



$$E=mc^2$$

## Physics Grads Receive Alumni Merit Awards

On April 8, 2010, two of our physics graduates were recipients of the 2010 Creighton Alumni Merit Awards: **David W. McLaughlin, Ph.D.**, a 1966 B.S. in Physics graduate, received the Merit Award from the College of Arts and Sciences, and **Lt. Col. Alan G. Glodowski**, a 1990 M.S. in Physics graduate, received the Alumni Merit Award from the Graduate School.

**David McLaughlin** came to Creighton from Woodbine, Iowa, as a freshman in 1962 and graduated summa cum laude in 1966. He received his master's and doctoral degrees in physics from Indiana University, and over the years has held academic appointments at the University of Arizona, Iowa State University and Princeton University. Currently he

is Professor of Mathematics and Neural Science at New York University where he is also the Provost (chief academic officer). In 2002 Dr. McLaughlin was elected to the prestigious National Academy of Sciences. His prolific interdisciplinary research in non-linear waves and mathematical neuroscience is highlighted in a "Profile of David W. McLaughlin" published in the May 16, 2006 *Proceedings of the National Academy of Sciences*. While he was here to accept the Alumni Merit Award, Dave presented a seminar for our students and faculty on his recent work, which is focused on computational models of the primary visual cortex.

*See page 10 showing Dave and his pals when he was a student at Creighton University.*



**David W. McLaughlin, Ph.D.**



Photo by Tom Zepf

**Lt. Col. Alan G. Glodowski**

**Alan Glodowski** was commissioned through ROTC in 1983 at the University of Wisconsin with a bachelor's degree in physics. While stationed at Offutt Air force Base in Omaha and at Souda Bay Naval Air Station in Greece, he pursued a master's degree in physics at Creighton University, completing it in 1990. He taught physics at the US Air Force Academy before becoming an Exchange Officer with the Royal Air Force Cranwell Flight Test School in Lincolnshire, England, where Col. Glodowski was the first USAF officer to graduate with top honors in the 29-year history of the program. He flew missions with both British and American reconnaissance aircraft during the Kosovo War. In 1999 he returned to the US and was stationed at the

Pentagon as Undersecretary of the Airforce for Acquisition. In 2002, he was named to the NATO Expeditionary AF Headquarters in Kalkar, Germany, tasked with providing innovative technology ideas for all aspects of NATO air operations. Since 2004 he has been at the Illinois Institute of Technology, first as Commander of the Air Force ROTC program and currently as senior lecturer in physics.

It was unprecedented for the two awards to go to alumni of one department in the same year.

Two other physics graduates have received Alumni Merit Awards: the 1991 College of Arts and Sciences Award went to **William J. Gallagher, Ph.D.** (BSPHy 1974), and the 1998 Graduate School Award to **Lt. Col. Michael P. Anderson** (MS 1990).

# Alternative energy project a reality... supporting a new energy technology program

Creighton University is harnessing Nebraska's wind and sunshine with four wind turbines and an array of solar panels, the largest in the state, at various locations across campus. **An array of photovoltaic solar panels is located in the parking lot bounded by Burt and Cumming and 24th and 28th streets, above two rows of parking.** There is also an array of photovoltaic panels on much of the sloping south roof of the Kiewit Fitness Center, visible from I-480.

The large array of solar panels in the parking lot is fixed at a 37-degree angle for best efficiency. A smaller, stand-alone, adjustable array is also located there. This array is connected to a teaching station to give students hands-on learning experiences.



**Four wind turbines are installed southwest of the Lied Education Center for the Arts and visible from I-480 and Cass Street.** Also located there is a self-adjusting solar panel which can track the sun to provide the best angle for capturing sunlight.

Approximately 120 kilowatts of power can be produced on a typical sunny day, enough to power about 40 average homes. Most of



*Above: Part of the solar panel array with Physics Field Day students on tour underneath. Lower Left: The four wind turbines can be seen.*

the power is used by the Criss Health Sciences Building, the Lied Center for the Arts and the Kiewit Fitness Center, saving Creighton about \$24,000 annually.

**The project is a collaboration between Creighton and the Omaha Public Power District,** with funding primarily from the U.S. Dept. of Energy: a \$1.2 million stimulus package grant to Creighton for green technology and another \$1.2 million grant to fund a new energy technology pro-

gram that will begin in the fall. **Dr. Michael Cherney** is interim head of the program. **The new program will offer both B.S. and B.A. degrees that will share a common core of courses but are designed for different needs.** The B.S. is for students with a primary interest in engineering while the B.A. is for those more interested in public policy. The program is designed to create problem solvers and lifelong learners who have the ability to work effectively in teams.

## Field Day has “Energy of the Future” theme

This spring, the Creighton University Society of Physics Students again sponsored its annual Physics Field Day for high school students. Teams from the participating schools competed in seven events that require understanding and application of basic physical principles. This year's theme was “Energy of the Future” and a “Solar Oven” event was added. Solar ovens designed and built by the competing teams were scored on ease of set-up and the internal temperature achieved in five minutes. Photo at right shows a solar oven being tested. This year the overall First Place Award went to Mt. Michael High School.



# Meet Creighton's Condensed Matter Research Group

The majority of the work done by the Condensed Matter Research Group at Creighton University involves exploration of dynamics in complex materials using a variety of spectroscopy techniques. Both undergraduates and graduate students are trained in these techniques and are actively engaged in the research.

Condensed matter physics is a broad field of inquiry encompassing size scales from atomic to human, and energy scales from 0.1 eV to several eV. The field emerged in the 1970s as an extension of successful solid state (crystal-

line) physics.

**Ion Conduction in Amorphous Solids** – investigation of ion dynamics in glass materials using impedance spectroscopy. Driven in part by a global need for advanced energy storage technologies (i.e., batteries), researchers continue to explore the nature of ion motion in non-crystalline materials including polymer electrolytes and ion-conducting glasses.

**Dr. David Sidebottom** is the director of the Condensed Matter Research Group. Prior to his arrival in 2002 he was an Associate Research Professor at

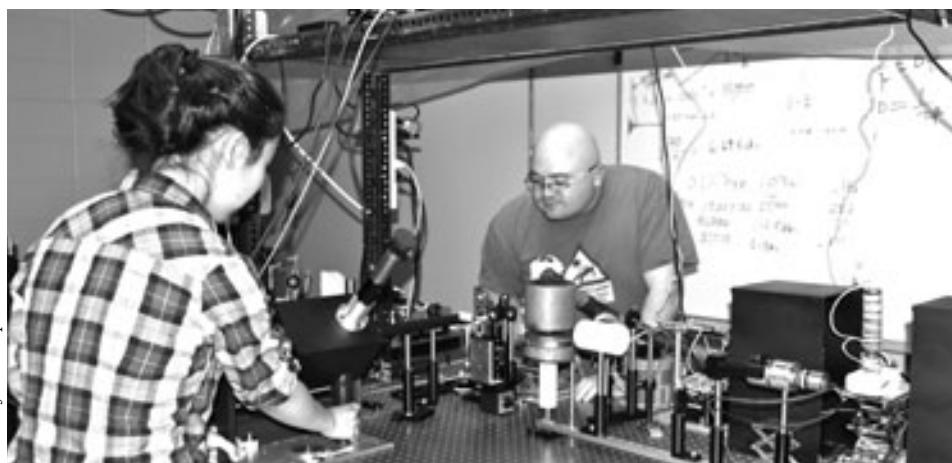


Photo by Tom Zepf

physics to include various types of soft matter including liquids, liquid crystals, self-assembled membranes and polymers, and cooperative processes including phase transitions and critical phenomena.

Research here includes:

**Cryopreservation** – investigation of the role of simple sugar solutions in the cryopreservation of biological proteins and tissues, using both photon correlation spectroscopy and fluorescence correlation spectroscopy.

**Supercooled Liquids** – investigation of the dynamics of ultraslow liquids near their glass transition point using photon correlation spectroscopy. The transition from a liquid to an amorphous (glass) state is ranked among the top

the University of New Mexico and Sandia National Labs. Since coming to Creighton he has published over a dozen refereed research and review articles, including six with student co-authors. He has also supervised numerous oral and poster presentations by his students at local and national meetings. His teaching includes a course on Condensed Matter Physics and a Materials Research Lab. Recently a textbook he wrote entitled "Fundamentals of Condensed Matter Physics" was accepted for publication by Cambridge University Press. More details, including external grants obtained to fund the Condensed Matter Research Group, may be found under **Research** at: <http://physicsweb.creighton.edu>.



Photo by Tom Zepf

Above: Dr. Sidebottom is seen glass working: making quartz ampules for spectroscopy.

Left: Graduate students Yuli Wang and Stanley Schnell are preparing an experiment on molten glass for photon correlation spectroscopy.

Below: Yuli Wang is seen preparing a sample for fluorescent correlation spectroscopy.



Photo by Tom Zepf

# Dr. Seger receives 2011 American Physical Society Award for mentoring Undergraduate Researchers

**D**r. Janet E. Seger, Professor and Chair of our Department of Physics, was recently awarded the American Physical Society's 2011 Award for Faculty Working with Undergraduate Researchers. The award is given annually to a physicist whose research in an undergraduate setting has achieved wide recognition and contributed substantially to the professional development of undergraduate physics students.

Dr. Seger's research focus, supported by the Department of Education (DoE) and Nebraska's Experimental Program to Stimulate Competitive Research (EPSCoR), is the study of ultra-peripheral heavy ion collisions. These collisions, where the impact parameters are large enough that long-range electromagnetic interactions dominate, allow the study



Photo by Tom Zepf

**Janet Seger, Ph.D.**

of photon-induced interactions in a nuclear environment.

Dr. Seger actively involves undergraduate students in the study of these ultra-peripheral collisions. She and her students

make routine visits to the relativistic heavy ion collider (RHIC) at the Brookhaven National Laboratory in Long Island, N.Y. There they look for ultra-peripheral collisions at STAR, a group studying the formation and characteristics of quark-gluon plasma, a phase of matter far hotter than the sun, that occurs when gold ions are caused to collide at relativistic speeds. Dr. Seger and her students study the ultra-peripheral collisions that occur, and her students routinely present their work at national conferences.

The prize consists of \$5,000 to the prize recipient and a separate \$5,000 unrestricted grant for research to the prize recipient's institution. The prize was established in 1984 by a grant from the Research Corporation, a private foundation for the advancement of science and technology.

## ***Congratulations Anya!***

### **Recipient of Fulbright, Goldwater, and Luce Scholarships**

**A**nya Burkart, a Physics and German double major from Monument, Colorado recently was announced as winner of a highly competitive Fulbright Scholarship to Leipzig Germany for next year. Anya will be studying the biomechanical properties of cells using the optical stretcher in the Soft Matter Physics group of Dr. Josef Käs at the University of Leipzig. The optical stretcher, co-invented by Dr. Käs, uses laser light to stretch single cells, enabling a non-contact way to measure cell stiffness. Because cancer cells are softer than normal cells, the optical stretcher can be used to tell if a tissue sample is cancerous.

Anya began research in 2008 with **Dr. Michael Nichols**, working under his guidance in his opti-



**Anya Burkart**

cal stretcher lab in the physics department. She has presented her work from the Creighton lab at conferences such as that of the national Biophysical Society and the International Conference for Physics Students in Austria. The research culminated in a publication in Applied Optics. In Summer

2009 she carried out another biophysics project under a Deutscher Akademischer Austausch Dienst grant in Saarbrücken, Germany.

In 2010 Anya was awarded a prestigious Goldwater Scholarship which provides up to \$7,500 per year for the final one or two years of undergraduate study. It is awarded to outstanding students who plan careers in natural science, mathematics or engineering. Not surprisingly, she is also a Clare Boothe Luce Women in Science scholar at Creighton.

Anya has served as President of the Creighton Society of Physics Students and as a U.S. Delegate for the International Association of Physics Students. She plans to attend graduate school in the United States or Germany to earn a doctorate in biological physics.

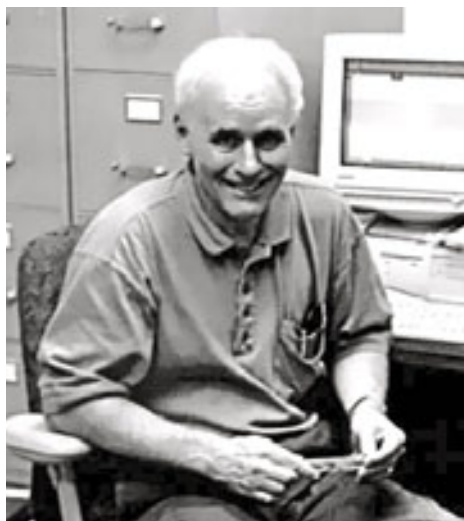
# Dr. Cipolla honored by Promotion

## Completes 30 years as Physics Graduate Program Director

**D**r. Sam J. Cipolla was promoted to Professor Emeritus of Physics during the Creighton University Founders Day Convocation on Feb, 8, 2011.

Dr. Cipolla joined our faculty as an assistant professor in 1969 after finishing a Ph.D. in physics at Purdue University. Since 1981 he has been the Director of our Graduate Program in Physics. Under his watch the program has expanded and the number of teaching fellowships and research assistantships has grown, from only one filled-position in 1980-81 to over 10 today. He was promoted to Professor of Physics in 1983.

Dr. Cipolla has taught a wide range of physics courses, including a section of General Physics from which a large percentage of our physics majors has emerged.



Sam Cipolla, Ph.D.

Early in his career, Dr. Cipolla developed a rigorous upperdivision laboratory course in Nuclear Instruments and Methods that continues to be a valuable part of the Creighton curriculum.

Dr. Cipolla's research in the area of atomic inner-shell ionization has earned for him international recognition as an expert on that subject. His most recent work has included modeling of solar proton-induced x-ray production on inter-planetary bodies.

During just the past 15 years Dr. Cipolla has published 21 peer-reviewed articles, six with student authors. He has given six invited presentations and 22 contributed presentations at national and international meetings. In the same 15-year period, he has been research adviser for 11 masters students and six undergraduates.

At the end of this academic year Dr. Cipolla will be retiring from full-time teaching. When he retires he will have taught physics and supervised student research at all levels for 42 years!

## Reception Celebrates Dr. Cipolla's Career



**O**n May 6, 2011 an all-University reception was held in the Hixson-Lied Science Building to celebrate the 42-year career of **Dr. Sam Cipolla**. In the formal part of the program, an engraved plaque was presented to Dr. Cipolla: "In grateful appreciation for his dedicated service as an inspiring teacher, valued colleague and thoughtful Director of

the Physics Graduate Program." He was also presented with a portfolio of messages and letters from former students, filled with reminiscences and expressions of gratitude for his inspiration and guidance. Dr. Cipolla was accompanied at the reception by his wife Ginny, daughter Karen and son Mark. They are seen together at the reception in the photo above.



Dr. Sam Cipolla and Dr. Mike Nichols at a faculty dinner for Dr. Cipolla on May 11, 2011.

## Passing the Torch

**D**r. Michael Nichols, director of the Biophysical Optics Research Group, will become the new Director of the Physics Graduate Program, replacing **Dr. Sam Cipolla** who is retiring. We wish them both well as they embark on their new adventures in life.

# University Research Award presented to Dr. Cherney

The following is an excerpt from the research award citation, presented at the Founders Day Convocation on Feb. 9, 2010 by Robert P. Heaney, Vice President for Research at Creighton.

**D**r. Michael G. Cherney has conducted research for more than 20 years, receiving more than \$2.7 million in extramural funding, involving his colleagues and students in important studies on high energy nuclear physics. An internationally recognized physicist and educator, he has been an author on more than 200 refereed publications and is highly respected as an expert in his discipline.

Dr. Cherney's work in high energy nuclear physics has involved cutting-edge research collaborations with the European



**Michael Cherney, Ph.D.**

Organization for Nuclear Research (CERN) in Geneva, Switzerland, and with the Brookhaven National Laboratory in Long Island. He is currently involved with the ALICE experiment at CERN and the

STAR experiment at Brookhaven.

Dr. Cherney received his doctorate in physics from the University of Wisconsin-Madison. A Creighton faculty member since 1989, he brings his world-class research to bear on his teaching and mentoring of students, providing incredible opportunities for his students to work with scientists from all over the world.

In short, Dr. Cherney's brilliance as a researcher is matched by his foundational commitment to providing the best education possible to undergraduate and master's students. He is an excellent role model for the best of Ignatian pedagogy and Jesuit, Catholic values in education.

Creighton University is proud to confer on Dr. Michael G. Cherney the University's 2010 Research Award

## Scouts work at Creighton for Nuclear Science Merit Badge

**E**ach year the C.U. Physics Department hosts a day-long workshop for Boy Scouts. During the workshop our professors and students help the scouts learn basic principles and applications of nuclear science needed to fulfill requirements for the Nuclear Science Merit Badge. This year on Saturday, March 5,

thirty scouts from Iowa, Nebraska, and South Dakota participated. There is no charge. The workshop is supported by the Physics Department, the Contemporary Physics Education Project, and the

**Fr. Thomas McShane, S.J.**, one of the instructors, to detect cosmic rays and other radiation.

This effort to obtain a Merit Badge is also an opportunity to explore physics as a career. But as **Dr. Michael Cherney**, workshop organizer, points out to the scouts: "where you eventually end up is where your passion is."



The scouts here are on a tour learning about x-rays with Dr. Sidebottom.



US Department of Energy's Office of Science. The scouts learn from experiences that include lecture presentations, lab tours, and hands-on laboratory activities.

In one activity the scouts are challenged to build a cloud chamber which is used, as explained by



Scouts here are in a lab, exploring alpha, beta and gamma radiation.

# Creighton to host 2011

## AAPT Summer Meeting

University, college and high school physics teachers from across the U.S. and Canada will be converging on the Creighton campus for this year's Summer Meeting of the American Association of Physics Teachers (AAPT), July 30-August 3, 2011. We are honored to have been selected for the meeting site of this major national conference. It will give our department an opportunity to spotlight Creighton University. **Dr. Jack Gabel** is the on-campus coordinator for the event. Several members of our physics faculty will be presenting. **Gintaras Duda** and **Jack Gabel**:

*Robotic Telescope Observations and Active Learning Exercises*; **Michael Nichols**: *Intro to Medical Physics for Physics Majors and Biophysics Minors*; **Patricia Soto**: *Research with Undergrads in Computational Molecular Biophysics*; and **Thomas Zepf**: *The Haunted Physics Lab at Creighton University*. Tom will also be doing the Demo Show "An Enchanting Evening of Physics and Magic" hosted by Physics Instructional Resources Association (PIRA).

If you haven't visited the campus for awhile, and especially if you teach physics, this would be a good time to pay us a visit.

## Welcome Dr. Watters!

We are pleased to have with us this year **Dr. Kyle Watters** whose presence is enabling us to maintain course offerings, especially during the sabbatical leave of Dr. Gintaras Duda. Dr. Watters has also been participating actively in our extracurricular events, such as the Field Day and Physics Retreat. He is a graduate of Westmont College ('06) and has his Ph.D. in astrophysics from Stanford University.



Creighton Observatory circa 1908

## Gabel and Duda awarded Grant for Astronomy

An NSF grant for Course Curriculum and Laboratory Equipment Improvement was awarded to **Dr. Jack Gabel** and **Dr. Gintaras Duda** to support revisions of our astronomy offerings. Introductory lectures will be transformed through innovations such as tutorial-style active learning exercises. The capstone to the project will be the purchase, installation, and operation of a robotic telescope capable of remote observations that will be made available to students and

faculty at local and regional institutions and to middle and secondary students in the region as well. This addition will greatly enhance Creighton astronomy lab courses, bringing a hands-on science experience to our curriculum that is currently lacking. The robotic telescope will allow implementation of project-based learning with emphasis on advanced observational astronomy techniques and instrumentation including imagery, photometry, and spectral analysis at introductory and advanced levels.

## Congratulations!

Two faculty members have had their book projects accepted for publication: "Einstein's Major Papers: A Student's Guide" by **Dr. Robert Kennedy** has been accepted by Oxford University Press, and "Fundamentals of Condensed Matter Physics" by **Dr. David Sidebottom** has been accepted by Cambridge University Press.

**Dr. Gintaras Duda** received the 2010 College of Arts and Sciences Dean's Award for Professional Excellence in Teaching!

Additions to the families of three physics faculty members have appeared since the last Newsletter. **Dr. Duda** and his wife Mary welcomed a new son, Leo, **Dr. Gabel** and his wife Pam have a new daughter, Amaya, and **Dr. Soto** and her husband Herald have a new daughter, Sonali.

## Visit our Website

Get the latest news and more information about our Physics Dept. by visiting our home page: <http://physicsweb.creighton.edu>

There you will find the latest news and photos of Physics Dept. events. Click on **Newsletters** in the drop-down menu under **News** for access to all issues of the *Physics Newsletter* that have been published to date.

Direct questions, corrections, or comments to the webmaster, **Dr. Michael Nichols**.

The **Physics Newsletter** is published periodically by the Creighton University Department of Physics.

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# Meet the newest members of our alumni family

**N**ineteen physics majors graduated with a bachelors or masters degree in May, August or December of 2009 and 2010. Many are continuing their studies leading to advanced degrees at various universities with financial support in the form of scholarships, fellowships or assistantships. Others entered professional schools or are employed in a variety of occupations.

In **2009** seven of our students completed a **Bachelors Degree** in physics:

After having served in the Capuchin Franciscan Volunteer Corps for a year, **Matthew Bassett** has been working as a laboratory technician and applying to medical schools; **Sandra Behncke** is pursuing a Ph.D. in physics at The Catholic University of America in Washington D.C.; **Daniel Blair** entered an MBA program at Carnegie Mellon University, Pittsburgh; **Joseph Brewer** was looking forward to a sabbatical

before making a career choice; **Matthew Brnicky** has been out of touch but is likely to be doing well; **Timothy Smith** is a second year medical student in the Creighton University School of Medicine; and **Robert Thomen** entered our Masters program in physics, graduated this year, and has been accepted into a the Ph.D. program in physics at Washington University in Saint Louis.

Also in **2009**, six students completed our **Masters Degree** in physics:

**Joseph Butterworth** is pursuing a Ph.D. in physics at Rice University in Huston; **Roberto Fabian** is pursuing a Ph.D. in physics at The Catholic University of America in Washington D.C.; **Maria** and **Stephen Hansen** are married and Steve is employed by the National Indemnity Company in Omaha; **Stephanie Schuk** is an Orbit Analyst for the National Geospatial-Intelligence Agency; and **Hans T. Wrage** is exploring his options for employment as a physics laboratory manager.

## BS Degree - Class of 2009

### Top from left:

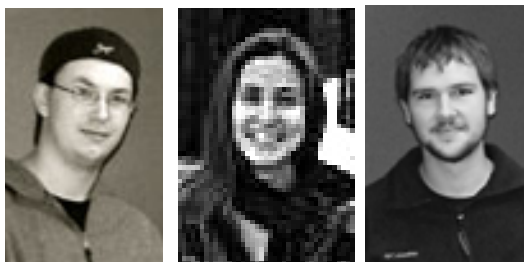
Matthew J. Bassett, B.S.\*  
5/16/09  
Robert P. Thomen, B.S.Phy\*  
5/16/09

### Bottom from left:

Joseph C. Brewer, B.S.  
5/16/09  
Sandra M. Behncke, B.S.Phy\*  
5/16/09  
Timothy J. Smith, B.S.\*  
5/16/09

### Not shown:

Daniel P. Blair, B.S.Phy\*  
8/14/09  
Matthew C. Brnicky, B.S.\*  
8/14/09



## MS Degree - Class of 2009

### From left:

Roberto L. Fabian, M.S.\*  
8/14/09  
Hans T. Wrage, M.S.\*  
8/14/09  
Stephanie J. Schuk, M.S.\*  
12/19/09  
Joseph W. Butterworth, M.S.\*  
12/19/09  
Stephen C. Hansen, M.S.\*  
12/19/09  
Maria R. Hansen, M.S.\*  
8/14/09



Composite Photos by Tom Zepf

\*Member of Sigma Pi Sigma, the National Physics Honor Society



Photo by Tom Zepf



## BS Degree - Class of 2010

### From left:

Allison R. Showalter, B.S.Phys\*

5/15/10

Katherine E. Garrett, B.S.Phys\*

5/15/10

Mark D. Pepin, B.S.Phys\*

5/15/10

\*Member of Sigma Pi Sigma, the National Physics Honor Society



## MS Degree - Class of 2010

### From left:

Olamide I. Osinkolu, M.S.

8/13/10

Victor O. Ogunjimi, M.S.

8/13/10

Jeffrey R. Tonniges, M.S.\*

8/13/10

In **2010** there were three of our students who completed a **Bachelors Degree** in physics:

**Allison Showalter** is pursuing a Ph.D. in physics at Notre Dame University; **Katherine Garrett** is pursuing a Masters Degree in physics at Creighton University; and **Mark Pepin** is pursuing a Ph.D. in physics at the University of Minnesota.

Also in **2010**, three students completed our **Masters Degree** in physics:

**Olamide Osinkolu** enjoys tutoring and may decide on a career in teaching; **Victor Ogunjimi** is exploring options for the next phase of his career; and **Jeffrey Tonniges** is pursuing a Ph.D. in physics at Ohio State University.



Photo above shows students, faculty and staff who attended our annual Evening of Reflection for graduating physics students in April 2010 at the home of Dr. Jack Gabel, moderator of the Physics Club (Chapter of the AIP Society of Physics Students). Dr. Gabel and Dr. Janet Seger, physics chairperson, are standing at far left. Photo by Dr. Tom Zepf.

## Reunited at Creighton after 44 years:

# First Graduates of our B.S. in Physics Degree

The 2010 College of Arts and Sciences Alumni Merit Award (see page 1) had the bonus of bringing together the first students to complete the B.S. in Physics Degree\* that we originated in 1964. For the first time since they graduated in 1966, **Dave Bruening**, **Mike Keating** and **Dave McLaughlin** were back together again on the Creighton campus. Each had gone on for graduate studies and earned a Ph.D. in physics – Dave Bruening at Saint Louis University and both Mike Keating and Dave McLaughlin at Indiana University. All three were active in the Physics Club at Creighton. An historic photo, at bottom right, shows them as juniors in 1964 on a float they built for Creighton's Homecoming Day Parade.

*\*In terms of the physics, mathematics and research required, our B.S. in Physics Degree demands more than the customary B.S. with a major in physics first awarded at Creighton University in 1948 to Thomas I. Gilroy (deceased).*

## Creighton Physics Club Approaching 50th Anniversary

When he joined the department in the fall of 1962, **Thomas Zepf** asked the chairman **Fr. Clarence Wagener, S.J.** for permission to start a physics club. (As a student, Tom had been instrumental in starting a physics club at Xavier University.) In the fall of 1962, 13 students met to draft bylaws and officers were duly elected, with Tom serving as faculty moderator. In the spring of 1963 the Physics Club and the Math Club combined forces to offer a Math-Physics Field Day for High School Students. By the end of the 1962-1963 school year, the number of Physics Club members had grown to 30.

The first officers were:

**Richard E. Keating**, president  
**Morris B. Pongratz**, vice president  
**Gerald T. Schneider**, secretary  
**Clifford J. Sturek**, publicity.

Following the 1962 fall semester, Fr. Wagener left to work on a doctorate in physics at Saint Louis University (which he continued to do until the fall of 1966). Given his added duties as physics chair, Tom gave the club moderator responsibility to **Fr. Thomas McShane, S.J.** who joined the faculty in the fall of 1963. The Club flourished, and continues to do so today!



Above, from left: Dr. Dave McLaughlin, Dr. Michael Keating and Dr. Dave Bruening, first graduates of the B.S. in Physics degree (1966), with the then Physics Chairman, Dr. Tom Zepf.



Meant to depict a Research Lab, this Physics Club float, built for the 1964 Homecoming Day Parade, was our not-so-subtle appeal for better research space in the Physics Department.



Standing on the float, from left: Dave Bruening, Kit Maier, Dave McLaughlin and Mike Keating. Dick English is standing on the ground in front. Photo taken by Dr. Tom Zepf in 1964.

# — News about our Alums —

**Yi-Ming (Allen) Xiong** (MS '85) says hello from Austin, Texas. He works there for Dell Computer as a Systems Engineer/Consultant doing performance analysis on Dell mobile products. Though not physics, Allen says his work is both challenging and fascinating.

**Robert M. Ronk** (MS '85), is Vice President for Biomaterials Research at Biomet, Inc., an orthopedic device manufacturer in Warsaw, IN. His group focuses on developing new materials, typically for the bearing surfaces or bone surfaces of implants. For his masters research, Rob did the beam diagnostics for our pulsed CO(2) laser. He says this turned out to be useful in an earlier position he had with a company developing angioplasty systems using an excimer laser with a similar beam profile. Rob and his wife Sheila, a librarian, have a son who works and goes to school in Indianapolis.

**Theodore L. Kreifels**, Ph.D. (MS '88) reports that he is Senior Manager of Directed Energy Systems for The Boeing Company in Albuquerque, NM, responsible for developing high energy laser (HEL) systems for integrated air and missile defense. He suggests to Google "Laser Avenger" to learn more about his work. Like Rob Ronk, above, Ted used our pulsed, 10 MW CO(2) laser in his masters research at Creighton.

**G. Jeffrey Sykora**, Ph.D. (BSPHy '04) gave a seminar presentation at Creighton last year on his work leading to a Ph.D. at Oklahoma State University. Currently Jeff is in the UK at ISIS, a world-leading center for research in the physical and life sciences at the Rutherford Laboratory near Oxford. Jeff is in the R&D group in charge of developing neutron detectors for a new suite of neutron scattering instruments. For details, visit the ISIS home page: [www.isis.stfc.ac.uk/index.html](http://www.isis.stfc.ac.uk/index.html)

**George K. Mortensen** (BSPHy '78) wrote to thank Dr. Cipolla for providing motivation eventually leading to a career in the nuclear energy industry. George is the External Relations Program



**George Mortensen**

Manager for the Institute of Nuclear Power Operations (INPO) in Atlanta, Georgia. His education, certifications and experience as a senior nuclear reactor operator also qualifies him as an INPO Emergency Preparedness, Operating Experience, and Human Performance evaluator. George and his wife, Denise, have one son, Tanner, a physics major at Georgia College and State University. Tanner has worked an internship at Oskarshamn nuclear plant in Sweden, and will be working as an intern at the Duke University accelerator facility this summer.

**Jeffrey J. Gross** (MS '95, BSPHy '93) visited Creighton last spring. Jeff is Vice President of



**Jeff Gross**

Dynamic Controls, Inc., a partner of Schneider Electric, in St. Louis. He and his wife Anne live in Weldon Spring, MO. They have a son Bill who is 3 years old.

## In Memoriam

Word has come to us since the last Newsletter about three of our physics alumni who have died:

**Carl J. Maggiore**, Ph.D. (BS '65) died of cancer at age 67 on Jan. 7, 2011. He leaves his wife Edwina and children Antonio and Anna. Carl was born in Grand Island, NE. After receiving a Ph.D. in physics from Michigan State, Carl went on to design detectors for the Princeton Gamma Tech Co. In 1976 he began work at the Los Alamos National Laboratory where he eventually founded the Ion Beam Materials Lab, dedicated to using accelerated particles to modify or analyze materials, earning for him and his colleagues a Distinguished Performance Award. After leaving LANL, Carl did experimental work at CERN, testing the treating of tumors using antiprotons, with collaborators at CERN and the University of Aarhus in Denmark.

**Capt. Fred H. Gehrman Jr.** (BS '66) died suddenly at the age of 63 on Sept. 1, 2007. He leaves his wife Claire, son Christopher and daughter Karen. Fred was born in Omaha, NE. He retired from the Military on June 30, 1995, a recipient of the meritorious service medal, the legion of merit and the Navy commendation medal. His last duty station was as commanding officer of Pearl Harbor Naval Shipyard, Pearl Harbor, HI. He retired to San Francisco where he was enjoying employment at Maritime Academy.

**Jerome E. Drakeford** (MS '95) died on May 20, 2011 at the age of 62. He leaves his wife Mary, daughters Megan and Angela, stepsons Theo and Daniel, and stepdaughter Elizabeth. Jerome was an Instructor in Mathematics at the University of Nebraska at Omaha, with interests in Math Education and Math Anxiety.

## External & University Awards Classes of 2009 and 2010

Only award recipients who graduated in '09 and '10 are listed here, with the award year(s) in parentheses.

Barry M. Goldwater Scholarship

**Katherine Garrett** ('08-'10)

Clare Boothe Luce Scholarship  
for Women in Science

**Katherine Garrett** ('08-'10)

American Astronomical Society  
2009 Chambliss Student  
Achievement Award

**Sandra Behncke**

NASA Nebraska Space Grant  
Fellowship and Jet Propulsion Lab  
Summer Internship

**Sandra Behncke** ('09)

NASA Nebraska Space Grant  
Fellowship

**Allison Showalter** ('09)

**Mark Pepin** ('08)

### CREIGHTON UNIVERSITY

Michael P. Anderson Scholarship

**Allison Showalter** ('09-'10)

**Timothy Smith** ('06-'09)

Ferlic Summer Research Scholarship

**Katherine Garrett** ('08)

**Mark Pepin** ('08)

**Robert Thomen** ('07)

2010 Graduate School Service Award

**Hans Wrage**

## Physics Department Awards Classes of 2009 and 2010

Only award recipients who graduated in '09 and '10 are listed here, with the award year(s) in parentheses.

The Alumni Scholarship

**Mark Pepin** ('09-'10)

**Allison Showalter** ('09-'10)

**Joseph Brewer** ('08-'09)

**Timothy Smith** ('08-'09)

Senior Recognition Awards

Thomas H. Zepf Award for  
Excellence in Scholarship, Research and Service

**Mark Pepin** ('10)

Robert E. Kennedy Award for  
Excellence in Scholarship and Research

**Katherine Garrett** ('10)

Bazil N. Lazure Award for  
Outstanding Academic and Research Achievement

**Allison Showalter** ('10)

Award for Outstanding Research and Scholarship

**Matthew Bassett** ('09)

**Timothy Smith** ('09)

**Stephen Hansen** ('06)

Bazil N. Lazure Award for  
Outstanding Service to the Department of Physics

**Sandra Behncke** ('09)

Graduate Student Awards

Award for Outstanding Scholarship

**Joseph Butterworth** ('09)

AAPT Award for Outstanding Graduate Teaching

**Robert Thomen** ('10)

**Hans Wrage** ('09)

**Joseph Butterworth** ('08, '09)

Fr. Clarence M. Wagener, S.J. Award for  
Outstanding Service to the Department of Physics

**Olamide Osinkolu** ('10)