

Physics Newsletter

Vol. V

Spring 2000



$$E=mc^2$$



CREIGHTON
UNIVERSITY

Physics Graduate List Grows by 13 from '99

Since Newsletter IV a year ago, the chances of running into a Creighton Physics Grad have continued to increase—we have had 13 new graduates.

Our seven new physics bachelor graduates are: **Jason W. Ash** from Little Canada, Minn., who planned to join the air force at Vandenberg AFB in California; **Kathleen R. Deneffe** from Ottumwa, Iowa, who worked as a cashier at Ameritrade in Omaha and had plans to study engineering in Iowa; **Alicia M. Dwyer** from Bartlett, Neb., who is studying mechanical and astronautical engineering at George Washington University in Washington, D.C.; **Shawn C. Everidge** from Missouri Valley, Iowa, who is a graduate teaching fellow in mathematics at Creighton University; **Jennifer S. Seby** from Clarion, Iowa, who is in the atomic physics program at the University of Wisconsin in Madison; **Ankit V. Shah** from Northridge, Calif., who planned to apply to medical school; and **Lee P. Steffen** from Crofton, Neb., who is working at St. Joseph Hospital in Omaha and plans to apply to medical school.

Our six new physics master graduates are: **Quinn M. Jones** from Omaha, Neb., who is a software engineer at DTN (Data Transmission Network) in Omaha, Neb., and is an instructor in evening general physics laboratories at Creighton; **Jie (Archer) Lin** from Shangrao, China, who is in a Ph.D. physics program at Yale University; **Paul K. Nienkamp** from Edgar, Neb., and Doane College in Crete, Neb., who is taking education courses at Creighton University and is teaching math and sci-

ence at Duchesne Academy in Omaha; **Robert J. Strabley** from Rock Island, Ill., and Monmouth College in Monmouth, Ill., who is in the United States Navy at the Naval Nuclear Power School in Charleston, S.C., with **M. Kevin Welsh**, mentioned below; **Michael A. Torres** from El Paso, Texas, who is continuing as a laboratory instructor in physics at Creighton University; and **M. Kevin Welsh** from Omaha, Neb., and Hastings College in Hastings, Neb., who is working for Bettis Atomic Power

Laboratory in Charlestown, S.C., and attending the Naval Nuclear Power School to become a qualified reactor operator and a Crew Engineer responsible for training reactor operators.

As they have done in the past several years, physics chairman **Robert Kennedy** and his wife **Mary** on Sunday evening, April 25, 1999, hosted physics students, faculty, and staff (and spouses) at their home for an evening of reflection honoring our 1999 physics graduates.



New Faculty ... (from left) Reichhold, Horner, and Nichols.

Three Join Physics Faculty at Creighton

The Physics faculty has grown by three with the addition of Drs. Lenore Horner, Michael G. Nichols, and Dennis M. Reichhold.

Dr. Lenore Horner, from neighboring Maryville, Mo., received a B.A. degree in physics and math from Oberlin College in Oberlin, Ohio, and M.A. and Ph.D. degrees in solid-state theoretical physics from the State University of New York at Stony Brook. Her impressive teaching background, on the high school or college level, includes courses in math, physics, biology, English, French, Spanish,

physical education, and music. At Creighton she is teaching Sound and Music, General Physics, and graduate Quantum Mechanics. She is updating the Physics Web Page at <http://physics33.creighton.edu> which now includes the four previous Physics Newsletters in both HTML and PDF versions. She also is directing the periodic review of our undergraduate physics degree programs.

• **Dr. Michael G. Nichols** grew up in Lakeside, Calif., and received a B.S. degree in physics from

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Blotcky and SSI Financial Support Helps Physics

The Physics Department is grateful for financial support from the Alan J. Blotcky Endowment and the Success in Science Initiative (SSI).

We announced last year that Mrs. Wanda Blotcky has established the Alan J. Blotcky Endowment for the Physics Department in memory of her husband, the second graduate of our Physics Master's Program.

During the past year, two additional gifts were added to this endowment, one by Mr. and Mrs. David L. Friedland, Alan's brother-in-law and Alan's sister Nancy, and one by Stephen and Pamela Blotcky, Alan's son and daughter-in-law.

In addition, the departments of biology, chemistry and physics have been greatly benefited by income from the "Success in Science Initiative," which was conceived by Rev. Michael Proterra, S.J., the previous Dean of the College of Arts and Sciences, and was successfully implemented by the Creighton Office of Development.

This Initiative has two fundraising priorities. The *Equipment Repair and Replacement Fund* has enabled the University to repair and replace existing laboratory equipment and to acquire new instrumentation and technology for the departments of Biology, Chemistry, and Physics. The *Equipment Endowment Fund* supports the ongoing operating and maintenance costs of scientific equipment and replaces aging equipment, up-

grades existing instrumentation, and purchases more advanced technology for the Departments of Biology, Chemistry, and Physics.

Notable supporters of this ini-

tiative have been the Kresge Foundation and the Omaha World-Herald in addition to Creighton board members, faculty members, alumni, parents and friends.

Physics Staff at Work from New York to Switzerland

Since the physics faculty and staff remain fairly constant from one year to the next, there is a continuity in objectives and procedures within the department. However, the changes that do occur can foster renovation and progress.

Dr. Janet E. Seger is on sabbatical leave for the academic year and is dividing her time between research at Brookhaven National Laboratory on Long Island and caring for new daughter Sophia Marie. Fr. Thomas S. McShane also has been at Brookhaven about half time.

New faculty are assistant professors Dr. Lenore Horner and Dr. Michael G. Nichols, and staff

physicist Mr. Dennis Reichhold. Dr. Horner replaces Dr. Tyler C. Gruber, who has begun a graduate program in transportation engineering at the University of Louisiana at Monroe. Dr. Nichols fills an opening created by Fr. McShane's increased involvement with the STAR DETECTOR of the Supercollider at Brookhaven National Laboratory. Dennis M. Reichhold has taken over the position of staff physicist at Brookhaven National Laboratory formerly held by Dr. Jan Chrin. Dr. Chrin now works on accelerator controls at the Paul Scherrer Institut in northern Switzerland.

Three Join Physics Faculty at Creighton

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Harvey Mudd College in Claremont, Calif. He received M.A. and Ph. D. degrees in physics from the University of Rochester in N.Y. His Ph.D. dissertation dealt with the transport of oxygen and light in model tumor systems. He taught physics at Hobart and William Smith Colleges at Geneva, N.Y. and spent 3 years on a NIH Postdoctoral Fellowship at Cornell University, Ithaca, N.Y. At Creighton, he is teaching General Physics and Physics In Medicine. He is developing a laser-based teaching and research laboratory and a library in biophysical optics. His research interests and background are expected to promote closer collaboration between the Creighton College of Medicine and the Department of Physics.

• Dennis M. Reichhold received bachelor and master of sci-

ence degrees in engineering physics from Cornell University in Ithaca, N.Y., and is completing a Ph. D. degree in experimental nuclear physics from the Ohio State University in Columbus, Ohio. His Ph.D. dissertation deals with ultra-relativistic collisions of heavy ions. He came to Creighton from the Van de Graaff Laboratory of the Ohio State University to fill a position as an experimental relativistic heavy-ion physicist. He is a Creighton Staff Physicist working on the hardware controls of the STAR Detector of the supercollider accelerator on Long Island at Brookhaven National Laboratory. We appreciated his making the trip from Long Island to join the rest of the faculty, staff, and physics students in the sixth annual Physics Retreat held January 20 and 21 at the Creighton Retreat Center in Griswold, Iowa.

The *Physics Newsletter* is published periodically by Creighton University's Department of Physics. Editor is Clarence M. Wagener, S.J. (cmw@creighton.edu)

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Three Receive Honors During Founders Week

Drs. Michael G. Cherney, Robert E. Kennedy, and Roger J. Loucks were honored during Founders' Week, Feb. 7-11, 2000.

•**Dr. Cherney** was awarded the Dean's Service Award at the 14th Annual Faculty Luncheon on February 8 by the Dean of the College of Arts and Sciences, **Rev. Al Agresti, S.J.** Dr. Cherney's citation recognized the generous contribution of time and energy he has freely given to many college, university, and community projects, including the organization of the Annual Physics Retreat at Griswold, Iowa, the planned reconstruction of the Rigge Science Center and the Criss Medical Center, and his service on the Nebraska Energy Policy Council.

•**Dr. Kennedy**, Associate Professor and Chair of the Department of Physics, along with **Mr. Tim Sully**, Assistant Director of Resident Life, were honored as the recipients of the Saint Ignatius Award at the Founders Week Mass at St. John's Church on Wednesday, Feb. 9. The Saint Ignatius Award is given each year by Creighton's Deglman Center for Ignatian Spirituality to Creighton employees who attempt to live out the spiritu-

ality and mission of St. Ignatius Loyola through their work, their involvement with students, their commitments to family, friends, and worship, their volunteer efforts, and their personal spirituality. A specific example of **Dr. Kennedy's** influence is his promotion of the Annual Physics Retreat at the Creighton Retreat Center in Griswold, Iowa.

•**Dr. Loucks**, who in 1999 received the Teaching for Tomorrow Award from Omicron Delta Kappa, the National Leadership Honor Society, and Alpha Sigma Nu, the National Jesuit Honor Society, was again one of the finalists for the presentation of this award on February 7, 2000. This award centers on the Jesuit tradition of *cura personalis*, i.e. care for the individual.



At left (from left), Zepf, Hutchison, Wagener, and Basil Lazure.

Alums Attend 30-, 35-year Reunions

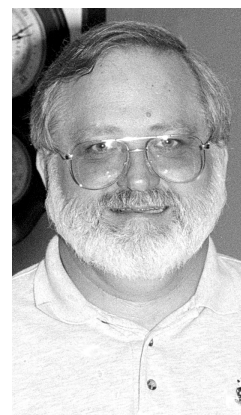
On the weekend of June 11 and 12, the Creighton Alumni Relations Office hosted graduates from 1949 to 1994, whose anniversaries were multiples of 5 years.

Present were 35-year alumna

Jeanne Slaninger Hutchison (B.S. '64) and 30-year alumnus **Timothy C. Ingoldsby** (BSP '69).

Jeanne is a mathematics professor at the University of Alabama in Birmingham.

Tim is Director of Business Development at the American Institute of Physics (AIP) at the central office in Melville, N.Y., and lives in



Ingoldsby

Shoreham, N.Y.

The Spring 2000 *Creighton University Magazine* announced that the Reunion Weekend 2000 and the 54th Annual President's Alumni Picnic celebrating the classes of 1950, 1960, 1970, 1975, 1980, and 1990 will be held on the Creighton University Campus June 9-11, 2000.

Susan Coster's Mother Dies; Funeral In Blair Attended by Alum Classmate

Physics graduate **Susan Hoefler Coster** (BSP '91) on Feb. 5, 2000 attended the funeral of her mother **Mary Ann Meister Hoefler** at Blair, Nebraska, 25 miles north of Omaha.

Her mother, who died of a pulmonary embolism on Feb. 1, was a *summa cum laude* Creighton nursing graduate in 1962 and served on the nursing faculty of both Creighton University and St. Mary's College in Omaha.

Daughter **Susan** is an engineer at Raytheon Systems Company in Dallas, Texas, and lives in Allen, Texas. Also attending the funeral was Creighton physics major **Anna**

Mary Lyons Delaney (B.S. 1962), a trust officer at IDS Financial Services in Minneapolis, Minn., who lives in Plymouth, Minn.

Mary Ann and **Anna Mary** were classmates at Creighton and roommates in Washington, D.C. while **Mary Ann** was working on a Master's degree in psychiatric nursing at Catholic University and **Anna Mary** was working at the Naval Ordnance Laboratory in Silver Spring, Md. They spent a week's vacation together in Washington, D.C., in August last summer.

Dr. Zepf Makes Magic for Several Audiences

Dr. Thomas H. Zepf of the Department of Physics presented an invited paper: "Teaching Physics with Magic" at the Winter Meeting of the American Association of Physics Teachers (AAPT) in Anaheim, Calif., in January, 1999, and was the banquet speaker on the same topic for the Annual Conference of the Pacific Northwest Association for College Physics in Spokane, Wash., in April, 1999.

In January of this year he was an invited presenter in a Workshop on Physics and Magic at the 2000 Winter Meeting of the AAPT in Kissimmee, Fla.

He also obtained a 1999 grant renewal from the Department of Commerce which funded 12-week Summer Research Fellowships for physics majors **Jmi Bassett** and **Gregory Kubicek** at the Physics Laboratory of the National Institute of Standards and Technology (NIST) in Gaithersburg, Md.

During the past year, **Dr. Zepf** was a research advisor/supervisor for five of our undergraduate physics majors (**Jmi Bassett**, **Alicia Dwyer**, **Shawn Everidge**, **Gregory Kubicek** and **Jennifer Seby**) and two of our graduate students (**Steve Brady** and **Mike Torres**). Their most active research was on laser cooling and trapping of neutral atoms.

Other projects included superconducting (high T_c) thin film fabrication by pulsed CO_2 laser ablation, applications of lasers for detection and recognition of fingerprints, and an investigation of the argon-ion laser as a curing light in comparison with conventional light sources.

Dr. Zepf's annual Halloween Haunted Laboratory served as the centerpiece for an interdepartmen-

tal Open House intended to stimulate interaction among the occupants of the Rigge Science Building. It was also part of the program for a meeting of the Southwest and Rocky Mountain Division of the American Association for the Ad-

vancement of Science (AAAS) held on the Creighton campus Oct. 31-Nov. 2, 1999.

From the extensive positive feedback we received, we feel that the considerable effort required to put on the Haunted Lab was well worthwhile.

28th Annual Physics Field Day Draws 75 from Schools

Most of our physics graduates since 1972 have been personally involved with the Annual Physics Field Day in the Rigge Science Building.

At least one of our graduates, **Rosemary Kellen Boyle** of Alton, Iowa, (BSP '85 and MS '86) had her first contact with the Creighton Physics Department as a Physics Field Day participant in 1981. After several years of studying and teaching philosophy at the University of Washington in Seattle, **Rosemary** is now completing doctoral research in the Department of

Molecular Biotechnology at the same university.

The Physics Club, with Club President and senior physics major **Amy Hummel** as honcho and **Rev. Thomas S. McShane, S.J.**, as faculty coordinator, planned and conducted the 28th Annual Physics Field Day on February 26, 2000. Seventy-five physics students and teachers from 10 high schools in Nebraska and Iowa participated.

As usual, the goal was to promote physics and to give the visiting students a good time.

Philosophy Absorbs 36 Staff, Faculty and Students at Retreat

Thirty-six physics faculty, staff, and students crossed the river to the Creighton Retreat Center at Griswold, Iowa, for a day of reflection and discussion, with **Father Larry Gillick, S.J.** of the Deglman Center of Ignatian Spirituality again serving as Coordinator.

The theme of this year's retreat was the question "Why be good?" (What does religion offer to human goodness?) **Dr. Patrick Murray** of the Department of Philosophy, acting as facilitator in the group discussions, spiced the day with gems from philosophers Aristotle, Jean-Paul Sartre, and Søren Kierkegaard. At **Dr. Murray's** sug-

gestion the probing 1989 movie "Crimes and Misdemeanors" directed by Woody Allen was shown Thursday evening as a primer for Friday reflection and discussion.

The movie discusses the question of *Ecclesiastes*: Is there any difference in what happens finally to the good and to the bad? Highlights of the day were frank and illuminating personal reflections on this general theme by physics seniors **Amy N. Hummel**, **Dylan T. Thein**, and **Sadiq U. Zaman**, and by **Dr. Roger J. Loucks** of the physics faculty.