opportunities, of course, are to conduct high-impact research on Mexico’s energy future. The biggest challenges, however, are related to capacity. IMP has plenty of funds to invest in R&D, but they are limited by not having enough qualified people to do the work. One possibility is for institutions in Mexico to partner with non-Mexican institutions in research and in training Mexicans to do research that is aligned with IMP strategic plans.

The next speaker was Brian McAdoo, College Rector at the new Yale-National University of Singapore College. McAdoo takes a multidisciplinary approach to understanding the devastating impacts from tsunamis. The impact on humans from these relatively rare but destructive geophysical phenomena is not merely a function of the size of the surge. Rather, loss of life and property also result from a complex mix of factors, including the lack of early warning systems, tsunami drills, building standards, and engineered mitigations such as sea walls. McAdoo also observes that the tectonic forces that create good harbors and draw dense populations such as those in San Francisco, Port-au-Prince, Haiti, and Christ Church, Australia, are the same forces that cause hugely destructive earthquakes. Again, he argues that a multidisciplinary approach is needed to understand and prepare for geological risks, and then recover from disasters when they happen. The key, he says, is an investment in infrastructure and education, and a locally appropriate combination of high- and low-tech approaches.

McAdoo was followed by Carlos Torres-Verdin, professor of petroleum engineering at the University of Texas, Austin. Torres-Verdin specializes in formation evaluation (understanding oil-bearing rock) and has an international reputation for training PhD-level scientists for the Latin American oil industry. He has thus had great impact on building human resource capacity in those regions. Despite his successes in training talented Latin Americans, Torres-Verdin, like Nishimura from IMP, sees that his biggest limiting factor is getting enough students interested in doing graduate work in his area. This challenge is not inherent to the science. Rather, the labor economics of the oil industry are such that graduates with bachelors and masters degrees are commanding large starting salaries and signing bonuses. One solution that Torres-Verdin employs is engaging more undergrads in his research, as well as demonstrating that students who do stay on for a PhD are likely to land in influential leadership positions within global oil companies.

The final speaker of the session was Jerry Harris, professor of geophysics and director of the Office of Multicultural Affairs at Stanford University. Harris takes a truly global perspective on higher education, noting that scholarship is advanced by collaborations among the best individuals, regardless of where they are located. This lofty realization is made increasingly easier to implement by our increasingly borderless world of efficient telecommunications and air travel. Stanford is a leader in forming or joining international partnerships that seek to be transformational rather than merely transactional (typically one-way interactions that do not achieve meaningful long-term mutual benefit). Harris emphasized that US institutions—universities, nonprofits, and corporations—that want to advance their goals, be they education, scholarship, profit, or capacity building, must approach partnership formation from this mutually transformative perspective.

The organizers thank the American Geophysical Union, especially Jaime Fucugauchi (AIP Board member and AGU MOA program co-chair) and AGU staff for their support of this unusual but impactful session at their meeting.

From AIP Publishing
New STIX fonts version supports scientific, technical and medical literature

From the May 29 AIP Publishing press release: STI Pub Companies announce the release of STIX (Scientific and Technical Information Exchange) Fonts, Version 1.1.0-latex. Offering a new packaging format, this new version enables authors of scientific, technical, and medical documents to incorporate STIX Fonts into the commonly used LaTeX document preparation system much more easily.

In development for more than 10 years, STIX Fonts were released in 2010 by STI Pub Companies, a consortium of publishers of mathematical, scientific, and technical books and journals, whose mission is to provide a single, comprehensive, and free source of fonts containing every character or symbol needed to prepare scientific publications. Members of the consortium are the American Chemical Society (ACS), AIP Publishing LLC (AIP), the American Mathematical Society (AMS), the American Physical Society (APS), Elsevier, and the Institute of Electrical and Electronics Engineers (IEEE).

The latest STIX release will allow scientists and engineers using LaTeX to take full advantage of the extensive coverage of unicode mathematical symbols that STIX provides. Read the full release.

Physics Resources Matters

Thousands of student interactions at Six Flags Physics Day

The SPS national office interacted with thousands of students during a jam-packed “Physics Day” at Six Flags America in Bowie, MD, on April 26. Joined by staff from several of the AIP Member Societies and undergraduates from SPS chapters in the region, they provided accelerometer stations near popular rides and assisted students with analyzing the data. They also hosted information tables and showed off a variety of physics demonstrations based on balance, center of gravity, magnetism, and distribution of mass. Most importantly, this group of dedicated volunteers had many opportunities to talk to interested students about the benefits of studying physics.

Physics Today enlists design talent of YGS group

Recently, Physics Today (PT) editor-in-chief Steve Benka, marketing director Jeff Bebee, and publisher Randy Nanna visited the
From left: Tina Enck, YGS account representative, Steve Benka, Jeff Bebee, Randy Nanna, and Kristi Forster, YGS sales representative.

offices of the YGS Group in York, PA. YGS focuses on communication strategy and implementation via its marketing, publishing, and print services. PT has arranged with the company to design house ads for the magazine and a quarterly marketing newsletter. PT first learned of YGS three years ago at the Association Media and Publishing annual meeting in Washington, DC.

Off the Press

Physics Today, June 2013 issue

Cover: In this December 2006 photograph, the partially assembled 14-kiloton Compact Muon Solenoid particle detector awaits its 100-m descent to a beam-crossing point of CERN's Large Hadron Collider. Visible through the cylindrical detector's 4-m-diameter axial aperture, soon to be packed with tracking chambers, are the concentric rings of the still-unattached far endcap. The small hole at the center will accommodate the vacuum pipe in which the countercirculating proton beams collide in the middle of the detector. The article traces four decades of experiments at hadron colliders with ever-increasing beam energies. (Photo courtesy of the UK Science and Technology Facilities Council.)

Coming Up

June 2-6
- AAS 222nd Meeting (Indianapolis, IN)

June 2-7
- ASA 165th Meeting/21st Int'l. Congress (Montreal, Quebec)

June 3
- SPS summer intern orientation (College Park)

Through June 7
- 2013 Physics Team members intensive training at the University of Maryland (College Park) 
  June 9-11
- Special Libraries Association Meeting (San Diego, CA) 
  June 9-14
- CLEO (OSA) (San José, CA) 

Wednesday, June 12
- ACP Summer Picnic, 12-2 pm (College Park)
- Staff birthday breakfasts (Melville and College Park)