

ASU PHYSICS

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IN THE NEWS...

ASU Physics graduate students, **Reid Juday** and **Jay Matthews**, recently swept the poster session at the 2007 APS Four Corners Meeting held in Flagstaff, AZ on October 19th and 20th. Both students received Outstanding Graduate Poster honors. Reid presented a poster titled *Size Determination of Nanoscopic Droplet Beams by Transverse Impact of a Supersonic Free-Jet Expansion*. Jay presented a poster, titled *Photocurrent Measurements on Novel Group IV Semiconductors*.

The first **Biodesign Postdoctoral Symposium** was held at the Biodesign Institute on Oct. 6th. The event was being sponsored by the Biodesign Association of Postdocs and the National Postdoctoral Association. Postdocs from Chemistry, Physics, Biodesign Institute, and Barrow Neurological Institute participated. **ASU Physics postdoc, Nevin Gerek, who works with ASU Physics Professor Banu Ozkan**, received second place honors in the Physical Science poster session for her poster titled *Promiscuity and Protein-Protein Interaction in PDZ Domains*.

GROWING PAINS With careful planning and a little jet propulsion, ASU Physics courses are a popular choice for a burgeoning campus.

In his 25th year with ASU Physics, Professor Otto Sankey has been around the physics' block before. But few realize that on several occasions, he's made that trip strapped to a go-cart equipped with make-shift jet pack! Sankey is just one of several ASU Physics faculty teaching physics courses aimed primarily at students pursuing



Lab coordinator Jim Krider captures Prof. Otto Sankey in a panorama of still pictures in a demonstration of Newton's third law.

non-science majors. These students are business majors, pre-education majors, English majors, among others - all looking to satisfy the graduation requirement commonly referred to as the SQ credit. An SQ course is a Natural Science-Quantitative course designed as a substantial introduction to the fundamental behavior of matter and energy in physical and biological systems. These courses have become increasingly popular - thanks in part to Sankey and a little jet propulsion!

For many non-science majors the decision to take a physics class was met with some trepidation usually stemming from haunting visions equations and formulas. But many students seeking SQ credits are encountering a very different reality from what they imagined a physics class to be. Today, physics lectures and labs engage students in interesting and often hands-on demonstrations. The non-science major is finding that a knowledge of physics can be applied in a variety of non-traditional work environments including urban planning and financial market analysis. **CONTINUED ON PAGE TWO)**



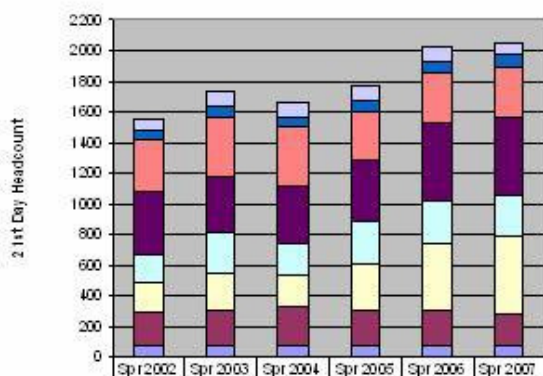
NEW STUDENT SPOTLIGHT: Mark Buchanan

Shadow Mountain High School graduate, **Mark Buchanan** is no stranger to the Phoenix heat, but since coming to ASU in August he has found the best way to cool off: Mark joined the ASU Crew team and now spends his mornings driving oars into the waters of Tempe Town Lake. Also a student in the Barrett Honors College, Mark's academic schedule is as rigorous as his physical training. He is particularly fond of his first year seminar: PHY 191 *The Big World of Nano*. After surveying several different majors, Mark chose physics because the technical foundation that the physics curriculum provides will be transferable to whatever he decides to pursue in the future (perhaps graduate school for engineering?) and the degree will be representative of the seriousness with which he undertakes his studies. This dedication is reflected in his comment: "Your education is what you put into it." For information on the ASU Physics Undergraduate Program, please visit <http://physics.asu.edu/undergraduate/welcome.php>.

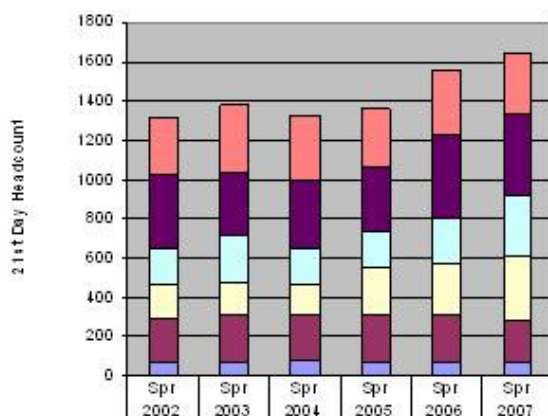
GROWING PAINS (continued from Page One)

Faculty and graduate students work with the Physics Instructional Resource Team (PIRT) to develop labs that are accessible to the non-science major - helping facilitate a shift in perception about physics courses and who can and should take them. The result is a marked increase in the number of students enrolling in ASU Physics courses as shown in the graphs below. The different color bands represent a sampling of the different courses offered in the spring semesters.

Spring Lecture Course 21st Day Enrollments



Spring Lab Course 21st Day Enrollments



This increase has been a welcome, but challenging development as faculty and staff work to address a very different kind of spacetime problem: where and when to put new sections of these growing courses. Associate Chair and Regents' Professor David Smith along with Physics General Studies Coordinator Karen Burrington eat, sleep, and breathe this challenge on a daily basis as course scheduling and teaching assistant assignments are year-round efforts. "Before we are done scheduling for the spring semester, we are already thinking about how we are going to tackle the fall enrollment" says Burrington, "It's like working on a merry-go-round...a very fast merry-go-round that n e v e r s t o p s ! "

For more information on General Studies courses offered through the Department of Physics, please visit <http://physics.asu.edu/general/welcome.php>.

FROM THE CHAIR ...



Physics Then & Now

Students of physics bring a unique approach to solving complex problems that affect our everyday lives and build the foundations of our society for the future. Our faculty and students are focused on an array of research problems that often appear very fundamental in their perspective and focus but somehow they can impact us in surprising ways.

I remember some of the problems that I worked on in graduate school and in my first research position. One in particular that comes to mind was the study of how the atoms were bonded in thin films of silicon. An interesting aspect of these films is that the atoms did not align in a crystalline array but instead they were bonded in a disordered or amorphous network. This amorphous silicon never achieved the properties of crystalline silicon, but it had the advantage of a technology which could make large arrays of transistors or photocells. After years of research from scientists and engineers around the world, amorphous silicon transistors are now used in most LCD flat panel displays and amorphous silicon photocells are an important source of renewable energy.

It was a pleasure to spend time talking to ASU Alumni and Friends on Homecoming Weekend. One alumni, now a doctor, remembered well her class in physics with Howard Voss, and another software engineer remembered his engineering physics class. It was evident that these very successful individuals felt a grounding in physics was an important part of their education.

Our current students of physics at ASU are involved in a much broader perspective of physics. They learn of the relation of nuclear physics and how stars and galaxies evolve, they explore of how proteins contribute to the functions of biological systems, they can fabricate materials with nanometer scale precision and they can image them with atomic scale precision.

The diversity of opportunities offered for students of physics is an open invitation to a much broader segment of our society. In the years to come ASU Physics will find ways to make welcome to our new students who will have broader interests and more diverse origins, backgrounds and perspectives. I am tremendously excited about watching how they will blend their knowledge of physics into the fabric of our society.

LET US HEAR FROM YOU!

If you are an ASU alumni, a physics alumni, or would just like to be a part of the great things happening with ASU Physics, please visit our ALUMNI & FRIENDS webpage at <http://physics.asu.edu/alumni/welcome.php>.

HOMECOMING: SCORE ONE FOR ASU PHYSICS!



ABOVE: SPSers Louis Maizy and Karin Dethloff talk about the Magnus Effect with Dean Sid Bacon.



RIGHT: ASU Physics faculty Carl Covatto answers an alumni question about inelastic collisions.



ABOVE: ASU Physics Professor Molly McCartney takes a turn experiencing angular momentum.



UPPER RIGHT: Never too young for physics! ASU Physics Manager Peg Stuart offers little Jordan Burrington a football.



LOWER RIGHT: Provost Elizabeth Capaldi is impressed by Shaun Uher's explanation of gyroscopic torque.

SPECIAL THANKS to everyone who contributed to the ASU Physics exhibit at the Homecoming Block Party on October 27, 2007. The ASU Physics tent was a popular destination for alumni, families, friends, and university administrators all of whom seemed to really enjoy the interactive displays and the opportunity to talk with ASU Physics' students, staff, and faculty. The Society of Physics Students created wonderful posters that exemplified the creativity, intelligence, and hard work of our terrific Physics majors! No less impressive than the Sun Devil football team, ASU Physics scored a terrific win with an outstanding collaborative effort for this event.

Thanks to SPSers Karin Dethloff, Chris Friedline, Louis Maizy, Shauna Uher, and Kevin Winn, ASU Physics staff Tim Cook, Sabrina Mathues, and Peg Stuart, and ASU faculty Carl Covatto, Molly McCartney and ASU Physics Chair Robert Nemanich for all their help.

THE BIG PICTURE

Understanding students beyond the physics classroom a source of inspiration for ASU Physics faculty member Carl Covatto

On Friday, September 20 I was invited by a former student to participate in the Guest Coaching Program with the ASU women's soccer team. This program is run by the Office of Student Athlete Development (OSAD) and exists to "foster relationships between ASU faculty/staff and athletic department staff" and to "share how we facilitate the academic success of student-athletes". Prior to game time I heard a presentation on the OSAD and all they do to promote the success and retention of ASU's student athletes. Quoting from the presentation, their mission is "to provide services, programming, and guidance that foster: academic success, development of critical life skills, graduation, and preparation for life beyond intercollegiate athletics."

Before the match, I had the opportunity to sit in on the pregame meeting and listen to Coach Kevin Boyd as he prepared for his team for their match against Santa Clara, the number 1 team in the nation. When game time arrived the stands were filled with parents, students, alumni, and many future Sun Devils. Sparky also made an appearance. The Sun Devils outplayed their opponent for most of the game, but came up short in the end losing 1-0. I am not much of a soccer fan, but I enjoyed the game immensely.

As good as the game was, the best part of the evening was getting to thank my student for nominating me for such a special honor. I was even able to tell her parents what a pleasure it was to have their daughter in class. Over the years I have been thanked by many students and while all of the thank yous I receive are special to me, this one ranks as most special. Apart from how honored I felt this was also an opportunity for me to learn about the little-known aspects of ASU's athletic department and to meet some of the caring people who help our student athletes be successful both on and off the field of play. Our Sun Devil student athletes are in good hands.

For more information on Dr. Covatto, please visit:
<http://physics.asu.edu/faculty.php?name=carlc&sort=>

Please send your Physics Flash comments, suggestions, and/or submissions to Peg Stuart at margaret.stuart@asu.edu.