Dean supports physics department

Dear alumni, students and friends:

As a geologist and scientist, I am aware of the physics involved in everything I do: for example, understanding the basis of land formations, listening to music using various media, and driving my car. As an educator, it is my belief that everyone should have a basic understanding of the laws of physics and an appreciation for the role it plays in their lives.

As a discipline, physics strengthens the offerings of Fairmount College, particularly in providing educators an understanding of the scientific method and basic scientific principles. It also provides an important foundation for majors in engineering. Engineers, as applied scientists, must understand the basic scientific principles upon which their particular disciplines rest.

I support the goals of the Department of Physics and I thank you for your support of the physics program at WSU.

Sincerely,

William D. Bischoff, Dean

Chair Solomey shares vision

As I finish my first academic year at Wichita State University, it is a good time to reflect upon the high ambitions I had when I accepted the position as chair of the physics department. The reality is that what I want to achieve—bringing in new, exceptional physics faculty and improving the physics program offerings—is limited by the support and funding provided by our alumni and friends, inside and outside of the university. It is cooperation and collaboration among our supporters that will lead to success in this endeavor.

The Dean’s and Provost’s Offices are providing funds to attract additional qualified faculty and to make improvements to the Department of Physics facilities. This support will eventually lead to an improved physics program. An improved physics program will benefit not only our liberal arts and sciences students—particularly physics, biology and chemistry majors—but also students in the College of Engineering.

We have started on a very long road, a road that will take at least six more years to travel. Although we have spent $29,000 on new undergraduate laboratory equipment, we need at least three times this amount to bring our laboratories up to national standards. However, this amount does not include additional equipment for advanced physics classes or for the special classes like Physics 502, Science Investigations: Physics, for education majors.

I recognize that improvement will be slow, especially for the next year; but I envision steady progress over the years. We will start a search for an experimental low energy nuclear group leader at the rank of associate professor. For continued improvements to the undergraduate laboratories, we are requesting special funding from a technology grant. I am encouraging more of our physics faculty to apply for and establish funding for their research projects and to incorporate more physics students into those research projects. I strongly feel we are progressing in dramatically improving the Department of Physics, and I will continue to push for more improvements.

Sincerely,

Nickolas Solomey, Chair
**Two new classes for physics majors**

**Physics 595. Astrophysics.** A course covering the formation, lives, and deaths of stars. The following topics will be covered: HR-diagrams, atomic and molecular spectra, radiative and convective transfer, the structure and spectra of stellar atmospheres, stellar evolution. Prerequisite: Physics 531.

**Physics 675. Nuclear and Particle Physics.** Theories of Nucleon and Particle Physics, including experimental techniques and important features of current data. Summary of mesons, baryons, and leptons and their electromagnetic, strong and weak nuclear force interactions. Phenomenological descriptions of nuclear and high-energy scattering and particle production leading to the quark theory of matter and other new exotic particles. Prerequisite: Physics 651.

**New faculty member hired**

Holger Meyer, Ph.D., whose most recent work has been on the Main Injector Particle Production (MIPP) Experiment at the Fermi National Accelerator Laboratory, will join the WSU physics department faculty as assistant professor in August. Dr. Meyer presented recent results of the MIPP Experiment during February, as part of the Physics Seminar Series for academic year 2007-2008.

**Post-doc researcher joins department**

Mohamed Eltabey Elsayed, whose Ph.D. was granted by the University of Ain Shams in Egypt, assumes a post-doctoral research position with Professor Hussein H. Hamdeh this summer. Dr. Elsayed’s paper, “Temperature Dependent Lattice Distortion in Fe-Mo-oxides” has been accepted for publication in *Applied Physics Letters*. His research will center on fabrication and characterization of nano-sized catalysts and nanocomposite electrospray nanofibers.

**Physics department supports engineering student needs**

Professors Jason Ferguson, Kamran Rokhsaz, Abu Masud, and Nick Solomey, pictured below, reviewed the basic calculus-level physics class to better meet requirements of engineering students. Professors Rokhsaz and Masud are faculty in the College of Engineering. The committee proposed: An improved book with an online learning aid and homework system; Upgrading laboratory equipment using an $18,000 technology grant from the Provost’s Office and $10,000 from department operating money; Changing the class from a two semester, four-credit hour course with two optional labs to a three semester, three-credit hour course with two labs.

For more information, see [http://webs.wichita.edu/physics/Physics300_redesign.html](http://webs.wichita.edu/physics/Physics300_redesign.html)

**External review findings**

As part of his vision for improving the physics department, Chair Nick Solomey invited an external review panel to evaluate the physics department this past academic year. The panel’s report recommended improvements in teaching and research effectiveness through such means as:

- Decreasing class sizes or adding recitation sections for large classes;
- Offering broader and higher level course options;
- More carefully matching faculty to courses;
- Reviewing course content to meet the needs of engineering and other departments;
- Attaining greater commitment by all faculty to high quality delivery of teaching;
- Strategically hiring new faculty and staff;
- Aligning research activities with WSU’s niche research areas (biomedical and nanoscience, jointly with other departments);
- Investing in necessary research infrastructure;
- Re-establishing a masters program as soon as new hires and funding are in place (subject to further review);
- Considering a Ph.D. program in three to five years.

**Committee members from left:** Ferguson, Rokhsaz, Masud and Solomey.

**External review panelists from left:** Peter Ratoff, Yasar Onel, Scott Hinks, and Bob Rosner and David McDonald, WSU Associate Provost for Research.
Physicist Francis Halzen selected as Watkins Visiting Professor

This year’s Watkins Visiting Professor in physics is Professor Francis Halzen from the University of Wisconsin at Madison. He is the Hilldale and Gregory Breit Professor of Physics.

Professor Halzen also is the spokesman of the Ice Cube experiment, a neutrino astronomical observatory at the South Pole, and is the principle organizer for this experiment. He is a famed theoretical particle physicist and Director of the Institute for Theoretical Particle Physics at the University of Wisconsin. He is the author of the standard textbook used in the senior undergraduate and first year graduate classes in elementary particle physics. His many achievements in science and the ability to communicate its need to the public made him the choice for 2008.

The Watkins Visiting Professorship was created in 1974 by the Watkins Foundation. This grant is now provided through the Watkins fund, a part of the Wichita State University Foundation’s endowment.

Dr. Halzen gave a public lecture, “Neutrino Astronomy at the South Pole” on March 4. The abstract appears to the right.

To view the slides and listen to the audio, go to: http://webs.wichita.edu/physics/PhysicsWatkins.html

Student News

Degrees granted

Scholarships awarded

Scholarships announced

University does not discriminate:
Wichita State University does not discriminate in its programs and activities on the basis of race, religion, color, national origin, gender, age, sexual orientation, marital status, status as a Vietnam Era Veteran or disability. The following person has been designated to handle inquiries regarding nondiscrimination policies: Director, Office of Equal Employment Opportunity, Wichita State University, 1845 Fairmount, Wichita, KS 67260-0205; telephone (316) 978-6791; e-mail ted.ayres@wichita.edu.

Alumnus portrait: Warren E. Pickett

The physics department recently welcomed home our most distinguished physics alumnus, Professor Warren Pickett. Dr. Pickett received his B.S. and M.S. from Wichita State University in 1969 and 1971, respectively, after which he went on to obtain a Ph.D. in physics from the University of New York at Stony Brook. Professor Pickett spent 18 years at the U.S. Naval Research Laboratories, and the past 11 years as Professor of Physics at the University of California at Davis. In July 2008, Professor Pickett became the new physics department chair there.


Celebrating 25 years: Susan Emerson

In late May 1983, Susan Emerson joined the staff of the WSU physics department—then in the Mathematics and Physics Building—as secretary. Today, she serves the department and the Fairmount Center for Science and Mathematics Education as senior administrator.

Ms. Emerson has seen much change in the department over the years, especially with regard to technology. From using a typewriter, then learning to use an early personal computer, to working with today’s multi-media computer, Ms. Emerson has navigated technological changes with ease. She has also noted the difference that computer technology has brought in the department’s research work and teaching laboratories.

Ms. Emerson’s favorite part of her work has been interacting with the people. Many of the faculty, staff and students feel they owe some measure of their successes to her.
The Fairmount Center for Science and Mathematics Education

Most university departments provide community outreach, ranging from a making presentation in an elementary school classroom, to working with in-service teachers, to giving a radio or television interview. The Fairmount Center for Science and Mathematics Education is Fairmount College’s outreach organization to serve the sciences and mathematics communities. Each year more than 25,000 people experience the fun and excitement of learning about science and mathematics through Fairmount Center presentations and programs. Center programs include the Kansas Science Olympiad, Kansas Junior Academy of Science, Lake Afton Public Observatory, classroom presentations on topics in science, a lending library of math and science kits, and the Kansas JASON Project.

Since its formation, LAPO has had a close relationship with the physics department and the Fairmount Center. The center also uses faculty of the physics department as event supervisors for Science Olympiad events and as judges for the state meeting of the KJAS. By bringing students to campus for these events and introducing them to members of the science and engineering faculty, the hope is that they will consider studying science at WSU when they start thinking about college. Students from the physics department are not only offered available positions at Fairmount Center as student assistants, but they also are afforded the opportunity to use the equipment at LAPO to do a research project in astronomy. The Fairmount Center’s offices occupy space adjacent to those of the physics department and the two units share an administrative assistant.

Greg Novacek, Director of the Fairmount Center, was awarded an M.S. in physics by WSU in 1986. He also earned a secondary teaching certificate in physics and mathematics, further suiting him for outreach activities. Since the mid-1980s, Mr. Novacek also has taught some of the astronomy classes offered by the WSU physics department.

For more information of the activities of the center, visit: http://webs.wichita.edu/facsme/