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Department of Physics & Astronomy

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Research Award to Dr. Hinnefeld

At the IUSB Academic Senate meeting in April, Vice Chancellor for Academic Affairs Alfred J. Guillaume presented the 2006 IUSB Distinguished Research Award to Dr. Jerry Hinnefeld. Dr. Hinnefeld carries out research in nuclear physics, using facilities at the University of Notre Dame and the National Superconducting Cyclotron Laboratory at Michigan State University.

Dr. Hinnefeld will describe his research in his Research Award Lecture during the 2006-2007 academic year. The date is yet to be determined.

CTS Scholarships

Gregory Warrell of South Bend is the recipient of this year's CTS Freshman Scholarship in Physics. Congratulations to Gregory, and congrats, too, to these recipients of CTS Continuing Student Scholarships in Physics — Larry Berker, Noah Cooper, Savan Kharel, Luke Sawle, Dan Stalvey, and Nate Vander Werf.

The CTS Scholarships in Physics were established by a gift from the CTS Corporation Foundation, of Elkhart. The first scholarships were awarded in 2004. Since that time, approximately \$10,000 in scholarships have been awarded to IUSB physics majors!

Dr. Levine Awarded \$282,000 NSF Grant

Dr. Ilan Levine has been awarded a 3-year, \$280,000 grant by the National Science Foundation, in support of his research into dark matter. Dr. Levine is collaborating in two experiments to search for this elusive constituent of the universe. Both the COUPP and PICASSO collaborations utilize superheated droplet detectors to search for one proposed form of dark matter, so-called WIMP's (Weakly Interacting Massive Particles). Dr. Levine has assumed prominent roles in both these collaborations, and he recently traveled to California to represent these experiments before representatives of the federal science funding agencies at a meeting of a dark matter experiment study group.

Dr. Levine has involved a number of undergraduate students in his research since arriving at IUSB in 2002, and this NSF grant provides a reliable source of funding to support this student involvement. This past summer, for example, IUSB undergrads Nate Vander Werf and Eric Abarbanell were able to participate in this research full-time, thanks to student financial support drawn from the grant. Dr. Levine is also very interested in providing an opportunity for in-service or pre-service K-12 teachers to take part in this research. If you are interested in being involved, or if you're just interested in hearing more about this work, contact Dr. Levine at ilevine@iusb.edu.

Dr. Scott Wins PRF Grant

Dr. Henry Scott has been awarded a \$35,000 grant from the Petroleum Research Fund of the American Chemical Society, in support of his research into the formation of hydrocarbons at pressures and temperatures typical of Earth's mantle. Dr. Scott's first scientific paper on this topic, published in September 2004 in the *Proceedings of the National Academy of Sciences*, drew considerable attention from the popular scientific press because of its relevance to the controversial claim that some petroleum might be generated at these high temperatures and pressures from common Earth materials, and not from decaying organic matter. The PRF grant will support Dr. Scott's efforts to extend the earlier work, which demonstrated the production of methane (CH_4), to look for formation of heavier hydrocarbons.

Dr. Scott is using some of the money from this grant to purchase additional equipment for his on-campus mineral physics laboratory. With this new equipment Dr. Scott (and students) will be able to load and test samples in his diamond anvil cells at IUSB before traveling to an accelerator facility, such as the Advanced Photon Source at Argonne National Laboratory, near Chicago, to carry out his experiments.

IUSB Physics Students Headed to Maui, Frisco to Present on Summer Research

IUSB physics students are headed to some nice locales this year to present results of their summer research! Nate Vander Werf traveled to Montreal in August to give a talk about thermal testing of acoustic transducers for the PICASSO experiment. In October he'll give another talk at The Joint Meeting of Pacific Region Particle Physics Communities, in Honolulu, Hawaii, and on the way home from that he'll stop in Chicago to give a talk about the COUPP and PICASSO dark matter experiments at the Argonne Undergraduate Research Symposium, at Argonne National Lab. Nate's research has been under the supervision of Dr. Ilan Levine.

Sara Huggins will give a talk in December at the annual winter meeting of the American Geophysical Union in San Francisco, where she'll present results from an experiment she performed this summer at the Advanced Photon Source of Argonne National Lab, under the supervision of Dr. Henry Scott. Congratulations are in order for Sara, by the way, for receiving a competitive SMART Summer Fellowship to support her research this summer.

Luke Sawle plans to present results from his Clemson University REU (Research Experiences for Undergraduates) at next spring's National Conference on Undergraduate Research (NCUR 2007), at Dominican University in San Rafael, California (Marin County, just north of San Francisco).

Even without the opportunity it affords to head off to these exotic locations, the educational benefits of an intensive research experience like the ones these students have enjoyed this summer are priceless.

Nuclear Astrophysics Course in Spring '07

The department's Spring 2007 course offerings for physics majors will include, for the first time, a course in nuclear astrophysics, to be taught under the course number AST-A453 Topical Astrophysics. The course will be taught by Dr. Jerry Hinnefeld, whose research in experimental nuclear physics includes work in this field.

The new course is an outgrowth of Dr. Hinnefeld's membership on the Outreach Advisory Committee of the Joint Institute for Nuclear Astrophysics (JINA), an NSF Physics Frontier Center. The lead institutions in JINA are Notre Dame, the Univ. of Chicago, and Michigan State, and Dr. Hinnefeld will coordinate AST-A453 with an introductory graduate level course on the same topic taught at MSU by Dr. Hendrik Schatz. The JINA Outreach Committee hopes that this will serve as a model for other undergraduate institutions that might wish to introduce courses in this exciting field.

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Freshman Seminar Course Planned for Spring 2006

Look for a new 1-cr. physics course in the near future. If all goes well, we'll begin offering a freshman level seminar course in Spring 2007. The idea is to introduce our students right away — perhaps even before they begin their major coursework — to some of the exciting developments in contemporary physics. Course meetings will include research presentations from IUSB faculty and students and visiting scientists, as well as some screenings of science documentary films.

Dr. Hinnefeld Named to FACET

Dr. Jerry Hinnefeld is one of nineteen faculty members from all IU campuses to be selected this year for induction into FACET, IU's Faculty Colloquium on Excellence in Teaching. FACET was established as an IU Presidential Initiative in 1989 to promote and sustain excellence in teaching. FACET members participate in an annual retreat and workshop on college teaching, and they work to advance IU's teaching mission.

Dr. Hinnefeld joins Dr. Monika Lynker, who was our department's first FACET inductee in 2005.

Dr. Lynker New Director of CLAS Advising Center

Dr. Monika Lynker has been appointed to a three-year term as Director of the CLAS Advising Center by Dr. Lynn Williams, Dean of the College of Liberal Arts and Sciences. As Director of Advising, Dr. Lynker coordinates the academic advising efforts of the College's professional advisors, faculty advisors, and faculty mentors. She also serves as the academic advisor for a number of students who have not yet selected a major area of study. Unfortunately, this appointment requires that Dr. Lynker spend a few hours per week at her advising office in Wiekamp Hall (DW3190). We're willing to put up with this hardship, though, for the good of the College.