LETTER FROM THE DEO

The Department has just completed another successful year, for which our faculty, staff, and students can all be proud. This newsletter outlines just a few of their many accomplishments, which we are excited to share with you.

During the year, the Department completed a new strategic plan, which includes a hiring plan focused on continuing our prominence in the space sciences, maintaining our strength in particle physics, and further developing the condensed matter area of the Department through an emphasis on the nanosciences. As part of this plan, the Department is conducting two faculty searches this year for a plasma theorist and a space-based astrophysicist.

The strategic plan is also aimed at strengthening our graduate program, and we continue to make strides in this area. With the help of the College of Liberal Arts & Sciences (CLAS), we have significantly raised our graduate student stipends, and we continue to increase our graduate enrollment. Spring and Fall 2003 admissions brought 16 new students to the department, bringing our total graduate enrollment up to 65.

Outreach, both to UI non-science majors and to the public, is another important focus of the Department. Last year, Professor Fred Skiff built upon our tradition of delivering general education outreach courses by developing and teaching a new course entitled, “The Physics of Sound.” Public outreach activities included participation in the State Fair, continuation of the Family Adventures in Science program, the development of a Public Lecture Series, and Prof. Don Gurnett’s joint effort with the Kronos Quartet to present Sun Rings, a musical piece based on Don’s collection of the sounds of space.

We continue to pride ourselves on our research accomplishments. More than ever, our faculty, staff, and students are being recognized for their research accomplishments. Our external funding continues to lead the CLAS, which remains supportive even in these financially challenging times. The College provided major funding this year for upgrading our machine shop, an investment that will enhance current research activity and help to attract new faculty. Undergraduate research was significantly enhanced through a major gift from Professor James Van Allen, who established a fund for undergraduate research projects. The strength of the undergraduate program was also reflected in the selection of four students as summer staff members at the National Radio Astronomy Observatory.

As we look toward the challenges of the coming year, I hope that our alumni and friends will take an active role in shaping the future of our Department by building on these recent accomplishments. As always, you have my sincere thanks for your continuing support.

SPACE ODYSSEY

Sun Rings, a performance by the Kronos Quartet, will be presented October 14, 2003, at the Orange County Performing Arts Center in Costa Mesa, CA. A multi-media musical collaboration between art and science, Sun Rings is based on the sounds of space collected by University of Iowa spacecraft instruments developed under the direction of Prof. Don Gurnett over a 40-year period. Prof. Gurnett presented lectures on sounds of space prior to the performances of Sun Rings at Hancher Auditorium in Iowa City on October 26, 2002 and in London on March 22, 2003.

Two simultaneous events on October 12, 2003, are planned in association with the Kronos Quartet performance. In “Sounds of Space and Sun Rings,” Prof. Gurnett will discuss his role in the Sun Rings production at the Westin South Coast Plaza in Costa Mesa. UI faculty and staff will host a parallel program, “Exploring Space,” for interested guests between the ages of 6 and 12 at the Orange County Performing Arts Center. Information about these events and the sounds of space can be found at www.iowalum.com/clubs/space/space.html and www-pw.physics.uiowa.edu/space-audio/.
Faculty Directory

Astronomy/Astrophysics
- Benjamin Chandran, Assistant Professor
- Kenneth Gayley, Associate Professor
- Cornelia Lang, Assistant Professor
- Robert Mutel, Professor
- Steven Spangler, Professor
- John Neff, Professor Emeritus

Atomic & Molecular Physics
- Experimental
  - Paul Kleiber, Professor
- Theoretical
  - Craig Kletzing, Associate Professor
  - John Schweitzer, Professor
  - Thomas Bogges, Professor
  - John Prineas, Assistant Professor
  - Arthur Smirl, Professor
  - Markus Wohlgenannt, Assistant Professor

Elementary Particle Physics
- Theoretical
  - Yannick Meurice, Professor
- Experimental
  - Usha Mallik, Professor
  - Charles Newsom, Associate Professor
  - Yasar Onel, Professor
  - Edward Mccliment, Professor
- Emeritus
  - Cornelia Lang

Nuclear Physics
- Theoretical
  - William Klink, Professor
  - Gerald Payne, Professor
  - Wayne Polyzou, Professor
- Experimental
  - Edwin Norbeck, Professor Emeritus

(continued on page 3)

Faculty Highlights/Research

Amitava Bhattacharjee has left the Department and taken a position as professor in the Department of Physics at the University of New Hampshire, where he was also recently named the Peter T. Paul Chair of Space Science within the Institute for the Study of Earth, Oceans, and Space (EOS).

In October 2002, Benjamin Chandran attended the annual meeting of Project Kaleidoscope in Washington, D.C. The meeting focused on ways to improve college-level education in science, math, and engineering, and to enhance undergraduate education by providing students with opportunities for collaborative research.

Michael Flatté has been appointed to the Univ. of Iowa Research Council. The Research Council is a University Charter Committee that advises the Vice President for Research on matters pertaining to the University’s research enterprise.

Kenneth Gayley was promoted to the position of Associate Professor with tenure. Prof. Gayley was married to Jane Bradbury this past December.

John Goree was selected as an APS Distinguished Lecturer in plasma physics for 2002-2003. As Distinguished Lecturer, he traveled across the country to lecture at institutions of higher education. The Plasma Physics Travel Grant Program of the U.S. Department of Energy funded his travel.

In October Prof. Goree and Michael Miller will perform an experiment aboard NASA’s KC-135 aircraft, under weightlessness conditions. This is the same aircraft that is used for training astronauts, and is popularly called the “Vomit Comet.” It flies at parabolic trajectories, each providing 22 seconds of weightlessness. The experimenters will be seated on the cabin floor in front of their two racks of equipment, which include a vacuum chamber where a dusty plasma will be formed. The flights will take place out of NASA’s Glenn Research Center in Cleveland, Ohio.

On June 2, 2003, the Mars Express spacecraft was launched from the Baikonur Cosmodrome in Kazakhstan. Prof. Donald Gurnett and his research group provided the transmitter and antenna system for the Mars Express Radar Sounder, which is designed to search for subsurface water at Mars and to study the Martian ionosphere. The spacecraft will arrive at and be placed in orbit around Mars on Christmas Day, 2003.

Richard Hichwa was promoted to the position of Professor.

Craig Kletzing received a $450,000 NSF award in the investigation of Alfven wave physics related to space plasmas. Working with co-investigators Prof. Fred Skiff and Dr. Scott Bounds, these researchers will investigate the fundamental physical properties of a wave which occurs in both space and laboratory plasmas called the Alfven wave. These waves are thought to play an important role in creating the aurora borealis or northern lights as well as being important in other regions of space such as the solar wind and the Earth’s magnetopause. The lab studies will test a set of models for auroral particle acceleration by measuring the shape of the waves as well as the accelerated electrons.

Prof. Kletzing has also been elected to the College of Liberal Arts & Sciences Educational Policy Committee and will serve a 3-year term.

Cornelia Lang received a $271,314 NSF award entitled “The Violent Interstellar Medium in the Galactic Center.” This three-year research project will include observations of the center of our Milky Way Galaxy across the electromagnetic spectrum, primarily at radio and X-ray wavelengths. She and her students will focus on understanding the physical interactions of the stellar and interstellar sources in the center of our Milky Way Galaxy and the implications for understanding the nuclei of all galaxies.

Mark Madsen was promoted to the position of Professor.

Usha Mallik has been elected a member of the University of Iowa Faculty Senate. Prof. Mallik is also working as an apprentice in the University’s Provost Office.
Faculty Highlights/Research

Yannick Meurice received a UI Faculty Scholar Award for 2003-2006. He will use the award for research involving his recently developed theoretical methods for problems related to the origin of elementary particle mass and density of the early universe.

Prof. Meurice has also been promoted to the position of Professor.

Robert Mutel has been named as a member of the University’s provost search committee.

Charles Newsom played a primary role in the design and construction of the new multimillion dollar testbeam facility at Fermilab. Electrons, pions and protons produced in the beamline complex will be directed onto prototype collider detectors beginning in early December 2003.

Mary Hall Reno received a UI Faculty Scholar Award for 2003-2006. She plans to perform research developing and refining theoretical predictions for production, interaction, and detection of neutrinos. The particles aid in our understanding of the cosmos and the theory of elementary particles.

Prof. Reno has also been elected a member of the University of Iowa Faculty Senate.

Vincent Rodgers recently received a three-year grant from the National Science Foundation for the proposal entitled “From Diffeomorphisms to Dark Matter.” String theories suggest that a particular field might be present in gravitation that is absent in Einstein’s theory of general relativity. This peculiar field is mathematically the gravitational cousin of the vector potential that is seen in electricity and magnetism. If this field manifests itself in nature it might be a natural source for dark energy and/or dark matter.

Faculty Searches

The Department is currently inviting applications for two faculty positions whose terms would begin Fall 2004: a tenure-track assistant or associate professor in experimental space-based astronomy and a tenure-track assistant professor in the area of theoretical plasma physics. Details on these positions and other employment opportunities in the Department can be found on the web at http://www.physics.uiowa.edu/openings/.

The experimental space-based astronomy faculty position requires a strong background in research and instrumentation for space-based astronomical observations. We are open to a broad range of topics in space-based astronomy and astrophysics. Current departmental member research efforts include magnetospheric and planetary space physics, plasma astrophysics, galactic and extra-galactic radio astronomy, X-ray astronomy, stellar wind theory, and particle astrophysics. A Ph.D. in astronomy, physics or a related discipline is required and a background in the design/development/implementation of astronomical instrumentation for space-based missions is preferred. If you would like to be considered for this position, please send a CV, statements of research and teaching interests, and arrange for three letters of recommendation to be sent to: Chair of the Astronomy Faculty Search Committee, Department of Physics and Astronomy, The University of Iowa, Iowa City, IA 52242-1479. For the fullest consideration application materials should arrive by January 15, 2004.

The plasma theory faculty position focuses on research in plasma kinetics and transport, waves in shear flows, linear and nonlinear wave interactions, dusty plasmas, strongly-coupled plasmas, plasma sources, and other topics. Closely related efforts within the Department include space plasma physics, physics of the solar corona, and plasma astrophysics. To be considered for this position, please send a CV, statements of research and teaching interests, and provide the names and contact information of three references to: Chair, Plasma Faculty Search Committee, Department of Physics and Astronomy, The University of Iowa, Iowa City, IA 52242-1479. A Ph.D. is required by the time of appointment. For full consideration application materials should arrive by December 15, 2003.
This past year, the Department was again very involved in outreach activities throughout the state. The surplus equipment donation program had a banner year, with a total of 21 disbursements to schools in Iowa. The Department had an exhibit as part of the University’s booth at the Iowa State Fair. The exhibit entitled, “Hawk-Eyes on Science,” consisted of demonstrations and explanations of hands-on physics experiments, as well as providing information regarding departmental research and outreach programs. Volunteers working at the exhibit were Tom Boggess, Julie Dowell, George Hospodarsky, Ann Persoon, Cheryl Reardon, and Lifi Somantri.

The Saturday “Family Adventures in Science” series will be presented again this coming fall and spring. To see the topics that will be presented, check out the Department’s web page and click on the “Family Adventures in Science” link.

“Sun Rings,” a musical presentation by the Kronos Quartet of the sounds of space, will be performed October 14, 2003 in Costa Mesa, CA. For more details on this program go to www.iowalum.com/clubs/space/space.html and www-pw.physics.uiowa.edu/space-audio/.

A new outreach program, the Distinguished Public Lecture Series, is in the developmental stages. This program will bring the most exciting recent advances in physics and astronomy directly to the public through talks given by departmental faculty and invited speakers. Approximately six lectures are planned for the year.
ALUMNI NEWS

2000s
Joseph Evans (BS 2001) is currently a MSTP student at Northwestern University. This fall Ryan Kadow (MS 2001) will be teaching physics in Tanzania with the Peace Corps. He will be training in Arusha (near Kilimanjaro and the Kenyan border) from 11 September - 30 November. The training will mostly be language training in Swahili.

Christina Othon (BS 2000) is a graduate student at the University of Nebraska. She was co-winner of the 2002 Nebraska Sigma Xi Graduate Student Paper Competition. Her research is on the switching dynamics of Langmuir-Blodgett films of the ferroelectric copolymer Poly (Vinyldiene Fluoride-Trifluoroethylene). Christina says her research group is looking to control the switching speed, coercive voltage, and domain size of their polymer using radiation, doping or patterning of their copolymer films.

Carlton Watson (PhD 2001) is a lecturer in the Department of Physics at the College of the Bahamas. Under the British Commonwealth system, a lecturer is equivalent to an assistant professor in the American sense.

1990s
Yunchia Cheng (PhD 1997) is Manager, Failure Analysis, at JDS Uniphase in San Jose, CA.

After graduating from Iowa, Peter Colarco (BS 1993) went on to receive his MS degree in physics from Creighton University (1997) and a PhD in atmospheric sciences from the University of Colorado (2002). He is currently a scientist with the Goddard Earth Science and Technology Program at the University of Maryland Baltimore County in Greenbelt, MD.

Jim Johnson (PhD 1990) was appointed chair of the physics department at Ohio Northern University (1995) and received tenure in 1996. He moved back to his home state of Kansas to be closer to family and is currently an associate professor of physics at Emporia State University in Emporia, KS, where he teaches orientation/introduction to engineering, engineering graphics, calculus-based introductory physics, electricity and magnetism (physics), and a variety of other courses.

Bianca (Nelson) Keeler (BS 1996) received her PhD degree in applied physics from Stanford University. She and her husband Gordon have taken postdoc positions at Sandia National Laboratory in Albuquerque, NM. Bianca will be working primarily on optical MEMS/nanophotonics research, and Gordon will focus on VCSEL work.

After receiving his PhD degree in astrophysics at the University of Minnesota (1997), Henry (Chip) Kobulnicky (BS 1991) has held positions as a Hubble postdoctoral fellow at the University of California Santa Cruz/Lick Observatory (1997-1999) and an associate scientist with the Astronomy Department at the University of Wisconsin (1999-2002). Currently he is an assistant professor in the Department of Physics and Astronomy at the University of Wyoming in Laramie.

Joseph Modrick (MS 1994) completed his Ph.D. in medical physics at UW-Madison in 2000. After graduation he was employed by the University of Michigan as research/clinical medical physicist in the Department of Radiation Oncology at University Hospital. In August 2002, he joined the faculty in the Department of Radiation Oncology at the University of Iowa Hospital and Clinics.

Jongho Seon (PhD 1996) is Director at SaTReCi in Dae-jon, Rep. of Korea.

Nadia Sifri (BS 1997) works with licensing at the Wisconsin Alumni Research Foundation in Madison, WI.

1960s
Granville Jesse Smith II (PhD 1969) is CEO of Al Tayyar Energy (ATE), a renewable energy development and finance company sponsored by Prince Moulay Hicham of Morocco. ATE has just constructed the largest Anaerobic Baffled Digester in Asia. Located in Khorat Thailand, the digester produces from cassava waste over 80,000 cubic meters of biogas (65% methane) daily and powers the largest starch factory in Thailand. Their next project is the construction of four 22 MW power plants that burn only rice hulls.

Be part of the next newsletter!

Send us your latest alumni news by submitting it on the web. Just go to the alumni web page (www.physics.uiowa.edu/alumni/) and click on the “Alumni Update Form” link.

Pioneer 10 Says “Goodbye”

The last cosmic ray data from the Iowa instrument on the NASA/Ames Research Center spacecraft Pioneer 10 were received on 27 April 2002 from a heliocentric distance of 80.2 AU (12.0 billion km), following over 30 years of continuous operation since launch on 3 March 1972. This spacecraft was the first to go beyond Mars and the first to make in situ observations of the immense magnetosphere of Jupiter. The companion spacecraft Pioneer 11, launched on 6 April 1973, made the second encounter with Jupiter and the first encounter with Saturn, in 1979, thereby discovering the magnetosphere of that planet. These two spacecraft also yielded a unique body of data on solar energetic particles in the interplanetary medium and especially on the temporal and radial dependences of cosmic ray intensity during nearly three 11-year cycles of solar activity. The latest Pioneer 10 data show that the variable solar wind continues to modulate the intensity of galactic cosmic radiation to at least 80 AU. The location of the modulation boundary is one of the classical challenges of heliospheric physics.

The project manager and lead engineer for the Iowa instruments was Roger Randall. The following Iowa students earned M.S. and/or Ph.D. degrees based on the Pioneer 10/Pioneer 11 program: Daniel Baker, Tsan-Fu Chen, Jerry Drake, Cynthia Grosskreutz, Jeffrey Parish, Mark Pesses, Richard Reid, Davis Sentman, and Michelle Thomsen. Over 80 published research papers and book chapters have resulted from this program. Bruce Randall and James Van Allen are continuing the analysis and interpretation of several features of the Pioneer 10/Pioneer 11 data set.
**Undergraduates Receiving Degrees**

**July 2002**
- Bret Lehmer, B.S. Physics & Astronomy
- Neil Thayer, B.S. Physics & Astronomy

**December 2002**
- Garrett Ruppel, B.A. Physics
- Lifiana Somantri, B.S. Applied Physics; minors in Mathematics, Biology, Chemistry

**May 2003**
- William Caudy, B.S. Physics & Mathematics
- Christopher Jones, B.S. Physics & Mathematics
- Brian Metzger, B.S. Physics & Astronomy, Mathematics
- Joshua Sayre, B.S. Physics
- Chris Spinler, B.S. Physics & Astronomy, Mathematics
- Megan Yasuda, B.S. Physics & Astronomy

**Graduate Students Receiving Degrees**

**July 2002**
- Sankui Gou, Ph.D. Plasma Physics

**December 2002**
- Chaowen Yu, Jason Martin-Hiner, Robert Braunger, Emrah Altunkaya, July 2002
- Megan Yasuda, Chris Spinler, Joshua Sayre, Brian Metzger, Christopher Jones, William Caudy, May 2003
- Neil Thayer, Bret Lehmer, July 2002

**Sankui Gou,**
**Chaowen Yu,**
**Jason Martin-Hiner,**
**Robert Braunger,**
**Emrah Altunkaya,**
**July 2002**

**Receiving Degrees**

**Graduate Students**

**Megan Yasuda,**
**Chris Spinler,**
**Joshua Sayre,**
**Brian Metzger,**
**Christopher Jones,**
**William Caudy,**
**May 2003**

**Sankui Gou,**
**Chaowen Yu,**
**Jason Martin-Hiner,**
**Robert Braunger,**
**Emrah Altunkaya,**
**July 2002**

**Receiving Degrees**

**Student Awards**

This past year, the following students were recognized for their outstanding work:  
- John Goodricke Award—**Thomas Cremieux,**  
- Christopher Richey  
- Myrtle K. Maier Scholarship—**Anne Cherry,**  
- Jennifer Kaley  
- William R. Savage Memorial Award—**Andrew Helton**  
- James A. Van Allen Award—**Christopher Jones,**  
- **Brian Metzger,** **Joshua Sayre**  
- Goertz/Nicholson Memorial Scholarship—**Peter Kortenkamp**  
- John & Stacey Wahl Scholarship—**Ahmed Diało, Eric Loren**  
- Nicholson Fellowship—**Sarah Iverson**  
- Swift Scholarship—**Paul Good,** **Joseph Pingennot**  
- University of Iowa Outstanding Teaching Assistant Award—**Takeshi Yasuda**

The Department’s Society of Physics Students (SPS) was selected as a 2003 Marsh W. White Award winner. The award supports projects designed to promote interest in physics among students and the general public. Undergraduate students **Anne Cherry,** **Christo-**


**Students Participate in NRAO Summer Program**

This past summer, four astronomy students participated in the National Radio Astronomy Observatory’s (NRAO) summer program at sites in Socorro, NM, Green Bank, WV, and Charlottesville, VA. The students, **Andy Cowan,** **Aaron Geller,** **Christine Roark,** and **Laura Spitzer** were chosen by staff members of the NRAO to participate in their research programs, work on radio telescope hardware and software systems, and attend radio astronomy science and engineering lectures.

**Longevity Awards**

Several staff members received longevity awards this year from the University and the College of Liberal Arts & Sciences.  
- **Richard Huff** (Research Engineer) and **William Robison** (Engineer III) were acknowledged for 25 years of service at the University.  
- Staff members noted for 20 years of service in the College of Liberal Arts & Sciences include **Jean Hospodarsky** (Secretary III) and **Jolene Pickett** (Research Engineer), and those having 10 years of service include **Robert Johnson** (Engineer II) and **J. Douglas Menietti** (Research Scientist).

**Retirements and Departures**

Changes in departmental staff this year include retirements and departures.  
- Those retiring include **Robert Brechwald** (Systems Support Manager) and **James Phillips** (Senior Engineer).  
- Recent departures in the Department include **Rainer Bartoldus** (Research Investigator), **Naoki Bessho** (Postdoc Scholar), and **Kai Germschewski** (Postdoc Scholar), **Wenyun Lu** (Research Investigator), **Michael Mitchell** (Engineer IV), **Chung-Sang Ng** (Associate Research Scientist), **Carol Preston** (Program Assistant), **Teh-Hwa Wong** (Research Investigator), and **Ping Zhu** (Postdoc Scholar).

**Mary Louise Kelley Professional Development Award**

**Dale Stille** (Instructional Designer) received a Mary Louise Kelley Professional Development Award from the UI College of Liberal Arts & Sciences. The award is given to staff members for job-related continuing education, training, and professional activity. Dale used the award to pay for fees to attend the American Association of Physics Teachers (AAPT) National Meeting that was held in Madison, WI on August 2-6, 2003. While at that meeting, Dale was also elected Vice President of the Physics Instructional Resource Association (PIRA), an international organization sponsored by the AAPT whose membership includes people working in lecture demonstrations, lab coordinators and managers, physics professors, and high school teachers from around the world.
Undergraduate Awards Created

Two new undergraduate awards have been established this year: the Van Allen Research Grant and the John Goodricke Award.

The Van Allen Research Grant was established by a private donation from Dr. James Van Allen. The research grant provides funding for personal stipends and ancillary expenses for undergraduate majors in physics and/or astronomy who undertake research projects under faculty guidance. Van Allen Research Grants are based on a brief written proposal, including budget, by the student and an endorsement by a mentoring member of the faculty of the Department of Physics and Astronomy. The first recipients of this new grant are undergraduate students Brian Kessler, Anthony Link and Andrew Lytle.

The John Goodricke Award is given to an undergraduate student(s) at The University of Iowa for excellence and scholarship in undergraduate astronomy research. John Goodricke was a young astronomer born in 1764 who first observed variability of stars at the age of 17. He died at age 21 and was deaf and dumb all his life. The award was established by Professor Robert L. Mutel using personal funds. The 2003 award recipients are Thomas Cremieux and Christopher Richey.

New Equipment in Machine Shop

The Department’s machine shop recently acquired several pieces of new equipment. Through funding from the College of Liberal Arts & Sciences, the Department was able to purchase four new machines: an electrical discharge machine (EDM), a Milltronics CNC vertical milling machine, a Milltronics CNC lathe, and a Sharp manual lathe. The new equipment has also generated work from other departments on campus. After machine shop staff have been fully trained in the use of the equipment, the Department will have an open house to feature the new equipment and promote more business for the shop.

Department Hosts Public Mars Observing Sessions

This summer and fall has seen a particularly favorable opposition of the planet Mars, in which the Sun, Earth, and Mars are on a line, and the distance between the two planets reaches its minimum for that orbit. Due to the rather high eccentricity of the orbit of Mars (0.093) these oppositions vary; some are good, when Mars comes very close, and others are not so good. The distance of Mars at opposition can vary by a factor of two. The one this year was the best since 1924, and technically was the closest (by a very tiny amount) for 50,000 years. The true opposition came on August 27, when Mars was at its closest distance of 0.3727 astronomical units, or 55.8 million kilometers.

This was a great opportunity for amateur and professional astronomers. Even in a relatively small telescope (i.e., an 8-inch reflector) the major surface features of Mars could be seen, as well as their change during the night as the planet rotated. In addition, the south polar cap of Mars was clearly and strikingly visible.

Word got out about this, and the Department was bombarded by telephone calls about public observing sessions. The Department opened the roof on the nights of August 26, 27, and 28, and September 2, 3, and 4. The public response was overwhelming. For August 27, the night of closest approach, the roof was filled with people. It was estimated that more than 500 people came by. On the other nights, there were 200-300 visitors per night the first week, and 100-200 the second.

New Course Offered: Physics of Sound

This past spring, the Department offered a new undergraduate course - 29:044 Physics of Sound. The course, taught by Professor Fred Skiff, is an introductory course in acoustics, that requires no background in physics, music, or in mathematics beyond high-school algebra. Thus far, it has been well received by students.

In this course students look at the basic principles of vibrations and waves and apply them to understanding both simple effects, such as the Doppler effect and sound shadows, as well as the more complicated behavior of musical instruments. The ideas of simple harmonic motion, wave motion, resonance, and overtones, are applied to understanding the vibrations of strings and organ pipes as well as room acoustics. The course also takes a look at the operation of the human voice, the human ear and some of the peculiarities of human sound perception. Students learn how to analyze sound in terms of frequency analysis and spectrograms. The course makes extensive use of lecture demonstrations and short laboratory exercises completed during lecture. Starting in the spring of 2004, a laboratory component of the course is to be added.

Fall Enrollment Numbers

Fall 2003 enrollment statistics for the Department are as follows:

Total undergraduate students—86
New students—16
Male students—59
Female students—27

Total graduate students enrolled—65
New students—10
The new grad students come from Turkey (3), China (2) and the USA (5).
International students—40
Domestic students—25
Male students—54
Female students—11
# Alumni Update Form

Keep us posted on your latest accomplishments. Submit your news item for the next newsletter by filling out the form below, and returning it to Cheryl Reardon, Department of Physics and Astronomy, 211 Van Allen Hall, The University of Iowa, Iowa City, IA 52242-1479. Or you can send us your information by going to the Alumni web page (www.physics.uiowa.edu/alumni/) and clicking on the ‘Alumni Update Form’ link. We look forward to hearing from you soon!

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