Sundial: Mentoring and Community Building for Physics

A large physics department in an even larger research university can be tricky to navigate. Challenges include finding a study group, meeting more advanced students from whom to seek advice, and finding opportunities to develop as a science professional outside the classroom. The Sundial Project aims to make these challenges a little easier by building a strong student community which spans from freshmen to graduate students and provides mentoring, opportunities for student leadership, and opportunities to develop as scientists.

These interventions were not chosen randomly, but are based on studies of what works to support retention in the sciences by a robust body of literature. Nationally, retention of students in STEM fields is 38% - far too low for a modern workforce. Retention of women and underrepresented minorities in physics is of particular concern; their retention rates are lower than their male and non-minority counterparts. The good news, however, is that building community, mentorship, and

ASU Physics Alumni—Dr. Jay Matthews

Jay Mathews has accepted a tenure-track faculty position in the Department of Physics at the University of Dayton in Dayton, OH. Jay received his BS degree with a double major in Physics and Mathematics from Colorado State University in 2007. He completed his PhD in Physics at Arizona State University in 2011, where he studied the optical and electrical properties of Ge-rich Group IV alloys grown on silicon under the joint supervision of Prof. José Menéndez and Prof. John Kouvetakis (Chemistry).

Upon graduating, Jay was awarded a postdoctoral fellowship position through the National Academy of Sciences’ Research Associateship Program to perform
In the news...

**Lawrence Krauss**, a renowned cosmologist, author and professor at ASU, has been awarded the “Roma Award Urbs Universalis 2013” by the Mayor of Rome. Krauss, who was honored during a formal ceremony at the 2,000-year-old Ostia Antica Roman Theater, was cited for contributions to culture on an international level.

**Lawrence Krauss** and **James Dent** of the University of Louisiana-Lafayette suggest that the recently discovered Higgs boson could provide a possible “portal” to physics that could help explain some of the attributes of dark energy. One of the biggest mysteries in contemporary particle physics and cosmology is why dark energy has a remarkably small (but not zero) value.

In the news...

**Robert Nemanich**, ASU Physics Research Paper Tops List Of Most Downloaded—"Electronic surface and dielectric interface states on GaN and AlGaN" written by Brianna S. Eller, Jialing Yang, and Robert J. Nemanich was recognized by the Journal of Vacuum Science and Technology as the most downloaded paper in June

**Paul Davies**, New theory could transform cancer treatment—A new way to look at cancer – by tracing its evolutionary roots to the dawn of multicellularity more than a billion years ago – has been proposed by Paul Davies of ASU’s Beyond Center in collaboration with Charles Lineweaver of the Australian National University. If their theory is correct, it promises to transform the approach to cancer therapy.

In the news...

**Anna Zaniewski**, received her PhD in condensed matter physics at UC Berkeley and served as a Compass leader for 5 years. She started as an Academic Professional at ASU in July, and is continuing condensed matter research and teaching, alongside advising Sundial.

Please take a moment to welcome her to the department and learn about the Sundial program.

**Morgan Texeira**, We are excited to announce a new team member to the Physics Staff. She will be in charge of:
- Course Schedule & Rooms
- Textbook
- General Studies Committee
- Student Success Center
- PhysTeC
- MNS
- Course Catalog
- Keys/ISAAC

Please stop in and welcome her to the department.
Undergraduate Advising: EZ—appointments

Physics undergraduates may have noticed a new function on their myasu. A new advising link; the link provides physics majors and minors with the convenience of scheduling an advising appointment via their ASU profile. The EZ—appointment system allows all majors and minors to create an advising appointment with a click of a button EZ-Appt.is designed to quickly connect student with their advisor. The advising link will also be available on the physics website (www.physics.asu.edu).

Similar size academic units within ASU have experienced a 90%+ retention rate after the implementation of EZ-appointment.

ASU physics takes great pride in providing the best support to our students. We hope to continue to enhance our department with proven tools that impact retention and graduation.

However, if a student is in need of a same day appointment you may call 480.965.3561 or email Adam directly, Adam.Farni@asu.edu to schedule an emergency appointment.

In the month of September we’ll have a contest; the first student to schedule an appointment each week of September via EZ Appt. will win a prize. Congratulations to Alexander T. the Winner for the week of 9/02/13.

Need to knows:
- Earliest available appointment is 16-hours in advance
- Latest available is 2-weeks
- Monday’s are reserved for Walk-ins advising 8:30 AM to 12 PM; 1 PM to 5 PM
- Currently meetings are only available with Undergraduate Advisor, but we hope to add Graduate and General Studies Advisors in the future

Convenient Features:
- Schedule an appointment from any device with access to MYASU
- Receive an email reminder of your appointment
- Cancel or notify advisor of running late via EZ Appt.
- Fast, it only takes 45 seconds to reserve a meeting request

Make a difference in ASU Physics

Please consider supporting the ASU Physics students, research, and programs.

Your contribution demonstrates both advocacy for the study of science in the United States and a dedication to enabling discoveries that will advance our society. We invite you to support ASU Physics in one or more of the following three ways:

- Howard G. Voss Quasi-Endowment
- Physics General Fund
- Physics Scholarship Fund
engaging science programs have been demonstrated to be effective strategies to retain students with diverse demographics. An example of such an integrated program at UC Berkeley, called the Compass Project, demonstrated striking success: Compass won the 2012 APS award for improving undergraduate education and enjoys STEM retention of 85%, with 65% in physics-based majors (physics, astronomy, earth and planetary science), over twice the national average. Compass is run by students, and achieves these results by integrating engaging science activities with community-building and mentorship. Sundial is adapting the Compass model for ASU, and it is a goal of these two programs to build a strong relationship between Compass and Sundial.

As in Compass, Sundial is led by undergraduate and graduate students who are devoted to building community and services for physics students. Student ownership over the program is essential: after all, students are experts in their own needs. Since the first information session for Sundial in mid July, 65 graduate and undergraduate students have participated in at least one of Sundial’s many events and meetings. In early August, Sundial leaders went to Camp Tontoza near Payson for a summer leadership retreat, and developed the goals and mission statement of the program. During welcome week, Sundial hosted a welcome lunch and launched the mentoring program. A fall retreat, held September 7 and 8 near Prescott incorporated games with astronomy and cloud chamber experiments to build community among nearly 30 graduate and undergraduate students. In 2014, Sundial plans to host a week long summer program for incoming students, where they can engage with science topics while getting to know their cohort.

Science, like any human endeavor, depends upon groups of people working together to solve hard problems. With the Sundial community, students have collaborators for their hard problems, from problem sets to navigating their career.

Sundial was launched this summer by ASU students, with Dr. Anna Zaniewski as the group’s advisor.

Cont. ASU Physics Alumni—Dr. Jay Matthews

As Assistant Professor. In addition to teaching, he will be pursuing a research program focused on studying the properties of new semiconductor materials for infrared optoelectronics.

research for the US Army ARDEC’s Benét Laboratories, located at Watervliet Arsenal in upstate NY, where he worked until July 2013.

In August 2013, Jay will be starting in the Physics department at the University of Dayton as an
As the newly-appointed chair of the physics department, it is my distinct honor and pleasure to welcome all faculty, staff and students to the upcoming 2013-14 academic year. In my first two months in the department office, I am humbled by the magnitude of the task of leading this department. I want to begin by acknowledging the Herculean effort and impressive results from Bob Nemanich, who has guided us through a period of amazing growth and structural changes over the past 7 years, while, at the same time, maintaining his own large and vibrant research program and also teaching a full section of the freshman majors course, PHY151. I am happy to announce here that we will hold a formal event in October, to publicly and collectively convey our gratitude and appreciation for all that he has done, and to wish him continuing success in his career.

Meanwhile, looking outwards from the department, it’s been a busy summer. You may have already seen that ASU is welcoming a record-sized freshman class of over 10,000 new students. Recruiting folks are particularly proud of a 29% increase in non-resident students (who pay us the strong compliment of paying out-state tuition for the privilege to come here – a powerful testimony especially from our California neighbors). Another impressive statistic is the 40% racial or ethnic minority status. This proves the concept that we are truly a campus of equal opportunity with strong outreach. Enrollment of international students is nearly 900, an impressive gain of >60%. Again, these folks pay us the compliment of choosing ASU over many other possibilities.

Consider the potential of all these eager young minds flowing through our classrooms, and across our campus and into the surrounding city of Tempe. I imagine that some students (and parents), while lugging around armloads of personal belongings during move-in weekend, were wondering if they had made the correct choice of institution. We know they will quickly adjust to the temperature shock, and will affirm their choice soon enough. We can all reach out and help them feel welcome, perhaps simply by patiently helping them find that evasive physics classroom.

Important Dates

- September 24– Faculty Meeting
- October 18— Physic Alumni Reception
- October 19– Homecoming