The Wisconsin Physicist

WISCONSIN
UNIVERSITY OF WISCONSIN–MADISON

Department of Physics
1150 University Avenue
Madison, WI 53706

Tel: 608.262.4526
Email: info@physics.wisc.edu
Web: www.physics.wisc.edu

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UNIVERSITY OF WISCONSIN–MADISON

University of Wisconsin
Department of Physics
1150 University Avenue
Madison, WI 53706

Tel: 608.262.4526
Fax: 608.262.3077

Email: info@physics.wisc.edu
Web: www.physics.wisc.edu
Facebook: UW-Madison Department of Physics

On the Cover

The IceCube Neutrino Observatory was completed at the South Pole on December 18, 2010. The date marks the end of construction and the beginning of full data-taking capacity for IceCube.

View from the Chair, Professor Robert Joynt

Greetings

I took over as Chair in September, 2011 from Baha Balantekin. The department thanks Baha for his 3 years of distinguished service and wishes him bon voyage to California and Japan, where he will be spending his well-earned sabbatical.

2011 has been a year of transition for the Physics Department. Profs. Lou Bruch and Lynn Knutson have retired after many years of service, though both have remained actively present in the department. Profs. Teresa Montaruli and Tao Han resigned to take positions at the Universities of Geneva and Pittsburgh, respectively. These people will be difficult to replace, but we are currently searching for three new faculty in plasma physics, high-energy theory, and high-energy astrophysics. We are pleased to announce that Assistant Profs. Lisa Everett and Deniz Yavuz have been promoted to Associate Professor with tenure.

Honors have come to our faculty:

- Prof. Susan Coppersmith was awarded a Vilas Professorhship: she is now the Robert Fassnacht Professor of Physics.
- Prof. Gary Shiu was named a Fellow of the American Physical Society.

Congratulations – hard work rewarded!

There have been many exciting developments on the research front. I'll just mention 3 large projects. IceCube, our cover story, is now going great guns and has made major discoveries about the anisotropy of cosmic rays (http://www.news.wisc.edu/18256). It is headed by Prof. Francis Halzen. The Madison Plasma Dynamo Experiment in Sterling Hall has taken delivery of its main vessel, a 3-meter diameter hollow aluminum sphere. The experiment will study how magnetic fields are generated in stars and planets (http://www.news.wisc.edu/releases/16787). The PI is Prof. Cary Forest. Work has started on the Atomic Qubit Array: 64 neutral-atom qubits that will compose the world's largest quantum computer. It has a 5-year completion schedule and involves 3 academic institutions and 5 companies. It is directed by Prof. Mark Saffman.

The 11th Annual Awards Banquet was held in May 2011. The generosity of our alumni now allows us to give out many awards to outstanding students. A description with pictures can be found on p.7. We gave the Distinguished Alumni Award to Tom O'Brian. Tom graduated from the department with his Ph.D. in 1991, studying with Prof. Lawler. He has gone on to become the Chief of the NIST Quantum Physics Division, Chief of the Time and Frequency Division, and finally the Director of the NIST Boulder Lab. We gave the Distinguished Service Award to our own Prof. Chun Lin. Chun's many decades of outstanding research and teaching had already been recognized with the awarding of the John and Abigail Van Vleck Professorship. The Distinguished Service Award recognized his very substantial financial contributions to the department.

Whether you are an alumnus, friend, employee, or student, we appreciate your interest in and loyalty to the University of Wisconsin Physics Department. We wish to include a substantial section of alumni news in future newsletters. To do that, we need to hear from you – please just keep us up to date on what you are doing. Also, send along any memories or anything else that people would like to read. The contact information is on the cover. You can also donate to the Physics Department online by going to www.physics.wisc.edu/giving/index.html.

If you wish to consult with a UW Foundation development officer on future gifts or other options, including estates, trusts, gifts-in-kind, or planned giving please contact Dani Luckett at 608 265-2713 or dani.luckett@supportuw.org

I sincerely thank our generous alumni and friends who have financially supported the Department. This support is truly our margin of excellence.

Faculty Updates

Promotions: Ice Cube Experimentalist **Teresa Montaruli** was promoted to the rank of professor. Phenomenologist **Lisa Everett** was promoted to associate professor with tenure. Atomic Physics Experimentalist **Deniz Yavuz** was promoted to associate professor with tenure.

Awards: Professor **Sue Coppersmith** was awarded a Vilas Professorhship: she is now the Robert Fassnacht Professor of Physics. Professor **Gary Shiu** was named a Fellow of the American Physical Society.

Retirements: Professor Professor **Lou Bruch** and Professor **Lynn Knutson**.

Departures: Professor **Teresa Montaruli**, University of Geneva and Professor **Tao Han**, University of Pittsburgh.

Sabbaticals: Professor **Baha Balantekin** and Professor **Peter Timbie**.

Current Searches: The Department of Physics is currently doing faculty searches in the areas of Astroparticle experimental, Particle Theory, and Plasma experimental.

IceCube Neutrino Observatory

Construction & Collaboration

Following a decade of planning, designing, and construction, the IceCube Neutrino Observatory was completed at the South Pole on December 18, 2010. The date marks an end and a beginning for the project; the end of construction, and the beginning of full data-taking capacity for IceCube.

It has been an incredible journey, creating the world's largest neutrino detector. This article covers development and construction of the mammoth instrument, measurements and results from the detector, and how IceCube is providing excellent opportunities to graduate students.

Neutrino detectors characteristically need to be housed in stable, dark, large spaces. They can be found in bodies of water, caves, or man-made structures. IceCube uses a cubic kilometer of ice at the South Pole to house 5,160 digital optical modules, or DOMs, that function as the "eyes" of the detector. They see the flash of blue Cherenkov radiation that is released when a neutrino interacts with a nucleus in the ice and produces a muon. Each DOM is equipped with a photomultiplier tube that records information about neutrinos and muons, digitizes it, and sends it to the surface lab.

Building IceCube at the South Pole posed unique challenges. The design required that the DOMs be embedded in the ice to depths of nearly two miles. To accomplish that, the UW-Madison Physical Sciences Laboratory designed and built the Enhanced Hot Water Drill, a marvel of engineering, a piece of equipment that easily drilled through the snow and ice using pressurized hot water.

Inside of each hole, a "string" of cable containing 60 DOMs was deployed. Drilling and deployment teams were sent to the South Pole during the austral summers beginning in 2004 to construct IceCube.

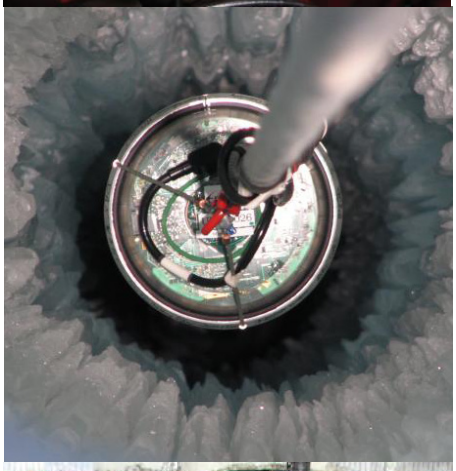
IceCube is the product of many individuals, institutions, and agencies. UW Physics Professor Francis Halzen was the first to propose the idea. Through partnerships with other researchers, the seeds of IceCube were developed in the Antarctica Muon and Neutrino Detector Array, or AMANDA. Following an award of National Science Foundation (NSF) funding, the IceCube Collaboration was born and now includes over 200 researchers from 39 institutions in 7 countries. NSF continues to be the major funder, with additional funds from Germany, Belgium, Sweden, Switzerland, and Japan.

Measurements & Results

Although the detector was completed within the last year, it has been taking data since 2005 when the first of 86 strings was commissioned. Now that it has reached full capacity, researchers look forward to a "higher resolution" view of the Universe. Currently, gamma-ray bursts (GRBs) as potential neutrino sources, cosmic ray anisotropy, sterile neutrinos, and a collection of calibration checks are being investigated or developed at UW-Madison. As with many other neutrino facilities, the possibility of unexpected discoveries motivated the construction of an IceCube design with the widest science reach.

One of the most intriguing objects IceCube is studying is gamma-ray bursts (GRBs). They are the most powerful explosions in the universe. For a few brief seconds, these mysterious objects can outshine the entire galaxy by a billion times. They may also be the solution to the century-old puzzle: the sources of the highest energy cosmic rays, particles a hundred million times more energetic than can be produced on Earth.

If GRB's are the sources of cosmic rays, interactions of the new-born cosmic rays with the intense gamma rays around the burst should produce neutrinos—a "smoking-gun" signature of their production. These neutrinos should be visible to IceCube. Seeing them would provide the first confirmation that GRBs are the cosmic ray sources. If these neutrinos are not detected, it will suggest that cosmic rays are produced in some other source. In recently published results (April PRL), IceCube has become the first instrument able to probe this question.



In addition to being a neutrino detector, IceCube is also sensitive to cosmic rays, charged energetic particles from outer space that constantly bombard the Earth. Almost 100 years after their discovery, it is still unknown where in the Universe these particles originate and how they are accelerated to high energies. The remnants of supernova explosions are likely candidates for the origin of Galactic cosmic rays, but there is still no "smoking gun" that links the cosmic rays directly to their sources. Part of the problem is that cosmic rays are charged particles, mostly protons and helium nuclei, and their arrival directions are scrambled in Galactic magnetic fields on the way from the source to us.

IceCube detects cosmic rays through the muons that are produced when they interact in the atmosphere above the South pole. IceCube data has recently revealed anisotropy in the arrival direction distribution of cosmic rays that indicates that these particles are not completely scrambled. Like similar anisotropy detected earlier by cosmic ray experiments in the northern hemisphere, the structures seen by IceCube appear on several scales: a part-per-mille "large scale" component, with more cosmic rays coming from one half of the sky when compared to the other half, and a "small scale" component, in which the excess regions are about 10 times weaker and smaller in size.

The origin of the observed anisotropy remains unknown. It is possible that we see one (or more) nearby sources of cosmic rays through the "lens" of the magnetic fields between the source and us. This possibility is supported by a recent measurement of the cosmic ray energy spectrum by the air shower array covering the ice above the in-ice detector. The spectrum seems to show small "ripples," possibly the effects of nearby sources modulating the otherwise featureless cosmic ray spectrum.

The possibility of IceCube revealing the presence of sterile neutrinos in the atmospheric neutrino beam was first investigated by John Bahcall. After seeing "interesting indications" from short-baseline experiments and reactor data, as well as evidence for additional degrees of freedom in the energy density of the Universe, we are revisiting sterile neutrinos with renewed interest. Detecting more than 200 neutrinos per day, IceCube has an unmatched sensitivity that is only limited by our understanding of the systematics of the detector.

Investigating GRB's and cosmic rays offers potentially dynamic results, but there are other, more mundane aspects of the detector data that have enabled researchers to develop important calibration checks. Cosmic ray data is checked for a solar dipole anisotropy caused when Earth moves around the sun. Similar to the moon shadow present in neutrino point source analysis, the solar dipole provides an important confirmation of experimental sensitivity.

Training Scientists

The ability to make new measurements and investigate cosmic phenomenon in a new way are central goals of the IceCube project, but there is another, more personal goal: training future scientists. IceCube at UW-Madison has supported over 50 physics graduate students and post-docs, visiting students , undergrads, and engineering and computer science students. Over the years, about ten students have been sent to the South Pole construction site to help with testing DOMs, checking computer systems, or general labor.

Recently, the IceCube Research Center (IRC) started a new fellowship program named after the late John Bahcall, which provides a stipend and materials funding to two outstanding scientists for up to five years. The Bahcall Fellowship enables IceCube to recruit some of the best

and brightest young researchers in particle astrophysics. The first two recipients were announced earlier this summer and have now joined the IceCube team in Madison. Programs like this, combined with the unique possibility of travel to the South Pole, make IceCube a unique and attractive project to work for.

The IceCube Neutrino Observatory is not the only interesting project maintained by the IRC, a UW-Madison center that handles administrative and organizational tasks for the international IceCube Collaboration. Other astrophysics projects under the umbrella of the IRC are the High Altitude Water Cherenkov Experiment (HAWC), the Askaryan Radio Array (ARA), DM-Ice, and Pierre Auger Cosmic Ray Observatory. Faculty and graduate students work on these projects as well. ARA and DM-Ice are extensions of IceCube at the South Pole, HAWC maintains a site in Mexico, Auger in Argentina.

Conclusion

In April of 2011, the final DOMs of the IceCube array were integrated into the array and began taking data. Preliminary information has been intriguing, and the collaboration looks forward to new discoveries, on-going exploration of mysterious cosmic events, and continuing to recruit and train high quality students and researchers.

UW Physics Department

What's New

The Physics Library

The Physics Library continues to be a popular spot for studying on campus. In the 2010-2011 academic year we had 38,752 visitors and checked out nearly 6,500 books. In 2009 we were able to acquire new furniture, including more comfortable seating with a generous grant from the UW Parents Fund.

The Physics Library is currently hosting a new exhibit. From Earth to the Universe is a collection of exceptionally beautiful and fascinating astronomical images from a wide range of sources, spanning major research observatories to accomplished local amateurs. UW Space Place has produced a new traveling exhibit from the collection, which will be open for viewing in the Physics and Astronomy libraries through the end of the semester. For more information see www.fromearthtotheuniverse.org/ and http://spaceplace.org.

The Physics Library Fund was established in 2008 for the acquisition of books and other materials related to physics. The Physics Library's collection has been strongly affected by dramatic increases in the price of materials. The growth of the endowment will help assure the care and continued growth of the Physics Library collection. We invite those interested in supporting the physics collection at UW-Madison to contribute to this endowment. Please make your check payable to UW Foundation, Account #12906418 and send to US Bank Lockbox, PO Box 78807, Milwaukee, WI 53278-0807.

The UPS Club

The University Physical Society (UPS), also known as the Physics Club, is an organization for students interested in physics and related fields. The Physics Club has over 100 active members who attend events such as seminars, tours, trips, and socials. Physics Club volunteers offer nearly twenty hours a week of free drop-in tutoring to students in introductory physics classes. The club room (2328 Chamberlin Hall) is home to events and is used as a study room and a place to socialize between classes. It contains a wealth of physics resources, computers, a new couch, a fridge, a microwave, and many other conveniences for its members. Popular events include movie nights, potlucks and game nights. This year, the club's outings will include a trip to UW-Madison's Synchrotron Radiation Center this fall as well as a trip to Argonne National Lab this spring.

UW Physics Department

2011 Physics Awards Banquet

The 2011 Physics Physics Banquet & Awards Ceremony to honor the Department Award Recipients and Alumni Fellow was held on Friday, April 29, 2011at the Fluno Center. We honored our award winners with a reception, dinner, and awards ceremony for the family and friends.

Undergraduate Awards

Fay Ajzenberg-Selove
Jessie Otradovec (Physics)

Dr. Maritza Irene Stapanian Crabtree
Blaine Law
Jessie Otradovec
Nadia Qutaishat
Sara Stanchfield
Aaron Swander
Adam Wright

Bernice Durand Research Scholarship
Carli Peters

Henry and Eleanor Firminhac
Danny Jones
Alexandra Schroeder

L. R. Ingersoll Prize
Spring 2009-2010
Da Yin (103)
Yinshan Chen (104)
Ke Chu (201)
Yaming Jiang (202)
Tyler Will (207)
Dana Bellissimo (208)
Georgios Stratis (248)

Fall 2010-2011
Linbailu Jiang (103)
Andrew Wiederhold (104)
Xiaoyi Qu (201)
Zhiyun Jiang (202)
Yicheng Li (207)
Leah Alstad (208)
Azeem Zaman (247)

Liebenberg Research Scholarship
Craig Price

Albert Augustus Radtke Scholarship
Audra Amasino
Scott Moe
Rich Pang
Antonio Puglielli

Baha Balantekin and Fay Ajzenberg-Selove Award winner Jessie Otradovec.

Baha Balantekin and L. R. Ingersoll Prize winners for Fall 2010-2011: Andrew Wiederhold (104), Linbailu Jiang (103), Xiaoyi Qu (201), and Yicheng Li (207).

Baha Balantekin and Dr. Maritza Irene Stapanian Crabtree Award winners: Adam Wright, Jessie Otradovec, Aaron Swander, Blaine Law, Nadia Qutaishat, Sara Stanchfield.

Baha Balantekin and Albert Augustus Radtke Scholarship Award winners Scott Moe, Antonio Puglielli, and Audra Amasino.

Baha Balantekin and Henry and Eleanor Firminhac Physics Undergraduate Scholarship winners Alexandra Schroeder and Danny Jones.

Baha Balantekin and Joseph R. Dillinger Award for Teaching Excellence winner Valerie Plaus.

Baha Balantekin and L. R. Ingersoll Prize winners for Spring 2009-2010: Ke Chu (201); Yinshan Chen (104); and Yaming Jiang (202).

Baha Balantekin and Phyllis Jane Fleming Graduate Student Support Fund winner Kara Maller.

Graduate Awards

Joseph R. Dillinger Award for Teaching Excellence
Valerie Plaus

Phyllis Jane Fleming Graduate Student Support Fund
Kara Maller

Elizabeth Hirschfelder Award
Emily Barrentine
Meghan McGarry
Isobel Ojalvo
Valerie Plaus
Chiu-Tien Yu

Karl Guthe Jansky and Alice Knapp Jansky Family Graduate Award
Kelsey Morgan

Emanuel R. Piore Award
Chien Yeah Seng (Fall 2010)
Fangzhou Zhang (Fall 2010)
Isobel Ojalvo (Spring 2011)

Departmental Awards
Best TA
Zach De Land (Spring 2010)
Jacob Feintzeig (Fall 2010)
Michael Wood (Fall 2010)

Rookie of the Year
Nicole Vassh

Alumni Awards

Distinguished Alumni Award
Thomas R. O'Brian

Distinguished Service Award
Chun Lin

Baha Balantekin and Elizabeth Hirschfelder Award winners Emily Barrentine, Chiu-Tien Yu, Isobel Ojalvo, and Valerie Plaus.

Baha Balantekin and Departmental Awards Zach De Land (Best TA, Spring 2010), Michael Wood (Best TA, Fall 2010), and Jacob Feintzeig (Best TA, Fall 2010).

Baha Balantekin and Karl Guthe Jansky and Alice Knapp Jansky Family Graduate Award winner Kelsey Morgan.

Baha Balantekin and Distinguished Alumni Award winner Thomas R. O'Brian.

Baha Balantekin and Emanuel R. Piore Award winners Isobel Ojalvo (Spring 2011), Chien Yeah Seng (Fall 2010), and Fangzhou Zhang (Fall 2010).

Baha Balantekin and Distinguished Service Award winner Chun Lin..

2012 Physics Banquet & Awards Ceremony

The 2012 Physics Banquet is scheduled for Friday, May 4, 2012 at the Fluno Center.

To view more photos of last year's event go to: www.physics.wisc.edu/admin/banquet/

For scholarship and award information for 2012 go to: www.physics.wisc.edu/awards/

UW Physics Students

Degrees Awarded

Undergraduate

Astronomy–Physics

Summer 2010
Birdsall,Ryan (BS)

Fall 2010
Kaczmarek,Jane Frances (BS)
Mast,Nicholas Glenn (BS)

Spring 2011
Cardoso,Rogerio Fernando (BS)
Finzell,Thomas (BS)
Hartwick,Victoria Leigh (BS)
Miller,Jacob James (BS)
Reese,Daniel Tyler (BS)
Schield,Justin Michael (BS)

Physics

Summer 2010
Birdsall,Ryan (BS)

Fall 2010
Kaczmarek,Jane Frances (BS)
Mast,Nicholas Glenn (BS)

Spring 2011
Brookman,Michael William (BS)
Cardoso,Rogerio Fernando (BS)
Colon,Dylan Patrick (BS)
Daun,Mitchell Keith (BA)
De La Rosa Gomez,Alejandro (BS)
Dong,Xi (BS)
Finzell,Thomas (BS)
Graves,Adam Michael (BS)
Holzer,Benjamin Allen (BS)
JaraAlmonte, Jonathan Marc (BS)
Lee,John Greendeer (BS)
Madajczyk,Bradley William (BS)
Miller,Jacob James (BS)
Moe,Scott Andrew (BS)
Ocepek,Christina Marie (BS)
Reese,Daniel Tyler (BS)
Schenck,Benjamin Robert (BS)
Schield,Justin Michael (BS)
Smith,Nathaniel P (BS)

Summer 2011
O'Connor,Allan Pray (BS)
Wang,ChihChien (BS)
Warns,Matthew John (BS)

Graduate

Master's Degrees

Summer 2010
Cho, Junghun
Collins, Cami
Eilerman, Scott
Gamble, John
Garcia, Camilo
Koliner, Jonathan
Plaus, Valerie

Spring 2011
Dong, Zhe
Hernandez, Tomas
Liu, Zhen
Triana, Joseph
Van Bael, Bjorn
Yang, You Ming

Summer 2011
Hardy, Lisa
Morgan, Kelsey
Novakovic, Bozidar
Rudinger, Kenneth

PhD Degrees

Fall 2010

Andeen, Karen Grace (Advisor: Karle) Post Doc. Rutgers University

Burke, Bonita (Advisor: Hegna) M.I.T. Lincoln Laboratory

Burke, David Ryan (Advisor: Forest) M.I.T. Lincoln Laboratory

Green, Jonathan Tyler (Advisor: Yavuz)
Post Doc. Florence, Italy

Grullon, Sean (Advisor: Karle)
NIH - Genetics Lab

Hannum, David (Advisor: Forest)
NSF Fellowship in L.A.

Haque, Sheikh Shajidul (Advisor: Hashimoto) Visiting Assistant Professor at Colorado State University

Hatch, David Robert (Advisor: Terry)
Post Doc at Max Planck Instutite for Plasma Physics in Germany

Kim, Chulki (Advisor: Blick)
Samsung Advanced Institute of Technology

Magee, Richard McClain (Advisor: DenHartog)
Post Doc. West Virginia University

Miller, Matthew Charles (Advisor: Sarff) Post Doc at Auburn University

Panyajirawut, Pongladda (Advisor: Rzchowski) Government of Tailand

Spring 2011

Corliss, Jason (Advisor: Lawler)
Post Doc at UW Madison

Dumm Jonathan Paul (Advisor: Montaruli)
Post Doc. Univeristy of Minnesota

Lewis, Ian Michael (Advisor: Han)
Brookhaven National Lab

Peng, Weina (Advisor: Eriksson)
Post Doc. University of Texas at Austin

Proite, Nicholas Anthony (Advisor: Saffman)
Engineer at Alfalight

Rao, Yongyan (Advisor: Everett)
Quantitative analyst at Deloitte and Touche LLP

Simmons, Christie (Advisor: Eriksson)
Post Doc. M.I.T.

Yencho, Brian Michael (Advisor: Barger)
Post Doc University of Barcelona Institute of Cosmos Sciences

Summer 2011

Anderson, Michael Brandt (Advisor: Dasu)
Software Engineer at Qualcomm, Austin, Texas

Cook, Peter Laurance (Advisor: Himpsel)
Tenure Track Faculty at UW Superior

Felker, David Andrew (Advisor: Rzchowski) Epic Systems

Gavin, Ryan Donahue (Advisor: Petriello)
Post Doc ETH Zurich

Glatzmaier, Michael James (Advisor: Ramsey-Musolf) Post Doc at the University of Kentucky

Grogg, Kira Suzanne (Advisor: Smith)
Post Doc at Harvard Medical School/ Massachusetts General Hospital

Lancor, Brian Robert (Advisor: Walker)
Post Doc at UW Madison

Lazaridis, Christos (Advisor: Smith)
Post Doc UW Madison

Leonard, Jessica Lynn (Advisor: Smith)
Post Doc UW Madison

Malkus, Annelise (Advisor: Balantekin)
Post Doc at University of North Carolina

McGuirk, Paul (Advisor: Shiu)
Post Doc Cornell University

Reusch, Joshua Adam (Advisor: Forest)
Post Doc at UW Madison

Smith, Kurt William (Advisor: Terry)
Scientific Software Developer at Enthought

Stuart, Alexander James (Advisor: Everett)
Post Doc at Southampton University, England

Weinberg, Marc Gabriel (Advisor: Smith)
Post Doc at Florita State University working on CMS

Zhou, Dong (Advisor: Joynt)
Post doc at Yale University

UW Physics Graduate Students

Admissions

Fall 2011 Admissions

Total of 23 students

Nicholas Brewer
UW-River Falls
Yavuz—AMO

Carson Cook
University of Wisconsin-Madison
Anderson—Nuclear

Daniel Crow
Middlebury College
Joynt—Condensed Matter

Daniel Enderich
Michigan State University
Eriksson—Condensed Matter

Todd Garon
Reed College
Chung—Undecided

Huaike Guo
Peking University
Everett—Particles/High Energy

Andrew Hard
University of Chicago
Wu—Particles/High Energy

Sophia Henneberg
Johan Wolfgang Goethe Universitat
Hegna—Plasma

Taylor Klaus
University of Illinois at Urbana-Champagne
McDermott—Quantum Computing

Aaron Levine
Rice University
Dasu—Particles/High Energy

Andrew Loveridge
Northwestern University
Everett—Astrophysics

Ming-Yuan Lu
National Taiwan University
Karle—Particles/High Energy

Jason Milhone
Cornell University
Forest—Plasma

Tor Ole Odden
St. Olaf College
Saffman—Condensed Matter

Thomas Perry
Union College
Herndon—Astrophysics

Eric Poppenheimer
Univeristy of California Davis
Eriksson—Condensed Matter

Leonardo Rivera
University of Puerto Rico
Wieben—Medical Physics

Brendan Shanahan
University of Dayton
Sarff—Plasma

Yuriy Sizyuk
Illinois Institute of Technology
Perkins—Condensed Matter

Joseph Suttle
Rice University
McDermott—Condensed Matter

Moriah Tobin
Reed College
Heeger—Particles/High Energy

Lauren Wielgus
Tufts University
Maruyama—Astrophysics

Vladimir Zhdankin
University of Wisconsin-Madison
Boldyrev—Plasma

Third Year Physics Graduate Students

Class of 2008

Graduate students (left to right) Leon Maurer, Phil Johnson, Tien-tien Yu, John Gamble, and Scott Eilerman take the audience to the magical world of "The Wizard of Madison," a short musical performed at the 2010 holiday colloquium.

Each Fall semester, the third-year graduate students host the annual Department of Physics Holiday Colloquium. There is no famous speaker, no cutting-edge topic, but somehow every year hundreds of people are in attendance. The reason: right under their advisors' collective noses, the third-years are tasked with writing, directing, hosting, and staring in a two hour comedy show. Last year was our turn, and somehow, despite our preliminary exams and research, we managed to cobble something together. When all was said and done, we had accumulated fourteen video shorts, a live 'game show', a two-act musical, and many mixed-media interludes. As is customary, we served free pizza to our eager onlookers, along with a special, home-brewed beer honoring UW Plasma Physics research scientist Abdulgader Almagri. In case you missed the fun, the show is posted on the web in its entirety at: www.youtube.com/watch?v=AB2-0WyVQYs

UW Physics Department

In Memoriam

William F. "Jack" Fry

July 18, 2011

Professor Emeritus William F. "Jack" Fry, passed away at his home in Madison, Wisconsin. He was born Dec. 16, 1921, at the family farm on Scotch Ridge, south of Carlisle, Iowa. He graduated from Carlisle High School in 1939, and from Iowa State University with a B.S. in electrical engineering in 1943, followed by graduate work at George Washington University, Washington, D.C. He received his Ph.D. in physics from Iowa State University in 1951 and was a post-doctoral fellow at the University of Chicago 1951-1952.

During World War II he was a commissioned naval officer, stationed at the Naval Research Laboratories in Washington, D.C., where he led the research on jamming devices for guided missiles. Then on to the White Sands, New Mexico rocket site, where he was in charge of researching German V-2 rockets.

Dr. Fry was Professor of Physics at the University of Wisconsin from 1952 to 1998. He was an experimental high energy physicist at the University and pioneered the astrophysics program. He also established physics programs at the University of Padova and Milan University in Italy in 1957. He was a Guggenheim Scholar and Fulbright Lecturer and served as a consultant to the International Atomic Energy Commission.

He spent over four decades in violin acoustical research, uncovering the secrets of Stradivarius. His accomplishments in violin research are recognized in books and film, and are detailed in a scientific video book he completed last year. Jack was an avid historian who collected Italian manuscripts from the 12th century through the Fascist period during his extensive travels in Italy. He donated over 40,000 books and documents to the University of Wisconsin Library, making the largest collection of Italian Fascist-era documents available to scholars worldwide.

He was preceded in death by his parents, Will and Flossie Fry; brother, Perry, wife, Sigrid; and son, David Fry. He is survived by his wife, Audrey; brothers, John (Janie) Fry, Springfield, Ore., Harry (Phyllis) Fry, Orrville, Ohio; daughter, Diane (Mark) Siegel, Atlanta, Ga.; stepdaughter, Catherine Woodward (Joe Meisel), Madison; and stepsons, Erik and Leif Tesdell, Des Moines, Iowa.

Hakki Ögelman

September 4, 2011

Dr. Hakki Ögelman, renowned astrophysicist and professor at the University of Wisconsin-Madison, passed away peacefully in Austin, Texas after battling cancer for several months. He was 71 years old. He was born in July 1940 in Ankara, Turkey. He attended Robert College in Istanbul before furthering his education in the U.S. He received his B.S. at DePauw University, and his M.S. and Ph.D at Cornell, in 1966. Dr. Ögelman taught physics at the Middle East Technical University in Ankara, Turkey and conducted research at the Max-Planck Institute in Germany before relocating to the University of Wisconsin-Madison, where he has been Professor of Physics since 1991. He was previously a research scientist at NASA's Goddard Space Flight Center, a post doctoral fellow in Australia at the University of Sydney, and the Dean of Basic Sciences at Çukorova University in Adana, Turkey.

Dr. Ögelman was a member of the Turkish Academy of Sciences. He served as a member of the executive Science Board for the Scientific and Technical Research Council of Turkey from 1976 to 1984. He also represented Turkey on international science councils and co-operations and served on NASA committees and working groups. Dr. Ögelman was awarded the Sedat Simavi Prize in 1988, and the Turkish Scientific and Technical Research Council Prize in 1991. He was an expert on the physics of neutron stars and worked on several topics in modern astrophysics. He was instrumental in establishing the Turkish National Observatory.

Dr. Ögelman loved music, literature, sports, and was very concerned about finding a sustainable solution to the world's energy needs. He was a competitive wrestler in college and a black belt in judo.

He is survived by Kenan Ögelman of Austin, Texas, Nedim and Laura Ögelman of Alexandria, Va., and Roberto Ögelman of Madison. Dr. Ögelman also has two grandsons, Anders and Soren Ögelman, of Alexandria, Va.

Murray Thompson

April 5, 2010

Murray Alexander Thompson, age 75, died at his home on the Whangaparaoa Peninsula in New Zealand. He was born and educated in New Zealand before joining the Physics Department at UW-Madison as a post-doctoral student in 1962. He later joined the faculty and spent a total of 37 years in the Physics Department before retiring as an emeritus professor early in 2000.

From 1976 to 1989 he was the director of the Physical Sciences Laboratory, a University operated research and development facility near Stoughton. Murray was an enthusiastic and inventive leader of the laboratory. He delighted in and sought out the unique challenges presented to him by both University researchers and regional companies.

He is survived by Megan, his wife of 49 years; his sons, Bruce of Aliso Viejo, Calif., and David (Kristi) of Redmond, Wash.; and grandchildren, Colin and Kira.

UW Physics

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