The past year has been one of international, national and local recognition of our faculty, students, and staff. Prof. Don Gur-nett’s book entitled *Introduction to Plasma Physics with Space and Laboratory Applications* received the 2007 Basic Sciences Book Award from the International Academy of Astronautics. Craig Kletzing received the President and Provost Award for Teaching Excellence, while Cornelia Lang earned a College of Liberal Arts and Sciences Teaching Award. Usha Mallik was selected as a 2007 Collegiate Fellow, and John Prineas was named a Dean’s Scholar. In addition, Phil Kaaret and Art Smirl were elected Fellows of the American Association for the Advancement of Science.

For the third year running, one of our undergraduates was awarded the prestigious Goldwater Scholarship. This year, the recipient was Catherine Whiting, who is featured in the Student Profile article of this issue. Past Goldwater recipient Evan Sengbusch received a National Science Foundation Graduate Fellowship. Longevity awards were given to staff members Jeremy Faden, Kathy Kurth, and Dale Stille, and Deborah Foreman received a Mary Louise Kelley Staff Excellence Award. Congratulations to all!

The face of the Department continues to change. Over the past year, Assistant Professor Bill Daughton returned to Los Alamos National Laboratory, and after nearly forty years of service to the Department, Prof. Jerry Payne decided to retire. We’re fortunate to welcome aboard Associate Professor Jane Nachtman, a high-energy particle experimentalist who was formerly a Wilson Fellow at Fermilab. Faculty searches are now underway in the areas of plasma theory and space-based astronomy, and in the coming year for condensed matter theory.

I hope you enjoy this edition of the Newsletter, and please pass along any news that you would like to share with us.

— Tom Boggess

**Letter from the DEO**

Catherine Whiting’s senior year at Iowa has been a very busy one. Not only is she majoring in physics, astronomy, and mathematics, she is also the Society of Physics Students (SPS) president, a mentor for the Women in Science and Engineering (WISE) program, and is currently working on a paper entitled, “Confirmation of a Faraday Rotation Measure Anomaly in Cygnus” for publication in the *Astrophysical Journal*.

Catherine, a Waterloo, Iowa native and graduate of West High School, began her research at Iowa in her sophomore year working with Prof. Steven Spangler studying the coronal Faraday rotation. In her junior year she continued her studies with Prof. Spangler on Faraday rotation through the Cygnus OB Association.

In 2006, Catherine participated in a summer REU (Research Experience for Undergraduates) program at the National Radio Astronomy Observatory in Socorro, New Mexico, researching Cygnus X-3, a micro-quasar with the VLA (Very Large Array). This summer she completed an REU at the Institute for Astronomy at the University of Hawaii at Manoa, researching evolution of galaxies and galaxy clusters at high redshifts.

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Faculty Directory

**Astronomy/Astrophysics**
Kenneth Gayley, Associate Professor
Philip Kaaret, Assoc. Professor
Cornelia Lang, Asst. Professor
Robert Mutel, Professor
Steven Spangler, Professor
John Neff, Professor Emeritus

**Atomic & Molecular Physics**
Paul Kleiber, Professor

**Condensed Matter/Materials Physics**
Michael Flatté, Professor
Craig Pryor, Assistant Professor
John Schweitzer, Professor
Thomas Bogess, Professor
John Prineas, Associate Professor
Arthur Smirl, Professor
Markus Wohlgenannt, Assistant Professor

**Elementary Particle Physics**
Yannick Meurice, Professor
Mary Hall Reno, Professor
Vincent Rodgers, Professor

**Nuclear Physics**
William Klink, Professor
Wayne Polyzou, Professor
Gerald Payne, Professor Emeritus
Edwin Norbeck, Professor Emeritus

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Faculty Highlights/Research

Prof. **Don Gurnett** has been selected to receive the 2007 Basic Science Book Award from the International Academy of Astronautics (IAA) for his book with Amitava Bhattacharjee entitled *Introduction to Plasma Physics with Space and Laboratory Applications*, which was published by Cambridge University Press in 2005. The book was developed from class notes that he handed out to students over a period of more than 40 years while teaching the departmental two-semester Plasma Physics course 29:194-195. He started this course with Profs. David Montgomery and Karl Longgren in 1966. The award will be presented to Prof. Gurnett at the 2008 IAA Congress in Glasgow, Scotland.

**Philip Kaaret** was elected a Fellow of the American Association for the Advancement of Science.

Professors **Philip Kaaret** and **Steven Spangler** were the inspiration behind a new award created by the College of Liberal Arts and Sciences (CLAS), called the Iowa Great Teacher Award. They proposed this award to CLAS Dean Linda Maxson, based on a similar one given at Williams College in Massachusetts. The Iowa Great Teacher Award is given to a hardworking, innovative elementary or secondary school teacher in the State of Iowa. Ina Hubbard-Heidemann, sixth grade teacher from Woodrow Wilson Elementary in Newton, was the first recipient of the award, and was presented with a plaque, a $1,000 honorarium, and a $1,000 award to her school.

Prof. **Craig Kletzing** was awarded a University of Iowa 2007 President and Provost Award for Teaching Excellence. The award, which carries a $3,000 prize, is given to those faculty members who consistently demonstrate a high level of teaching excellence.

Prof. Kletzing also completed Phase B budget negotiations with NASA and Johns Hopkins University Applied Physics Lab for his $28.5 million investigation on the Radiation Belt Storm Probes mission. Dr. Scott Bounds of Prof. Kletzing’s group was selected for a new $489,000 sounding rocket project to investigate auroral electrodynamics.

**Cornelia Lang** received a College of Liberal Arts and Sciences Collegiate Teaching Award. The award is given to faculty who demonstrate outstanding performance in the classroom, laboratory, or studio. Prof. Lang was recognized for her interactive teaching style, ability to make astronomy available to both majors and non-majors, and her commitment to mentoring undergraduate students by involving them in her research.

**Cornelia Lang** and her collaborators were recently awarded time on the Hubble Space Telescope to make the first-ever, large-scale survey of the Galactic Center region in the Paschen-Alpha line transition (at a wavelength of 2 micro-meters) using the onboard near-infrared camera, NICMOS. They were awarded 144 orbits for their program entitled, “A Paschen-Alpha Study of Massive Stars and the ISM in the Galactic Center” during the Spring of 2008. She will be collaborating with astronomers at the University of Massachusetts, the California Institute of Technology, and the University of California, Los Angeles.

Prof. **Usha Mallik** was named a 2007 Collegiate Fellow by the College of Liberal Arts and Sciences. Her student, Veronique Ziegler, completed her Ph.D. degree and was hired by the Stanford Linear Accelerator Center as a research associate. Veronique’s thesis has also been nominated for the Tanaka Award (for the best thesis in the field of experimental particle physics). Prof. Mallik was elected to the Graduate Council and the Council on the Status of Women (CSW) for three-year terms. She is also continuing her efforts in strengthening the scientific backgrounds of elementary and middle school science teachers in Pakistan, especially in the rural areas.

**Edwin Norbeck** and **Yasar Onel** and a number of their students are doing last minute preparations...
Faculty Highlights/Research

for the first experimental results from the LHC, which will be the world’s highest energy accelerator when it turns on in July of next year. They are still putting the finishing touches on some small (weighing less than a ton) detectors. They are also learning how to get useful information from the huge amount of data that will be produced (more than 10 petabytes per year).

After 38 years of teaching in the Department, Gerald Payne has retired from his position as professor. The Department wishes him the best in his retirement.

John Prineas was named a 2007-2009 Dean’s Scholar by the College of Liberal Arts and Sciences. The award recognizes newly promoted faculty members who excel in teaching and scholarship or creative work. He will use the $5,000 award for each of two years to support teaching and research.

New Faculty

The Department welcomes associate professor Jane Nachtman to the University of Iowa.

Prof. Nachtman, an alum of the University of Iowa (B.S. physics) and former student of Prof. Yasar Onel, received her M.S. and Ph.D. degrees from the University of Wisconsin, Madison. She completed her postdoctoral work at UCLA, and was most recently employed as a Scientist (Wilson Fellow) at Fermilab in Batavia, IL. Her research experience includes searches for physics beyond the Standard Model at the LEP and Tevatron colliders, and more recently with the CDF Collaboration at Fermilab, in analyses to examine dilepton events at high transverse momentum as a signature for new physics. She looks forward to continuing the search for exotic physics at the LHC and ILC.

What’s New

Machine Shop Acquires New Milling Machine

This summer the Department added a new milling machine to the machine shop, a Milltronics MB20 vertical bed mill, the “little brother” of the mill that was purchased in 2003 (model MB30). Its axis travels are X= 40 inches, Y= 20 inches, and Z= 24 inches. The CNC control is the same as the MB30, but the software was upgraded to the latest version on both mills when the new one was put into service. Purchased with funds from several departmental accounts and from proceeds of the sale of an old mill in the shop, the new mill is being used to fabricate parts for Prof. Craig Kletzing’s EDI detector and will also be used for his upcoming rocket project.

Renovation Adds New Grad Student Offices

Thanks to special funding received from the Provost’s Office and the College of Liberal Arts and Sciences, recently vacated space was renovated on the 4th floor of Van Allen Hall this past year and converted into offices for new incoming graduate students. New students will be located there along with at least one senior grad student until they declare their area of interest, after which they will be relocated closer to their advisor. The new office is equipped with three PCs, modular work stations, wireless internet, a large work table and an easel.
Alumni

After graduating, Andrew (Drew) Alton (BS 1992) spent a few years finding himself, which led him to get an MS in physics from Ball State University in 1996. Then he received his PhD from Kansas State University. He spent six years as a postdoc for the University of Michigan before taking a job as an assistant professor at Augustana College.

Sharath Ananthamurthy (PhD 1993), Associate Professor at Bangalore University in Bangalore, India, is teaching and researching in laser cooling and trapping of ions, and the use of optical tweezers for nanometer scale rheology in polymer solutions. He has research grants from science and technology funding agencies in India and an active group of students pursuing their PhD degrees. He is currently (2006-2007) on sabbatical at Imperial College, London, working on ion traps for quantum information processing applications.

Jacqueline Coyne (BS 1999) is an administrative assistant in the IP department at Davis, Brown, Koehn, Shors & Roberts in Des Moines, IA.

Tracey Harbert (BS 2005) is currently going to medical school at the University of Nebraska College of Medicine. She says she’ll throw her fate to the wind in 2009 to see where she’ll go for residency and her specialty of practice will probably have been chosen by throwing darts at a board. She still harbors a small hope to be a flight surgeon and work for NASA.

James Shelton Meyer (PhD 1972) is Chairman, Division of Mathematics and Natural Science at St. Gregory’s University in Shawnee, OK.

Ting-Chung Poon (BA 1977) is a professor in the Dept. of Electrical and Computer Engineering at Virginia Tech in Blacksburg, VA. He recently published the textbook *Engineering Optics with MATLAB* (World Scientific 2007) and edited the book *Digital Holography and Three-Dimensional Display* (Springer 2006). He just completed his first three-year term as a topical editor for *Applied Optics* and currently is serving his second term. Dr. Poon’s current research interests include acousto-optics, hybrid (optical/electronic/digital) 3-D image processing, optical scanning holography and its applications in 3-D cryptography, 3-D display, 3-D microscopy, 3-D optical remote sensing, and 3-D pattern recognition.

Nadia Sifri (BS 1997) is a market analyst with the Wisconsin Alumni Research Foundation. She gathers market intelligence on companies and technologies to enhance intellectual property licensing efforts at the Wisconsin Alumni Research Foundation. Specific areas she works on include engineering, computer sciences, medical devices, medical imaging and radiation oncology. She is currently working to obtain a mid-management certificate at UW executive education. Nadia is married to Andrew Plumb (B.S. U of Iowa 1997), and has one child, Zade Plumb.

We want to hear from you!

Be part of the next newsletter by sending us your latest accomplishments. You can submit your news items on the web at [www.physics.uiowa.edu/alumni/](http://www.physics.uiowa.edu/alumni/) and click on the “Alumni Update Form” link.

Since finishing his postdoc work, Jacob Willig-Onwuachi (MS 1997) was on the faculty at UC Davis for three years in the radiology and biomedical engineering departments. In the fall of 2006 he joined the physics department at his alma mater, Grinnell College. Jacob’s wife works at the University of Iowa and they have two kids.

Veronique Ziegler (PhD 2007) is currently a research associate at the Stanford Linear Accelerator Center in Menlo Park, CA.

Deaths

Joseph Friichtenicht (MS 1956), died 1/31/07.

I. Henry Swift, Jr. (PhD 1943), died 9/19/06.


Frederick Wyman, Jr. (MS 1942)
Students Receiving Degrees

Undergraduate

Brad Barnhart, B.S. physics & astronomy
Malynda Chizek, B.A. physics & astronomy
Kelsey Clubb, B.S. physics & astronomy, B.A. music
Ross Fisher, B.S. physics
Adam Heiniger, B.S. physics & mathematics
Stacy May, B.S. physics
Thuy Nguyen, B.S. applied physics, B.S.E. engineering
Katherine Pacha, B.S. physics
Justin Parsons, B.S. physics
Evan Sengbusch, B.S. physics & mathematics

Graduate

Tim Dennis, Ph.D. astronomy (postdoc, University of Rochester)
Firdevs Duru, Ph.D. physics (postdoc, University of Iowa)
Tim Flanagan, M.S. physics (Ph.D. program, University of Iowa)
Thomas (Tucker) Freismuth, M.S. astronomy (instructor, U.S. Navy, Charleston, SC)
Brian Meland, M.S. physics (Ph.D. program, University of Iowa)
Saravanan Veerasamy, M.S. physics (Ph.D. program, University of Iowa)
Yuxiang Wu, M.S. physics (Ph.D. program, University of Iowa)
Veronique Ziegler, Ph.D. physics (research associate, Stanford Linear Accelerator Center)

Graduate/Undergraduate News

Student Awards
The following students received awards for the 2006-2007 school year:

Myrtle K. Maier Scholarship
Catherine A. Whiting (renewal)

Distinguished Service Award
Justin T. Parsons

James A. Van Allen Award
Adam T. Heiniger
Evan R. Sengbusch

Goertz/Nicholson Memorial Scholarship
Tatsuki Matsui

John and Stacey Wahl Scholarship Award
Eric J. Loren
Murat Yildirim

Undergraduates Receive Prestigious Awards
Evan Sengbusch was one of four University of Iowa students to win a 2007-08 NSF Graduate Fellowship Award. The award will allow Evan to pursue graduate studies at a university of his choice, and consists of a $30,000 stipend per year, and covers tuition costs and other expenses for up to three years.

Senior Catherine Whiting received a 2007 Goldwater Scholarship during her junior year at Iowa. The award will be used to pay for tuition, fees, books, and room and board for one or two years for up to $7,500 per year. Catherine is an astronomy major who works with Prof. Steve Spangler, studying Faraday rotation.

Thus far Catherine’s research has given her the opportunity to work at the National Radio Astronomy Observatory in Socorro, NM and the Institute for Astronomy at the University of Hawaii. Her future plans are to obtain a doctorate in astronomy, and to teach and do research at the university level.

The Department congratulates all of our students for their hard work and a job well done.

Staff News

Staff Recognition
Several departmental staff were recognized this past year with longevity awards from the University and the College of Liberal Arts and Sciences:

University of Iowa
Kathy Kurth – 30 years

College of Liberal Arts & Sciences
Jeremy Faden – 10 years
Dale Stille – 20 years

The College also awarded Deborah Foreman a Mary Louise Kelley Staff Excellence Award for her outstanding level of commitment and service and for contributions that extend beyond those expected by her job description.

Arrivals and Departures
We welcome the following people who have joined the department: Ferzan Akalin, Firdevs Duru, Tim LaFave, Brian Mokrzycki, Vadim Roytershteyn, Shengyi Ye, and Taylan Yetkin.

The following staff left this past year: Daniel Curtis, James Hicks, Chih Wei Lai, Yunong Qi, Vasilios Stavrou, and Jian Ming Tang. We wish them all the best of luck.
Outreach

Hawk-Eyes on Science

The Hawk-Eyes on Science outreach program continues in its efforts to bring quality outreach to the public. This year has seen major growth in large scale formal events. These events included presentations for the Coralville Public Library, Iowa City Public Library, Iowa City Rec Center, “I’ll Make Me a World” day, Hoover Elementary School “Science and Math Night,” Cub Scouts “Blue and Gold Banquet,” General Electric, Mu Chi Lambda Annual Father-Son Breakfast, and the Iowa State Fair to name a few. Funding for several of these programs was provided by General Electric and the Bauder Fund, and we wish to thank them for their continued support for our program.

— Dale Stille and Vincent Rodgers, Outreach Coordinators

Cassini and Juno Missions Showcased at the Iowa State Fair

On August 14, 2007, the Cassini and Juno missions to Saturn and Jupiter were showcased at the Iowa State Fair as part of the University of Iowa’s “Be Remarkable” exhibit. University of Iowa members of the science teams presented some of the remarkable space physics research in progress in the Department.

“Exploring Gas Giants with the Cassini and Juno Spacecraft” featured the two largest planets of the Solar System, Jupiter and Saturn, and the role the University plays in studying those planetary systems. Cassini is currently in its third year studying Saturn, its rings, satellites, and magnetosphere while in orbit. In 2011, the Juno mission will be launched on a five-year trajectory to Jupiter, where it will become the first polar orbiter of Jupiter and will study the deep interior of the planet in order to understand the planet’s origin and its polar magnetosphere.

The display attracted hundreds of visitors of all ages, but was most appealing to the youth in the crowd. The display was supported by staff members Bill Kurth, George Hospodarsky, and Kathy Kurth, as well as representatives from the Juno mission educational outreach office.

Student Profile (continued)

For the future, Catherine’s plans include graduate school (Ph.D. track) in astrophysics or cosmology. She also plans to apply for the Gates-Cambridge Scholarship, and is currently looking into graduate schools in physics or astronomy in the U.S. for a Master’s degree in the Philosophy of Physics.

When not doing research, Catherine enjoys running, reading physics and philosophy books, cooking vegetarian food, and dog showing.
Alumni Update Form

Send us your latest accomplishments for future newsletters and help us update our mailing list. Submit your information by completing the form below and return it to Aaron Votroubek, Department of Physics and Astronomy, 211 Van Allen Hall, The University of Iowa, Iowa City, IA 52242-1479. Or you can complete the alumni update form online at www.physics.uiowa.edu/alumni/alumni-update.html. We look forward to hearing from you soon!

Name
First Middle Last

Home Address
City State Zip

Employer
Title

Work Address
City State Zip

Home Phone Email

Year Graduated Degree

Career Accomplishments and Other Information

☐ Yes, I would be willing to serve as a mentor for a graduate or undergraduate student.