Sarah Phillips was hired into a

Welcome to our Spring 2007 newsletter. There have been lots of changes since our last newsletter.

training of students. We have had two faculty departures since our last newsletter. Paul Kirk retired in August 2006 after 35 years with the department, and Robert Svoboda resigned in November 2006 to take a CHAIRMAN!S, WELCOME alifornia by Roger McNell awrence Livermore National Laboratory (LLNL). You'll recall from our last newsletter that Dr. Svoboda was on leave at LLNL after his house in New Orleans was severely damaged by Hurricane Katrina. We hope to begin a new round of faculty searches in the fall of 2007.

recruiting of new faculty members to our department. In the summer of 2006, we hired two full time instructors, Dubravka Rupnik and Iftikhar Ahmad. Also in spring 2007, Dr. Polad Shikhaliev came to LSU from the University of California at Irvine. His research is in the area of medical imaging physics. The department currently has three faculty searches taking place in the areas of experimental condensed matter physics, condensed theoretical matter physics and experimental nuclear physics. We hope soon to hire outstanding faculty members to strengthen these research areas to support the education

We had a great year with our students. Since our last newsletter, we graduated 18 B.S. degrees, 4 M.S. degrees in Medical Physics/Health Physics and 3 Ph.D. degrees. A full listing of our graduates is included in this newsletter edition. In February 2007, the College of Basic Sciences held its annual scholarship breakfast where the first two Grea Hussey Scholarships for Undergraduate Physics were awarded to Brendan Watson (2006) and Nicholas Van Meter (2007). Our students continue to grow in number with about 100 undergraduate majors and over 80 graduate students. This is an active time of year for recruiting of students and we are continuing our efforts to recruit outstanding students into both our undergraduate and graduate programs

There were two great news items this past November in our medical physics program: The program was reviewed by the Commission on Accreditation Medical **Physics** Education Programs and then received word that our program has been accreditdits(h)23

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### **Magnetic Protection**



Fermi National Accelerator Lab

Wired for magnetism. The superconductivity of wires like these breaks down when the magnetic field gets too high, which limits the strength of the field these coils can generate. A newly discovered effect increases the breakdown field by ten times, althrough so far it only works in a nanometers-thick, layered

Rainer Weiss is the recipient of the 2006 Einstein Prize of the American Physical Society (APS). Dr. Weiss is Professor Emeritus at Massachusetts Institute of Technology (MIT) and Adjunct Professor at LSU. The Einstein Prize recognizes outstanding accomplishments in the field of gravitational physics and is awarded biennially in odd-numbered years.

John Gibbons, Adjunct Associate Professor was named Fellow of the American College of Medical Physics



### Max Goodrich Distinguished Lectureship Series Speaker

Mosss H.W. Chan
Evan Pugh Professor of Physics
Pennsylvania State University

Member, National Academy of Sciences, and Fritz London Prize recipient.

Wednesday, February 7, 2007 - 5:00 PM 109 Nicholson Hall (A reception at the LSU Faculty Club followed the lecture.)

# Dr. Chan also presented the Departmental General Seminar on Thursday, February & 2007

#### "Critical Casimir Forces"

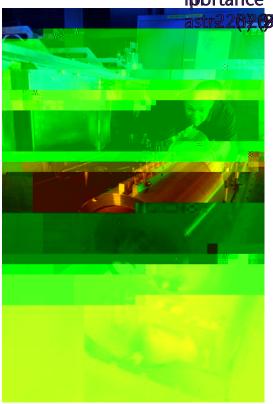
One of the most beautiful aspects of physics is how phenomena in widely different systems are described by the same mathematical formulation. In electromagnetism, the Casimir force is due to the confinement of zero-point electromagnetic fluctuations between two conducting plates a finite distance apart. In a completely analogous way, the confinement of critical fluctuation in an adsorbed film leads a thickness dependence correction to the free energy of the film and, therefore a critical Casimir force between the interfaces of the film. The existence of the critical Casimir force was confirmed by measuring the thickness of He-4 film adsorbed on solid substrates as

with a multitude of amazing properties, not imagined the system is brought through the superfluid, or even by Einstein. Even more extraordinarily, solid ambda, transition. A thinning of the adsorbed film helium was recently found (I in the laboratory to driven by the attractive force between the liquid-vapor show the same amazing properties it becomes what is not the liquid-copper interface is found (1, 2). A now known as a supersolid i.e., a solid which can flow repulsive critical Casimir force near the He-3-He-4 like a superfluid, without any resistance, through eventricritical point was also found (3).

atomicsize holes. This public lecture will explain impleterms how such incredible behavior is possible.

## (MTOFMS)

Professor Emitus Edward Janjar. Note the goldplated electrostatic lens elemnt. When MTOFMS is operational, experients of great interaction in the properties of great interaction of the properties of



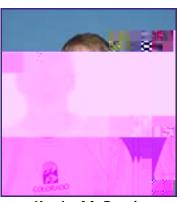
Faculty & Staff Focus, Honors & Awards, Research

Sudbury Neutrino Observatory Team Wins First John C. Polanyi Prize LSU researchers among those honored

- - LSU NEWS, November 16, 2006, 11:56 AM







**Thomas Kutter** 

Jason Goon

Kevin McBryde

Research scientists at the Sudbury Neutrino Observatory, or SNO, gathered yesterday to receive the first John C. Polanyi prize of the Natural Sciences and Engineering Research Council of Canada, or NSERC. Several LSU researchers are among those being honored.

The award, honoring John Polanyi, the 1986 Nobel Laureate in chemistry, is given annually to an individual or team whose research, conducted in Canada, has led to a recent outstanding advance in an NSERC-supported field of the natural sciences or engineering. The SNO collaboration team has used the observatory, a unique neutrino telescope located approximately one and a half miles underground near Sudbury, Ontario, for groundbreaking research that has significantly added to the understanding of the universe.

LSU has been involved with SNO since the fall of 2004, when Thomas Kutter came to the campus as an assistant professor of physics and astronomy. He

### 2007 Spring

### PHYSICS & ASTRONOMY NEWSLETTER

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# Sudbury Neutrino Observatory Team Wins First John C. Polanyi Prize LSU researchers among those honored (Contd. from Page 6)

very fundamental level. The observations also resolved the 30-year-old "Solar Neutrino Problem," a large discrepancy between earlier measurements by other laboratories not sensitive to all three types

For more information about SNO, please visit http://www.sno.phy.queensu.ca/ or contact Thomas Kutter at kutter@phys.lsu.edu or 225-578-8310.

by Ashley Berthelot, LSU Media Relations

# DEPARTMENTAL FUNDING NOTES - Fiscal Year 2005-2006

Our Physics and Astronomy Department remains one of the leadin.7( 6.4)4 6.2(I)17.7L oflias tant retronolc4(h)16.4(e)5. here. However, many are inter-departmental and multi-institutional; a strong testament of our department's

# Page 8 PHYSICS & ASTRONOMY NEWSLETTER 2007 Spring

# WELCOME . . . New Faculty - Postdoctoral Researchers - Staff - Graduate Students

#### • FACULTY •

Information Technology Services (ITS) has been in the process of providing full coverage wireless access to the entire campus . . . building by building.

Authentication is obtained via PAWS accounts. However, guests to the Department of Physics and

### **STUDENT HONORS & AWARDS**

# College of Basic Sciences Awards Annual Scholarships

Pictured from left to right is Department Chair Roger McNeil, Nickolas M. Vanmeter, Dr. Greg Hussey, Basic Sciences Dean Kevin R. Carman, Brendan M. Watson, and Mrs. Joan Hussey.

The College of Basic Sciences held its annual

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Faculty & Staff Focus, General Information, Research, Science & Technology

Endowed Chair Supports Cancer Research Through LSU and Mary Bird Perkins Cancer Center Partnership

Dr. Charles M. Smith Chair of Medical Physics Established

- - LSU NEWS, November 20, 2006, 11:24 AM

#### RETIREMENTS

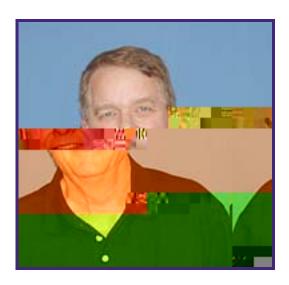


Retirement message: "Knowing is not enough"

Few individuals really know the careers that they will ultimately choose before they reach thirty, very few before they reach high school. Paul Kirk is among the very few. I'm not sure if it was before or after he calculated the energy equivalent of his mass at age 10 that he knew he would be a scientist. However, I am sure that by the time he reviewed his calculations with his mother that his path was set. I did not meet Paul at Princeton or MIT where he completed his formal scientific training. Our paths crossed soon after he joined the LSU physics department and I was a student in his Modern Physics dass. Though he was among the best of the many fine instructors at LSU, it was in the laboratory that he excelled. Using his expertise gained from deep elastic scattering experiments at Argonne National Lab, Paul became one of the founders of the field of Relativistic Heavy Ion (RHI) Physics. I was lucky enough to work with him on his pioneering RHI experiment at Lawrence Berkeley Laboratory (LBL) which probed the nucleon distribution and possible internal dustering of the lithium-6 nucleus. It was during the follow-on experiments to that study, that Paul began his investigation of di-leptons and their use in the investigation of the quark structure of the nucleus and the search for the quark-gluon plasma. That search for knowledge of the quark structure of matter took him from the LBL Bevalac to the AGS at Brookhaven National Laboratory to look for strangelets and other exotic forms of composite quark matter. With the opening of the Relativistic Heavy Ion Collider at BNL, Paul joined the Phenix

collaboration and returned to his study of di-leptons as a probe of the quark structure in the nucleus. His interest in di-leptons has most recently taken him to

### **RETIREMENTS**



E. Allen Young, Manager of the Physics and Astronomy Machine Shop, retired after 35 years of service to the Department and the University.

Allen, a Louisiana native, set upon a career in machine work through 4 years of formal education in that area. He then joined the U.S. Army where for 8 years he was a specialist in the repair and maintenance of military equipment. He was chosen in 1959 as *Most Outstanding NCO*. After leaving the military, he moved into a shop that produced high performance racing engines. Allen then moved into R&D, becoming a member of the NASA Research and Development team (as a Boeing Aircraft employee) working on the Apollo Mission. He became Foreman of a 125-person

### **CONGRATULATIONS TO OUR GRADUATES!**

### **SPRING 2006**

Evan John Anzalone (B.S.)

Hallie Elizabeth Baer (B.S.)

Daniel Cliffor Cox (B.S.)

Travis Joh Halphen (B.S.)

Adam Lee Hawley (B.S.)

Shayna Lynn Loebig (B.S.)

Travis Clay Matthews (B.S.)

Jack Rivers McGee (B.S.)

Hans Ludwig Helo (B.S.)

Gregory Joseph Merchan (B.S.)

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Private support has always ba0.00332ats252sat52 ar0.0080 d0 w0 -4ex2((25.6)52 a5.16)5.16)e0 0)6 )0 625.6)frr0slaa-230c25.6u1 0 85.16)t1 0000 2(ia).1/2 00 0 11 0000 stronomy will be used to enhance our teaching program and facilitate scientific

If you would like to make a tax-deductible gift for the benefit of the LSU Department of Physics and Astronomynplesse complete visiting www.lsufoundation.org. Under the Giving Opportunities heading, select Contribute Online.

Contributions can be mailed to:

Roger McNeil, Chair, Department of Physics and Astronomy Louisiana State University 202 Nicholson Hall - Tower Drive Baton Rouge, LA 70803-4001.

Print your name