

Department of Physics and Astronomy Newsletter

Dear Alumni and Friends:

It is again my pleasure to bring you greetings from the Department of Physics and Astronomy and try to keep you updated on the activities of the faculty, students and alumni.

Note particularly that the "Alumni News" section of this newsletter provides news items that some of you have provided. We encourage you to write or E-mail us with your news for inclusion in future newsletters. A department is judged not by its current students or its faculty but by the accomplishments of its alumni.

Finally, I wish to thank you for your continued support of the department. Gifts to the BSU Foundation designated to the Department of Physics and Astronomy continue to provide funds for student travel, scholarships, guest lecturers, and other departmental projects.

David R. Ober
Department Chairperson and Professor of Physics and Astronomy

Center for Computational Nanoscience

On September 24, Indiana Governor **Joseph E. Kernan** came to Ball State and formally opened the Center for Computational Nanoscience (CCN). Following a welcoming by Dr. Blaine Brownell, President of the University, the morning kickoff ceremony began with opening remarks by Governor Kernan. The Center for Computational Nanoscience was established by a two year, \$1.5 million grant from the Indiana 21st Century Research and Technology Fund in Spring, 2003. The center is located on the second floor of Cooper Science directly above the departmental office.

This multidisciplinary research center is a collaborative effort between Ball State University as the lead institution, and its partner institutions including the University of Notre Dame, Ohio University, Purdue University, and Valparaiso University. Eight faculty members at these partner institutions join co-principal investigators **Ronald Cosby**, **Yong Joe**, and **Mahfuza Khatun** from Ball State University

CCN goals include collaborative research on quantum dots and dot array technologies that promote the timely development, transfer, and manufacture of new nanotechnologies in Indiana.



Dr. Yong Joe, Governor Kernan, Dr. Mahfuza Khatun, and Dr. Ron Cosby are at the grand opening of CCN.

Dr. Jim Pyle, Director of the Office of Academic Research and Sponsored Programs, served as master of ceremonies during the opening celebration. Following a series of brief talks in the morning including one by Tony Armstrong, Director of the 21st Century Fund, the proceedings continued with a luncheon attended by CCN members, university leaders, faculty and students from the Department of Physics & Astronomy, and faculty from other Ball State University departments.

The luncheon speaker was **Karl Koehler**, from the National Science Foundation, and former Director of the 21st Century Fund. The afternoon session was opened with remarks from **Dean Michael Maggiotto**, College of Sciences and Humanities, and was followed by technical presentations by CCN researchers.

A reception and poster session preceded the evening dinner event. Students from Ball State, the University of Notre Dame, and Valparaiso University displayed their research work supported by the 21st Century Fund. The evening dinner, hosted by **Provost**

Beverley Pitts, was attended by community guests and ended with a keynote speech on "The Future of Nanotechnology" by **Ron Fauquier**, Vice President of Ontario Systems, L.L.C, Muncie, Indiana. Ron has been a member of the department's Industrial Advisory Committee since its formation in 1997.

Two outstanding scholars were welcomed to the CCN this year for full-time research work. **Dr. Ioan Sturzu**, a native of Romania, arrived in July and **Dr. Arkady Satanin** from Russia came in September. Prior to his arrival, Dr. Sturzu spent the past year in the Beckman Institute at the University of Illinois Champaign-Urbana conducting research in the area of carbon nanotube theory. Dr. Satanin comes to us from the Institute for Physics of Microstructures, Russian Academy of Sciences, Nizhny Novgorod, and Nizhny Novgorod University. He brings years of research experience and an impressive record in theoretical studies of classical and quantum physics.

The new CCN office administrator is **Monica Yche**. She is a graduate of the University of Pittsburgh as well as a Pittsburgh native. Her work was paramount in coordinating and instigating the CCN Opening festivities.

Nine physics graduate students are currently working with the CCN faculty. The CCN research and educational activities provide exciting opportunities for Ball State faculty and students, improve the workforce training, and potentially lay the foundation for new high tech jobs in the East Central Indiana area.

Faculty News

Two retirements were announced within the previous year. After 40 years with Ball State, **Dr. Ralph Place** decided to hang up both his Physics hat and his Computer Science hat. Ralph's plans for retirement include golf and grandchildren. And after 27 years, **Dr. Ruth Howes** has different plans for her retirement. She is now chairperson of the Department of Physics at Marquette University. Somehow, that doesn't sound like retirement. Ralph and Ruth join **David Koltzenbah**, **Leon Reynolds**, and former department chair **Malcolm Hults** in our ranks of emeriti faculty.



On a sad note, **Dr. Edwin Craig** died last June 26 at the age of 92. He was a faculty member for 17 years during the Ball State transition from being a teacher's college to being a university. He initiated the department's interest in teaching electronics.

Four new faculty have joined the department this year, **Drs. Antonio Cancio, Eric Hedin, David Grosnick, and Feng Jin**. Dr. Cancio did his undergraduate work at Columbia and earned his PhD from the University of Illinois. His research interest is in computational nano-structures and semiconductors. Dr. Hedin earned a PhD from the University of Washington and has a background in plasma physics. He is now working with the nanoscience group at BSU. Dr. Grosnick is an experimental high-energy and nuclear physicist with both the M.S. and Ph.D. degrees from the University of Chicago. His research includes collaborations with other physicists in experiments performed at Brookhaven and Argonne National Laboratories. Dr. Jin holds a Ph.D. in Electrical Engineering from Wayne State University, an M.S. in physics from Fisk University, and a B.S. in physics from Fudan University in China. His fields of specialization include low pressure plasma discharge physics and solid state materials and devices. Dr. Feng is utilizing much of his time this year in developing an experimental laboratory.

AAPT Award for Jim and Nancy

This past January the American Association of Physics Teachers recognized **Jim and Nancy Watson** for their efforts in teacher training by presenting them with distinguished service citations. Their pioneering work in "Physics with Toys" has won them national and international recognition. They have also been conducting summer workshops at BSU for science teachers for over 20 years. A more extensive story about them may be found at www.bsu.edu/physics.

Alumni News

- **Jeff Bower** (M.S. 1995) is the Eastern North America Sales Manager for BP Solar which is located in Frederick, Maryland. BP Solar manufactures, designs, markets, and installs photovoltaic solar electric products and systems.
- **Mike Fruchey** (M.S. 1993) is the Associate Director of Transportation Engineering for the city of Ft. Wayne, Indiana.



Top: Ron Fauquier, Vice President of Ontario Systems, L.L.C., and Dr. Mafuza Khatun of CCN at the dinner and opening banquet held at the BSU Alumni Center.

Bottom: CCN staff group photo was taken in the newly renovated office on the second floor in the Cooper Science Complex.



- **John Gough** (B.S. in Physics and Computer Science 1981) is a Systems Engineer in Tulsa, Oklahoma, for TULMEL Systems. TULMEL Systems provides computing infrastructure services which include the integration of networks, servers, software, and processes used to run businesses.

- **Jeff Sayers** (B.S./M.S. 1967) and **Mike Wolter** (B.S. 1969) were two of 100 teachers from across the nation who were named Tandy Fellows. Each received \$3000 awards at the spring 2003 meeting of the National Association of Science Teachers in Philadelphia.

- **Kate Weber** (B.S. in Physics and Computer Science 2001) has completed her masters degree in Electrical Engineering at the University of Virginia.

- **Kevin Tajkowski** (B.S. 1997 and M.S. 2001) has taken a position with McDowell Owens Engineering, Inc., in Kingwood, Texas. He performs computer modeling of fires for a company that performs forensic engineering, fires science, research, and testing.

- **Travis Barclay** (B.S. 2003) was named to the CoSIDA academic All-American football team on the basis of his 3.99 GPA as a physics major. He was also featured in this year's Sports Illustrated College Football Preview as being one of the five smartest football players in the country.

- **Ben Buehler** (B.S. 2002) was among the first four students nationwide to receive Knowles Science Teaching Foundation Fellowships. The fellowship supports him professionally and financially for up to five years through a teacher preparation program to eligibility for tenure.



Scholarship and Awards

- R.D. and H.T. Miller Scholarship: **Courtney Rowe-Bultink**, a spring 2003 graduate of Coldwater Senior High School, Coldwater, Michigan, received the 2003-2004 Miller Scholarship. The scholarship carries a \$1000 award. Courtney is majoring in physics, minoring in astronomy, and she is a member of the Honors College.

- Irena Mrozowski Scholarship: **Benjamin Hook**, a spring 2003 graduate of Madison-Grant High School, and from Fairmount, Indiana, is the 2003-2004 recipient of the \$500 Irena Mrozowski Scholarship. Ben is majoring in physics and computer science, minoring in mathematics, and he is a member of the Honors College.

- Freshman Scholarship: **Kevin Kay**, a spring 2003 graduate of Elmhurst High School, Ft. Wayne, Indiana, is the 2003-2004 recipient of the \$500 Freshman Scholarship. Kevin is majoring in pre-engineering.

- Cooper Award Winners: **Aphrodite Ahmadi**, a graduate student from Islamic Azad University in Iran and Robert Ochs, an undergraduate from Southwestern High School in Jamestown, New York, were the 2003 and 2004 Cooper Award winners, respectively. Aphrodite is currently working on her doctorate at Syracuse University, and Robert will be pursuing a graduate degree in Medical Physics beginning in the fall of 2004. The Cooper Award is a \$300 award that is given each year in memory of the late Dr. Robert Cooper. The Cooper Science Complex was named in honor of Dr. Cooper in 1967.

- Beginning Physics Achievement Awards: On the basis of their academic performance in beginning general physics, the following students were given first year achievement awards at the spring 2003 Society of Physics Students banquet: **Mathew Johnson**, a sophomore mathematics major and physics minor from Wawasee High School, Syracuse, Indiana; **Michael Cuvalo**, a freshman computer science major and applied physics (electronics) minor, from Lansing High School, near Chicago, Illinois; **Iori Pullan**, a freshman religious studies major and physics minor from Lawrence North High School in Indianapolis; and **Ryan Fedewa**, a freshman physics teaching major and astronomy minor from Flushing High School in Flushing, Michigan.



Top: Dr. Ralph Place with 1964 Physics and Astronomy graduate and a member of the first quantum mechanics class, Karl Schmsdorf.
 Middle: The observatory which houses the telescopes in Flagstaff, AZ where students conduct research for their Astronomy 120 class.
 Bottom: Dr. Ahmed Alkhalifah, our first Ed.D graduate, is shown with his dissertation committee.

Outstanding Senior Awards: Travis

Barclay, a graduate of Bedford North Lawrence High School in Bedford, Indiana, and **Ian Rausei**, a graduate of Merrillville High School, Merrillville, Indiana were named Outstanding Seniors for spring 2003. Travis continued his graduate studies at Ball State during the 2003-2004 working with the department's nanoscience research group while playing as a fifth-year senior on Ball State's football team. Travis was also selected as one of the Sports Illustrated Academic All Stars for 2003. Ian has taken a science teaching position at Highland Middle School, Highland, Indiana.

Recent Graduates

Doctoral Program: Doctoral student, **Dr. Ahmed Alkhalifah**, graduated last May. He is the first student to complete the requirements for the Ed.D in Science Education with a physics emphasis. He worked primarily with Dr. Ruth Howes on his dissertation.

Master's Program: Masters degree recipients for the past 12 months are:



Top: Courtney Rowe-Bultinck receives a scholarship award from (now retired) Dr. Ruth Howes.

Bottom: Virgil Hook is awarded a scholarship presented by Dr. Thomas Jordan.

- **Aphrodite Ahmadi**, M.S.
- **James Hoffmann**, M.S.
- **Luke Kamuchok**, M.S.
- **Richard Maupin**, M.S.
- **Randall McClay**, M.A.
- **Greg Ryshen**, M.S.
- **Tim Strand**, M.A.
- **Keith Turner**, M.A.

Bachelor's Degrees: This past calendar year, the following departmental and teaching majors earned degrees in the Department of Physics and Astronomy:

Physics Majors: **Travis Barclay, Eric Grashorn, Joshua Huss, James Longacre, David McCollum, Robert Ochs, Norm Swiher.** Physics Teaching Major : **Ian Rausei.**

Drop us a line:

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