

The University of Connecticut

College of Liberal Arts and Sciences

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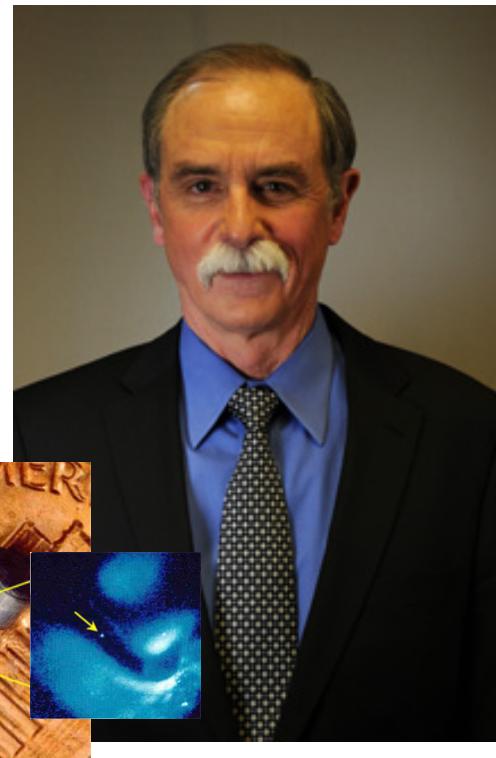
DEPARTMENT OF **PHYSICS** **NEWS**

*Volume II
Issue 4
July, 2013*

**David Wineland,
Katzenstein
Distinguished Lecturer
Friday, October 4, 2013**

Dr. David J. Wineland of the National Institute of Standards and Technology (NIST) in Boulder, CO will deliver the sixteenth annual Katzenstein Distinguished Lecture on Friday October 4, 2013. He shared the 2012 Nobel Prize in Physics with Professor Serge Haroche of the Collège de France and Ecole Normale Supérieure in Paris “for ground-breaking experimental methods that enable measuring and manipulation of individual quantum systems.” Their breakthrough research not only elucidates fascinating and counterintuitive aspects of quantum mechanics, but also paves the way to future technologies such as quantum computing and atomic clocks. Dr. Wineland’s Katzenstein Lecture will explore: “Superposition, Entanglement, and Raising Schrödinger’s Cat.”

In their Nobel-Prize-winning research, Dr. Wineland and Prof. Haroche worked on complementary aspects of quantum systems. In Wineland’s research on laser-cooled trapped ions, laser light was used to produce and probe very fragile quantum states of the particles, including quantum superpositions in which a



particle can be in two distinct energy states simultaneously. On the other hand, Haroche’s work used atoms in highly-excited states to manipulate and measure quantum states of photons, or particles of light. In both cases, a key aspect was being able to measure a quantum state without destroying it.

Dr. Wineland and his colleagues developed techniques to laser-cool ions in a trap to their lowest possible energy state and then coherently manipulate their internal energy states as well as their motional degrees of freedom. This enabled the demonstration of a logic gate based on the principles of quantum mechanics, a prerequisite to the realization of a quantum computer. This type of futuristic computer, which would store and manipulate information in superposition states, has the potential to vastly outperform classical computers in certain tasks. The coherent manipulations pioneered by Dr. Wineland have also allowed the development of an optical atomic clock based on a single trapped ion. Such a clock, a hundred times more precise than the present cesium-atom-based time standards,

would be off by only five seconds over the age of the universe! This level of precision has also allowed the relativistic effect of gravity on time, the gravitational “red shift,” to be observed. Two such clocks, differing in height by only 30 cm, were seen to run at slightly different rates.

Dr. Wineland was born near Milwaukee in 1944, graduated from high school in Sacramento, and studied physics as an undergraduate at the University of California, Berkeley. His graduate work was done with Prof. Norman Ramsey (Nobel Laureate 1989) at Harvard University. After working as a postdoctoral research associate with Prof. Hans Dehmelt (also Nobel Laureate 1989) at the University of Washington, he joined NIST, then known as the National Bureau of Standards, in 1975. He is currently a NIST Fellow and Group Leader of the Ion Storage Group, as well as a Lecturer at the University of Colorado. In addition to the 2012 Nobel Prize, Dr. Wineland has received many honors and awards, including the National Medal of Science (2007), the Benjamin Franklin Medal in Physics (2010), the Davisson-Germer Prize (1990) and the Arthur L. Schawlow Prize (2001) from the American Physical Society (APS), and the William F. Meggers Award (1990) and the Herbert Walther Award (2009) from the Optical Society of America (OSA). He is a Fellow of both the APS and the OSA as well as a member of the National Academy of Sciences.

Sigma Pi Sigma Events and Undergraduate Awards

The Sigma Pi Sigma Honor Society induction ceremony and banquet was a great success this past May 3. The featured guests were this year's impressive group of undergraduate students inducted into the society, **John Bartolotta, Aaron Carta, Dmitri Friedenberg, Nicolas Gondek, Tony Le and Josh Squires**.

The event featured an excellent colloquium presentation from Professor Seth Redfield of Wesleyan University. Professor Redfield's talk was titled “Transiting Exoplanets and their Atmospheres.” The subject was the search for planets outside our own solar system but in our general galactic neighborhood. One feature of the talk was using the method of transiting planets, those that pass in front of their stars in line with earth observers, and how they could be detected by monitoring changes in the light reaching earth from those stars. This excellent talk was well attended, with our usual lecture hall P38 filled to the brim. Professor Redfield made many UConn

faculty think about an active research program in observational astronomy.

After the colloquium, more than 30 students, faculty, and guests attended the SPS banquet, which was held for the second consecutive year in the Morosko Student Lounge of the Pharmacy Building. It is an excellent venue for the banquet. The Emcee, as always, was Professor Emeritus **David Markowitz** who did another masterful job, supporting the SPS advisors, Professors **Thomas Blum and Barrett Wells**. Department Head **Douglas Hamilton** and Professor Redfield each delivered inspiring remarks to the new inductees and their families.

The SPS banquet is one of the department's most special events that brings us together for a great cause: to recognize the scholarly achievements of our best undergraduate students. We encourage all of our faculty, alumni, students and their families to attend next year's celebration.

SURF Award to Lukasz Kuna

Mr. Lukasz Kuna, a physics undergraduate advisee of **Menka Jain**, received the 2013 Summer Undergraduate Research Fund (SURF) award to work on *Magnetocaloric effect in manganite materials*. He has been working on the structural and magnetic analyses of various manganite materials in Dr. Jain's lab since 2012. He is currently writing a manuscript to submit to a scientific journal. He plans to apply for grad school after graduation.



The Cooler-Than-Cool Guy

Robin Côté was elected to the Connecticut Academy of Science and Engineering (CASE) in May of this year. The Academy, formed in 1976, is a private, non-profit, public service institution modeled after the National Academy of Sciences. Their mission is to provide authoritative and organized technical advice for state government and industry “in the application of science and engineering to the economic and social welfare.” It is quite an honor to be inducted and membership is limited to 400. Election is

based on scientific or engineering distinction achieved through significant contributions to one’s field. Robin’s citation reads as “Professor Côté is recognized for contributions to the study of ultracold systems, the effect of long-range interactions in ultracold Rydberg gases, atom-ion mixtures, and the formation of ultracold molecules. He has made seminal contributions to the sub-fields of ultracold atomic, molecular, and optical physics and is also a leader in ultracold chemistry.”

UConn Physics and Physical Sciences Honor Energy Innovation in State Science Fair

A panel from the Physics Department at UConn visited the state science fair the week of March 12 to judge the winners of the grade 9-12 category in the physical sciences who received two awards, each worth \$100 of merchandise at the UConn Co-op. The identities of the students and their districts were concealed and the winners were chosen from over 100 finalists from school districts around the state.

The panel gave the UConn Physics Department award to **Connor Provost** of Norwich Free Academy for the “thermoelectric hat” concept in a poster entitled “A Study of Thermoelectric Effects and Their Application for Harvesting Energy from Dissipated Body Heat.” Basically, metal wires were threaded through a ten-gallon cowboy hat, where one end is held at a high temperature by the body heat of the wearer,

while the other end protruded outward into the cooler ambient air. The experimenter showed that the temperature difference between the ends of the metal wires was sufficient to develop a sizable voltage through the thermoelectric effect. This conversion of thermal energy to electricity could be used to replace batteries and power small electronic devices by simply harnessing body heat.

The UConn Early College Experience Program Physical Sciences award went to **Travis Anderson** of Greenwich High School for a poster entitled “Intrinsic Laptop Energy Capture via Keyboard Piezoelectric Conversion,” which showed how a different fundamental physics effect could be used to harness the push-button action of typing to generate power. In their invention, when the space bar is pressed, a small extra effort is required to strain a special

material which develops a voltage when strained, through the piezoelectric effect. This conversion of mechanical to electrical energy was enough to power a wireless keyboard without the need for batteries. Time trials were performed over hours with the aid of a modified sewing machine (the presser foot was used to simulate finger pressure).

The panel found that these projects, among over 50 finalists, were not only inventive, but thoroughly executed with judicious attention to control of variables, error analysis, and presentation. These innovative device schemes combine low-cost, commercially available products with understanding of fundamental physics to harness “people power” in addressing the energy needs of Connecticut, the nation and the world.

John Tranquada to Present Charles Reynolds Distinguished Lecture, October 18, 2013

John Tranquada, Brookhaven National Lab, has been recognized for his outstanding neutron scattering studies of the charge and spin ordering in the high-temperature cuprates and related materials.

Most superconductors — materials with no electrical resistance — have to be cooled to almost absolute zero (minus 459.67 degrees Fahrenheit) before becoming superconducting. But copper-oxide compounds, called cuprates, show superconducting properties at the relatively high temperature of minus 220 degrees Fahrenheit. If they can be made economical, superconductors could be used widely for power transmission and applications in the electronics industry.

The reasons for high-temperature superconductivity are still under investigation, at

Brookhaven and other facilities. Based on his neutron-scattering experiments in the 1980s at Brookhaven's High Flux Beam Reactor, Tranquada discovered that cuprates exhibit antiferromagnetism, a condition in which adjacent magnetic atoms have their magnetic north poles pointing in opposite directions. In the 1990s, Tranquada and his colleagues discovered that high-temperature superconductors have a tendency toward charge segregation, which enables the coexistence of conducting and insulating properties. This work indicates that the electronic structure of high-temperature superconductors consists of fluctuating strings of charge, known as stripes, a concept that is increasingly influencing the current models of high-temperature superconductors.

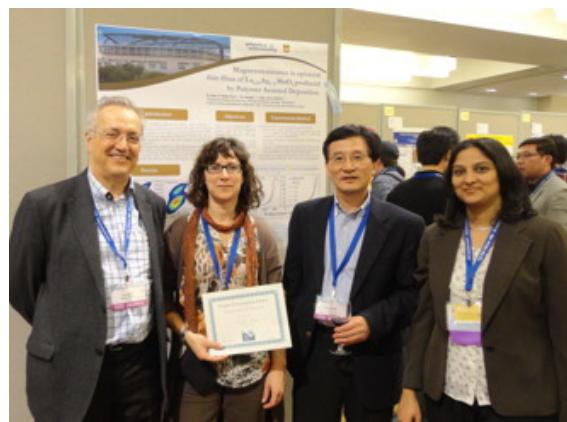
Traveling Teacher

Sarah Bouckoms (UConn B.S. 2007) spent this past year as a member of the faculty at Hebrew High School of New England in West Hartford, CT. The school has a reputation for being committed to the sciences; the entire upper level of one of their newer buildings is designed around various university-grade laboratories, so students have access to high-quality experiments in physics, chemistry, and biology. Sarah has just accepted a permanent position at Miss Porter's School in Farmington, CT, to begin this fall. Miss Porter's,

founded in 1843, is the sixth oldest in the nation and has some notable alumnae. This summer she is spending two months in Alaska providing logistical and research support for the Juneau Icefield Research Project, which includes 25 graduate students. (The project keeps a blog at <http://www.juneauicefield.com>.) Sarah enjoys teaching and we're sure that her background and all of her adventures in New Zealand, Antarctica and now Alaska will make her a popular and effective instructor.

MRS Symposia on Functional Materials

Menka Jain chaired and co-organized (led) symposium BB: *Solution Synthesis of Inorganic Films and Nanostructured Materials* in the Materials Research Society (MRS) Spring 2012 meeting held in San Francisco, CA. There were 15 invited talks and 172 contributed presentations from researchers from national labs, universities, and industry. Selected publications from the symposium were published by Cambridge. Dr. Jain also chaired and co-organized (led) the symposium M: *Synthesis of Inorganic Functional Materials- Films, Nanoparticles, and Nanocomposites* for this year's MRS spring meeting, where a total of 220 invited and contributed presentations were delivered. The MRS, just an idea of a few forward-thinking scientists in the late 1960s, was officially founded in 1973 to "promote communication for the advancement of interdisciplinary materials research." Their membership includes individuals from over 80 countries in academia, industry and government, and now numbers nearly 16,000.



Organizers: X. Obradors, T. Puig, Q. Jia and M. Jain

The Traveler in Present Time

Ronald Mallett has decided to retire after 38 years of service to the University of Connecticut Physics Department. Faculty, staff, students and friends attended a wine and cheese reception held in his honor on Friday, May 10th in the Physics library. Ron earned his Ph.D. in Physics at Penn State and was an industrial research scientist at United Aircraft Research Laboratories in East Hartford, CT, before joining the Physics Department in 1975, first as a Visiting Assistant Professor.

Doug Hamilton, Interim Department Head, added more festivity to the occasion by commenting on the UConn administration and other newsworthy events at the time when Ron arrived at UConn. “**Joseph Budnick** was Head of the Department ... Julius Elias was Dean of CLAS ... Tom Giolas was Dean of the Grad School ... Tony DiBenedetto was Vice President for Academic Affairs

... and Glenn Ferguson was President of the University. Remember when? In 1976, the Cray-1 was installed at Los Alamos. The first commercial Concorde flights took off. Patty Hearst was convicted of bank robbery. Apple Computer Company was formed. The Ramones released their first album. Viking I landed on Mars. The first laser printer was introduced by IBM. Jimmy Carter defeated Gerald Ford. Ford Motor Company rolled out the Fiesta. So maybe everything wasn’t progress? One of the things that I will miss about Ron is his presence in the department. As Department Head, I’ve learned

that you get asked to help out on many different projects. Ron asked for things in a way that made you want to help. Ron also did it all in the Department – he was the complete package with significant contributions to research, teaching and service. Ron made important advances in our understanding of cosmology, general relativity and gravitation. He was a consummate classroom instructor, teaching everything from Phys121 to graduate E&M. Ron has served on every committee in the department except for the machine shop. He has also done an incredible amount of outreach and his book is a springboard to engaging young people in science.”

Ron will continue his work at UConn on Einstein’s general theory of relativity and the gravitational effects of circulating light, as a Research Professor. One aspect of this work is his theoretical prediction that a subatomic particle, such

as a neutron, would be displaced in space by the gravitational field produced by the circulating light beam in a ring laser. This effect is known as gravitational frame dragging by light. Professor **Chandra Roychoudhuri** has had an interest in the experimental verification of this novel idea. Another aspect of Ron’s research is the prediction of the formation of closed time loops by the gravitational field of a circulating light cylinder. In principle, this could lead to the possibility of time travel as described in his book “Time Traveler.” So, in spite of mischievous Morlocks, future time travelers need not worry, the work will continue.

Yelin Awarded Lamb Medal

Professor **Susanne Yelin** was awarded The Willis E. Lamb Award for Laser Science and Quantum Optics at the Physics of Quantum Electronics conference in Snowbird, Utah, this past January. She shares the award with Shaul Mukamel, University of California, Irvine, and Peter Nordlander of Rice University. The award originated in 1998 and was named for Willis E. Lamb, Jr., famous laser scientist and 1955 winner of the Nobel Prize in physics. Medals are presented annually for outstanding contributions to the field.





2013 UConn Physics Annual Poster Session

This year marked the second annual Physics Poster Session at the University of Connecticut, which included research presented by both graduate and undergraduate students. The venue was changed from last year to the lobby above the Up and Atom Café, and those enjoying a cup of coffee below could hear the sound of young scientists illuminating their colleagues on their work. As you walked around the posters, you felt the sense of pride inspired by all the exciting research

being accomplished in our department. And if your timing was right, you could hear students explaining their posters in great detail to the three judges Dr. **Susanne Yelin**, Dr. **Vasili Kharchenko**, and Dr. **Peter Schweitzer**, who did a fantastic job in asking probing questions while keeping the students at ease. Three graduate student posters stood out, and **Margo Staruch**, **Nick Lewkow**, and **Vincent Tagliamonti** won first, second, and third place prizes respectively, and **Dan Violette** took home the first place prize for undergraduate research. As an added bonus, a Department Head's Favorite prize was awarded to **Kun Fang** (graduate) and **Tony Le**

(undergraduate) by Dr. **Douglas Hamilton**. The best prize, which every student received, was the experience of presenting their research in a professional setting and at the end of the day, not only was everyone full of refreshments, but filled with new knowledge as well.



Photos courtesy of B. Pratt.

Gerald Dunne was awarded a US Senior Scholar Fulbright Award to spend the spring/summer of 2014 on sabbatical at the Theoretical Physics Institute of the Friedrich-Schiller University in Jena, Germany. He will collaborate with Professor Holger Gies on a project "Quantum Control in Intense Laser-Particle Physics." Gerald was also awarded a UConn Research Foundation Large Faculty Grant to bring UConn Physics graduate student **Robert Dabrowski** to Jena during the spring 2014 semester.

Recent UConn Physics Graduate Student Placement, Fall 2013

Our most recent group of Ph.D. graduates have auspicious career starts after completing graduate school. **Jayita Banerjee** is a Process Technology Development (PTD) Engineer at Intel in Hillsboro, Oregon. **Sandipan Banerjee** and **Michael Bellos** have obtained postdoc positions at Yale University. **Jason Byrd** is a postdoc at the University of Florida, Gainesville. **David Cox** is a Visiting Assistant Professor at UConn. **Liang Dong** is working as a postdoc for a new faculty member in IMS, Avinash Dongare. **Wesley Gohn** is a postdoc at the University of Kentucky; **Igor Senderovic** is a postdoc at Arizona State University. **Ilkyoung Shin** obtained a permanent position at Institute of Basic Science (IBS) in South Korea. **Ilamaran Sivarajah** has an offer from Cal Poly, San Luis Obispo. Congratulations and best wishes to all of you for your promising careers.

New Arrivals/Departures/Visitors



Elena Dormidontova joined our Department as Associate Professor of Physics and a member of the Polymer Program of the Institute for Materials Science (IMS) this past January. Prior to that, she was on the faculty at Case Western Reserve University in the Department of Macromolecular Science & Engineering, where she was named to the Climo Professorship for untenured faculty and received a NSF CAREER grant to support her theoretical research in the area of associating and supramolecular (bioinspired) polymers. Elena received her Ph.D. in physics and mathematics at Moscow State University and did postdoctoral research in the Department of Polymer Chemistry, University of Groningen and in the Department of Chemical Engineering and Materials Science at the University of Minnesota. Elena is a theoretical and computational soft-matter physicist with general research interests in the thermodynamics and kinetics of macromolecular self-assembly and biomedical applications of polymers. Her recent research efforts include computer modeling of macromolecular and surfactant micelle formation, analysis of reversible interactions in macromolecular systems, and understanding interactions between polymer-modified nanoparticles and cell surfaces via ligand-receptor recognition. The last subject earned an invited lecture at the European CLINAM & ETPN Summit in Basel, Switzerland (June 2013) and publication in Phys. Rev. Letters. Elena plans to continue her work in biomedical applications of macromolecular systems and in biophysics research. She has been building an international reputation and we are looking forward to her future contributions at UConn. Some of us are also excited to have another avid gardener in town.



A search for a new Head of the Physics Department was initiated last summer, with the visit of four candidates in January/February. The search is still ongoing, and we hope to have exciting news in next year's newsletter. This year was the last of the two-year commitment of Professor **Douglas Hamilton** as Interim Head of the Physics Department. During his tenure, in addition to the daily management of the Department, Doug has made many significant accomplishments that will influence the future of the Physics program at UConn. Under his leadership, many new initiatives were launched, such as the Graduate Student Poster competition, the Department Town Hall Meetings, the coffee hour for Women in Physics, Annual Progress Reports for graduate students, the hiring of a new staff member for department budget management (**Alessandra Introvigne**), the arrival of four new faculty members (**Fedor Bezrukov**, **Elena Dormidontova**, **Jason Hancock**, **Andrew Puckett**), two new Visiting Assistant Professors (**David Cox** and **Diego Valente**), and much more. We want to thank him for his tireless efforts in making the Department an enjoyable place to work, study, and do research. Doug plans to return to his regular faculty position on August 23, 2013.



While the search for a new Department Head is still ongoing, Professor **George Gibson** has agreed to act as Interim Head starting when Doug's term ends. George is an AMO experimentalist specializing in the behavior of atoms and molecules in intense laser fields using ultra-fast time-resolved techniques. He is also a

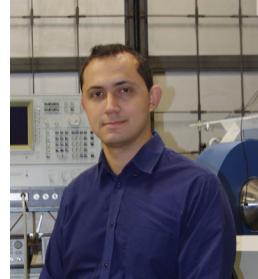
very accomplished classroom instructor with particular interests in the “Physics of Music” and the “Physics of the Environment.” George has served as Associate Department Head for Administration since spring 2011. He received his B.A. from the University of California at Berkeley in 1983 and his Ph.D. from the University of Illinois at Chicago in 1990. George did postdoctoral research at the University of Maryland at College Park while holding a Visiting Scientist position at Bell Laboratories until he joined the Physics Department at UConn in 1993. He was awarded an NSF Early Career Development Award in 1994 and a Cottrell Scholars Award in 1996. George was named an APS Outstanding Referee in 2008 and is a member of the APS, OSA and AAAS. George has graduated eight Ph.D. students and is currently advising three more. He has accumulated an impressive list of publications in physics, optics, and chemistry journals since he arrived at UConn, especially considering his service to the department, having served on almost every departmental committee. We wish him a great start this fall in his new role.



Professor **Hyun-Chul Kim** from Inha University in Inchon, South Korea and the Korea Institute for Advanced Study in Seoul, South Korea and his family are visiting Storrs this summer. They previously visited in 2012. Hyun-Chul works mainly in the field of theoretical hadron physics, and was invited by **Peter Schweitzer** with whom he wrote a paper (published in Phys. Lett. B) on how the properties of the nucleon are modified in nuclear matter. Their predictions may be tested in experiments at the Jefferson National Lab in Newport News, VA, in the not-too-distant future.



Mr. **Rafael R.G. Paranhos**, a physics graduate student from Federal University of Sao Carlos (Brazil) received funding from the National Science Foundation for the US-Brazil Exchange Student Program to visit UConn and work in Dr. **Menka Jain's** research group for a month in February 2013. He has been involved in the syntheses and characterizations of magnetoelectric bulk and thin films.



Professor **Ehoud Pazy** from the Nuclear Research Center NEGEV-NCRN in Israel was invited by **Philip Mannheim** to spend his sabbatical leave at UConn. Ehoud and his family have spent the last 12 months with us in Storrs and have enjoyed it very much. They also learned a great deal about our democratic process, current events and sports and our changeable New England weather. Ehoud is a theoretical physicist with very broad interests which include atomic physics, condensed matter, and quantum field theory. Most recently, his research has focused on quantum theories of gravity. Ehoud presented two well-received PAN seminars, participated in research discussions, and during his visit produced two papers, one that appeared as a preprint in February 2013 and was published in Physical Review D in April 2013, and a second that appeared as a preprint in May 2013. He is currently working on a third.



Andrew Puckett will be joining us this fall as an Assistant Professor. Andrew was hired by UConn in partnership with Jefferson Lab where he was a staff scientist in the Hall B Group. Andrew earned his B.S. in physics at the University of Virginia in 2004 and his Ph.D. at the Massachusetts Institute of Technology in 2010. His thesis work on the “Gep-III experiment” discussed proton form factor ratios at high momentum transfer, was published in Physical Review Letters and won the 2009 JLab best Ph.D. thesis award. It has been widely cited and is considered one of JLab’s major physics highlights. He was awarded a Director’s Postdoctoral Fellowship at Los Alamos National Laboratory where he focused on nucleon spin structure studies and quark’s transverse momentum dependent parton distributions (TMDs) through semi-inclusive deep inelastic scattering experiments (SIDIS). It is a relatively new and fast-growing field in high energy nuclear physics. Andrew has been leading ef-



forts for designing, prototyping, and constructing the CLAS12 High Threshold Cherenkov Counter (HTCC) for particle identifications at JLab. We expect his creativity and dedication to continue to produce new and exciting results.

Kyungseon Joo Describes IPA Leave

In March 2013, I joined the Office of Nuclear Physics at DOE's Office of Science as a Program Manager through the Intergovernmental Personnel Act (IPA). Under the IPA, a university professor is on loan from her or his home institution for up to two years as intermittent, part-time, or full-time staff. Extensions are also possible. My job responsibility at DOE is to lead the effort to originate and justify plans, manage and coordinate part of the US Nuclear Physics program to select new research projects and continually review ongoing projects. Seeing things from a national perspective, working

with national leaders, and helping to shape research programs are important factors for my position. Surrounding areas near Washington, DC obviously have much to offer as a place to live. As a DOE staffer, I have additional resources for professional development, such as Congressional hearings, and workshops and talks sponsored by the National Research Council, as well as those sponsored by other government agencies. I expect that experiences I gain during my tenure at DOE will help improve my teaching and research when I am back in Storrs.

The GlueX Team Prepares to Conduct the Big Experiment

Richard Jones, an Associate Professor of physics at the University of Connecticut, is a member of the GlueX Collaboration, a group of scientists pursuing a diverse program of physics using photon beams. Based at the Thomas Jefferson National Accelerator Facility in Virginia, GlueX is scheduled to begin producing data in 2014.

The goal of the GlueX experiment is to understand the confinement of quarks and gluons in quantum chromodynamics. GlueX will ultimately produce a linearly polarized photon beam. A detector will then collect data on meson production and decays. After the first year of running, statistical considerations will dominate the analyses. From planning to production, the lifecycle of big experiments like this can take a decade. It has turned out to be even longer for GlueX, in large part due to changes in computing resources.

After seeing how grid computing benefited high

energy physics colleagues at the LHC, the GlueX team successfully pursued a *Physics at the Information Frontier* grant from the National Science Foundation. By 2009, they had formed a new virtual organization with the University of Connecticut as its home site.

Jones describes the December run as a data challenge. The main point was to see the pros and cons (and tradeoffs) between typical lab computing methods and grid methods. In December 2012, the GlueX team did a production run on the Open Science Grid to simulate what might happen when the facility is running and producing real results. The secondary goal of the run was to produce a large enough sample to evaluate the quality of expected data acquisition.

The GlueX team learned a lot in December, favoring grid computing and gaining a realistic sense of how data would run. The team is ready for the big experiment.

In Memoriam

First in Many Ways

Shirley Anne (Shirshac) Anderson, 71, of Bonny Doon, California, passed away last August after a brief illness with pancreatic cancer. Shirley graduated from UConn in 1962, with the distinction of receiving the Department's first baccalaureate degree in Physics awarded to a woman. She married Robert Gaudinski in 1962 and had two daughters, Robin and Julia. Shirley was a pioneer in her career in Connecticut as the first woman to have the position of Air Monitoring Engineer. In 1975, she married Gerald Anderson and moved to California where her career consisting of firsts continued. She was the first female tax appraiser for Marin County, CA (where she appraised the home of George Lucas of Star Wars fame). Shirley also modernized Marin County's computers as Systems Analyst and Database Programmer/Designer. Shirley enjoyed her family and her property and counted carpentry, welding, baking, geneology, and computers among her many hobbies. If you remember being in class with Shirley, her family is collecting information for a memory book, please contact us for details.

David Ecsedy Remembers Alan Bouley

Alan C. Bouley, Ph.D. 1977, passed away in June 2012 after a brief illness. He was a personable gentleman with many friends in the UConn community. Al and I both regarded the late Dr. Klemens (my advisor and his co-advisor) as an important mentor. Dr. Klemens always considered Al's welfare; it is ironic that they passed away around the same time. During the 70s when we were graduate students, Al, Rich Sohn, and I shared many adventures on the UConn campus including playful behavior at serious physics seminars (presumably not appreciated by Dr. Klemens, the Department Head during most of that time).

Al was a connoisseur of fine cuisine; his favorites were Mexican and Chinese. He was an expert on popular music and sometimes had disc jockeys consulting him as to what music to play. He was a worldwide traveler. One of his dreams was to spend time in each of the 50 states and I believe he accomplished this. Al was known for his broad and deep interests which contributed to his professional success.

Al methodically conducted his studies and research at UConn; everyone expected him to advance to a Ph.D., which he did. He had previously received degrees from Worcester Tech and Penn State. He always had a keen interest in the workings of the government and the military, and he wound up with an excellent position as an intelligence officer in the Department of the Navy. Al was 67 years old and had been retired only a few months at the time of his death. He will be greatly missed by all of us who knew him.

(David Ecsedy, Ph.D. 1975, Needham, MA)



Alexey Kubarovskiy

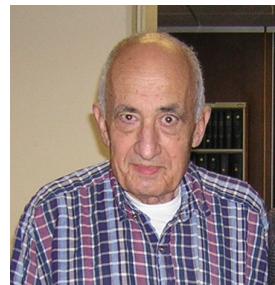
Alex Kubarovskiy, a postdoctoral fellow for Professor Kyungseon Joo, passed away suddenly the first week of July. He had been with us since January 2013 and was just married last fall. Alex had been stationed at Jefferson Lab in Newport News, VA. Before joining UConn, he had worked as a research staff at the Skobeltsyn Institute of Nuclear Physics at Moscow State University and Rensselaer Polytechnic Institute. Alex obtained his M.S. and Ph.D. degrees at Moscow State University in 1995 and 2000. Alex was a member of several prominent collaborative research groups - the CLAS at JLab, the SVD at Moscow State University, the D0 at Fermilab and the SPINX at the Institute for High Energy Physics in Protvino. His main research interest was in the field of experimental nuclear physics studying the quark sub-structure of the nucleon using multi-GeV electron and photon beams. During his tenure at UConn and RPI, he had made excellent contributions to Jefferson Lab 12 GeV energy upgrade. He especially led efforts in developing a Ring Imaging Cherenkov Counter which would be an essential part of a detector component to maximize the physics outcome of the 12 GeV upgraded facility. He had over one hundred publications and was considered highly inventive and dedicated, possessing the drive necessary to lead the group to see complex projects through to completion. We are deeply saddened at our sudden loss of such a promising young colleague.



Robert Schor

Bob was a valued member of the physics faculty for close to half a century. Born in the Bronx during the Great Depression, he benefited from the emphasis his family put on learning. His education was chiefly in technical fields, as he received his B.S. in physics from MIT, followed by a Ph.D. from the University of Michigan. Both schools were filled with noted physicists who inspired young students. Bob began his teaching and research at UConn in 1958. His research centered on the statistics of collections of complex molecules, their interactions, and their importance in biophysical systems. He taught courses at all levels, including general physics, statistical methods, and astronomy.

Bob was known for his discussions of thorny problems. His colleagues could count on him as one of the first attendees at physics seminars to spot the weakness in any presentation. He was gentle and considerate of a speaker and aimed to improve the understanding of the physics involved. An avid learner, he studied languages and history. He helped teach classes in UConn's Life Long Learning program on science and other subjects that caught his interest. He was witty and a caring friend to his colleagues, his family, wife Gail and sons Daniel and Michael, and his community.



Bob was preparing for his second Bar Mitzvah at Temple Emanu-El in Waterford, CT, a ritual that emerges from the Biblical outlook that assigns three score and ten years to a human lifetime. Thus the age of 83 is regarded in extended time as the traditional 13 is in the time of religious maturing. Bob died at 82 with the wonderful attitude that there was still more to be experienced. We learned from him to the very end.

ENDOWMENT NEWS

The Department appreciates your endowment contributions, which enable us to enhance our mission and that of the University. We will be hosting the sixteenth annual “Katzenstein Distinguished Lecture” to be presented by Nobel Laureate David Wineland on October 4, 2013 thanks to the endowment of Drs. Henry and Constance Katzenstein. The Edward Pollack Endowment for Physics, initiated by Ed’s family and friends, supports an annual distinguished lecture in Atomic, Molecular, and Optical Physics. Plans for a spring lecture are being finalized.

We have several maturing funds intended to support graduate students doing research. Our most recent endowment, the “Kurt Haller Academic Opportunity Fellowship” which was initiated by Thomas J. Welsh (his former student, B.S. 1975) and acknowledged by Lottie S. Haller (wife of Kurt) in memory of Kurt Haller (Professor in Physics 1964-2004), provides support for graduate students demonstrating academic achievement and financial need. The Georgiana and Marshall Walker Endowment rewards the student voted by the faculty as the best Teaching Assistant of the year. This year the award was presented to **Christopher Sanborn**. The Anne and Win Smith Fellowship (Win Smith is currently Emeritus Professor of Physics) is awarded to students demonstrating academic achievement. The Isaac S. and Lois W. Blonder Graduate Fellowship in Physics was named for Isaac Blonder, our first physics major, B.S., 1938, while the Nagavarapu Graduate Award in Physics was named after Nagavarapu S. Mohan who received his Ph.D. in 1975. Other endowments include the Ruth and Paul

Klemens Endowment Award, named in honor of our distinguished Emeritus Professor Paul Klemens (a world expert on phonons and thermal conductivity in condensed matter physics) and his wife Ruth, which supports graduate students interested in solid state physics; the Dwight Hills Damon Graduate Fellowship in Experimental Physics (initiated in 2006 in his honor and memory); the Edward Frisius Memorial Fellowship (initiated by his family, which includes Mauricette (Frisius) Stwalley, wife of William Stwalley, former Head of the Department (1993-2011) and Professor of Physics); and the Kurt Haller Endowment for Physics Research and Graduate Education, which provides research awards to our best graduate students (initiated in 2004 in his honor and memory).

We were able to award only a few Fellowships this year due to a procedural change in the award process, but we expect to honor more talented and deserving recipients next year. This year, **Lahiru Narangammana** received the Dwight Hills Damon Graduate Fellowship in Experimental Physics. The Edward Frisius Memorial Fellowship has been awarded to **Brandon Clary** (arriving from Trinity College in Hartford, CT this fall) for next summer and to **Douglas Goodman** for this fall.

Thanks again to all of you who contribute to these funds and the support and education of our students. Many of you respond to the general solicitations sent out by the University; we would be grateful if you used the fund numbers on the next page to direct such contributions to the Physics Department. Your assistance in supporting our mission is invaluable.

We Hear That ...

- **Nada Jevtic** (Ph.D. 2003) just received tenure at Bloomsberg University in Pennsylvania.
- **Sarah Lamb** (B.S. 2010) teaches physics and robotics at Kingswood Oxford High School in West Hartford, CT.
- **Kristen Basiaga** (B.S. 2008, M.S. 2010) is teaching physics at Glastonbury High School.
- **William C. Stwalley** has been named C. N. Yang Visiting Professor at the Chinese University of Hong Kong, and will be visiting and lecturing for three weeks this winter. **Dajun Wang** (Ph.D. 2008), Assistant Professor of Physics, will be his host.

Making a Gift

There are many ways of making a gift including checks; marketable securities; planned or estate gifts; and through payroll deduction for University employees. Checks should be made payable to The University of Connecticut Foundation, with a cover note directing your gift. All gifts are eligible for tax deductions as The University of Connecticut Foundation, Inc., is recognized as a 501(c)(3) non-profit organization. Donors have the option of remaining anonymous if they wish.

WE'RE ELECTRIC

We're sending this to many of you in electronic format for the first time. We're hoping to save trees and other resources by going electric. We are still printing hard copies of the newsletter and if you prefer to receive your copy of Physics News that way, please let us know; we'd be happy to mail it to you. You may reach us at physics@uconn.edu.

I/we would like to support the Physics Department programs.

Please direct my gift of \$ _____ to:

- * Kurt Haller Academic Opportunity Fellowship (31224-2014)
- * Anne and Win Smith Fellowship (22662-2014)
- * Edward Frisius Memorial Fellowship (22520-2014)
- * Space-Time Twisting by Light Project (22398-2014)
- * Time Domain Fund (22457-2014)
- * Dwight Hills Damon Graduate Fellowship in Experimental Physics (31028-2014)
- * Edward Pollack Endowment for Physics (30958-2014)
- * Ruth and Paul Klemens Endowment (30951-2014)
- * Kurt Haller Endowment for Physics Research and Graduate Education (30911-2014)
- * Marshall and Georgiana Walker Graduate Award Fund (30876 -2014)
- * Nagavarapu Graduate Award in Physics (30723-2014)
- * Katzenstein Distinguished Lecture Series Endowment (30438-2014)
- * Charles Swenberg Memorial Endowment (30641-2014)
- * Isaac S. and Lois W. Blonder Graduate Fellowship Endowment (30743-2014)
- * Physics Department Unrestricted Fund (20351-2014)
- * Physics Olympiad (payable to "UConn" and mailed to Dept of Physics) (20352-2014)

Matching Gift

I work for a matching gift company. The form is enclosed.

My company is: _____

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Should you wish to support one of these efforts, please send your contribution directly to the University of Connecticut Foundation with the fund number of the program of interest to you written on your check.

University of Connecticut Foundation
2390 Alumni Drive, Unit 3206
Storrs, CT 06269-3206

Thank you for your support!

Do you have any news about yourself that you are interested in sharing? We enjoy the unsolicited mail we receive as a result of our newsletters so now we're actively soliciting. We happily accept articles or tidbits for 'we hear that...' Please send suggestions to: David Markowitz, Editor, at the Department address or to dmarkowitz0324@sbcglobal.net.

SAVE THE DATE October 4, 2013

Invitations for the Katzenstein dinner are about to be mailed. If you are interested in attending but do not receive your invitation by the end of September, please contact Kim Giard at 860-486-4924, email: kim.giard@uconn.edu.