The University of Connecticut
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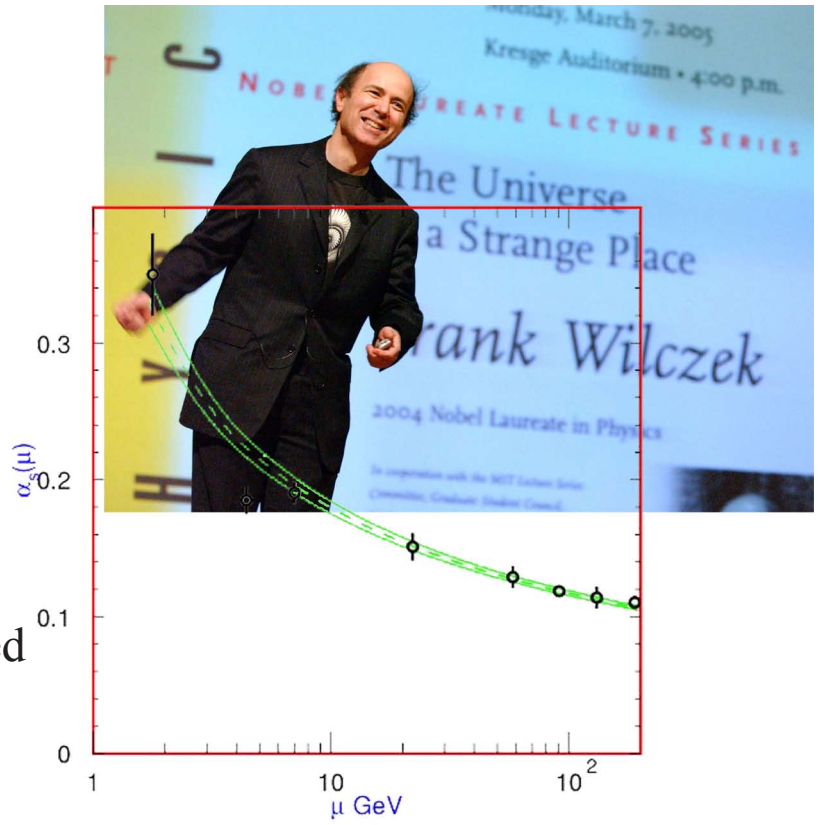
Storrs, CT 06269-3046

DEPARTMENT OF

PHYSICS NEWS

Volume I
Issue 9
June, 2005



Frank Wilczek, Katzenstein Distinguished Lecturer

Friday, September 16, 2005

Frank Wilczek, Herman Feshbach Professor of Physics at the Massachusetts Institute of Technology, will give the 2005 Katzenstein Distinguished Lecture on September 16, 2005, entitled "The Universe Is a Strange Place." Professor Wilczek shared the 2004 Nobel Prize in physics for "the discovery of asymptotic freedom in the theory of the strong interaction." His co-recipients were H. David Politzer (Caltech), and David Gross (University of California, Santa Barbara). Professor Wilczek earned the Nobel for work he did as a graduate student at the age of 21 at Princeton University with his advisor, David Gross.

Asymptotic freedom is the property that the (non-Abelian) gauge interaction, in this case the strong force, becomes arbitrarily weak at short distances, vanishing with the length scale of the interaction, or due to the Heisenberg Uncertainty Principle, as the energy scale diverges. The former is often referred to as the continuum limit. The main consequence of asymptotic freedom is that the theory describes physics on all scales, so it is said to be fundamental, as opposed to an effective theory which is valid only on a limited range of scales. The discovery of asymptotic freedom led Professor Wilczek and others to develop Quantum Chromodynamics (QCD), a relativistic quantum field theory describing the interactions of elementary quarks and gluons, much the way Quantum Electrodynamics describes the interactions of electrons and photons. The quarks and gluons form the matter of our everyday world, but neither can be observed directly because of a property called "confinement." At the time, it was unclear that the Strong Interactions could be described by a quantum field theory, with a major faction supporting an alternative S-matrix theory based on the observed (physical) hadronic states. The discovery of asymptotic freedom settled the matter decisively in favor of QCD. The property of asymptotic freedom is sometimes described as "inverse Debye screening" because the (color) charge of two quarks is diminished as they come together inside a "cloud" of gluons.

Professor Wilczek's seminal contributions to theoretical physics include the formulation and development of QCD, the invention of axions (a possible explanation of the Strong CP problem), the discovery and application of a new form of quantum statistics (anyons), and the development of the theory of color-superconductivity in QCD with non-zero quark chemical potential.

Besides the Nobel Prize, his recent awards and honors include co-recipient of the 2005 King Faisal International Prize for Science, co-recipient of the

2003 High Energy and Particle Physics Prize of the European Physical Society, 2003 Faculty of Mathematics and Physics Commemorative Medal, Charles University, Prague, 2003 Lilienfeld Prize of the American Physical Society, and the 2002 Lorentz Medal of the Royal Netherlands Academy of Arts and Sciences.

Professor Wilczek is a member of the National Academy of Sciences, the Netherlands Academy of Sciences, and the American Academy of Arts and Sciences, and is a Trustee of the University of Chicago. He is in great demand as a speaker, and we are thrilled to have him visit us.

2005 Charles A. Reynolds Distinguished Lecture in Physics

Moses Chan, Evan Pugh Distinguished Professor of Physics at Penn State University, delivered our Charles A. Reynolds Distinguished Lecture on April 11, 2005. The title of his lecture was "Can a Solid be Superfluid?" This question was raised many years ago in a theory paper by Anthony Leggett, who presented the Katzenstein Distinguished Lecture last autumn. Professor Chan provided an affirmative answer to this question in his lecture.

Liquid helium, which boils at 4.2K at atmospheric pressure, makes a transition to the superfluid state at about 2.17K. This transition is referred to as the lambda transition, a term derived from the shape of the specific heat variation near this temperature. In his talk, Professor Chan provided a very clear history of what is known about this amazing liquid superfluid state. This state exhibits a number of unusual properties, among them flow without resistance and the disappearance of classical viscosity in torsional rotation experiments. Helium can also be solidified at very low temperatures under pressure. Prof. Chan described some beautiful new results, obtained with his graduate student, EunSeong Kim, on solid helium using a torsional pendulum. In these studies helium was immersed into the pores of Vycor glass incorporated into a torsional pendulum and solidified under pressure. The resonant period was measured and found to exhibit a sharp decrease at temperatures below 0.2 K, a signature of superfluidity. Thus the solid also behaved as if it had no viscosity with respect to the torsional motion. Their observation has motivated extensive theoretical studies of this effect. In the very active discussion which followed his formal presentation, Prof. Chan showed a new phase diagram for solid helium which includes this newly discovered transition to a superfluid state in a solid.

Earlier during his visit, Prof. Chan delivered a con-densed matter seminar in which he presented some new results on a negative proximity effect in nano-diameter type I superconductors. Traditionally, a normal metal in electrical contact with a superconductor will show induced superconductivity. Similarly a low temperature superconductor in contact with a higher temperature superconductor will exhibit an increased transition temperature and a more robust superconducting state. However, in these nanowires the effect appeared to be reversed. Placing a superconducting wire near another super-conductor suppressed superconductivity in the nano-wire. Currently, there is no theory to explain this effect.

Prof. Chan is a member of the National Academy of Sciences and a past recipient of the Fritz London Medal awarded in recognition of his outstanding contributions to the field of low temperature physics. A strong factor in attracting Prof. Chan to visit us and to present the Reynolds Lecture was the fact that his doctoral thesis advisor at Cornell was Prof. John Reppy (B.A., M.A. UConn, '54, '56), who presented last year's Reynold's Lecture. Prof. Reppy's interest in low temperature physics began as a student in the laboratory of Prof. Charles Reynolds at UConn. Thus the last two Reynolds' lecturers were the scientific son and grandson of Professor Reynolds himself.

The International Association for Relativistic Dynamics 2006 Conference

The Department of Physics has been selected to host the 2006 biennial conference of the International Association for Relativistic Dynamics (IARD). This conference, which in previous years has been held in Tel Aviv, Israel and Saas Fee, Switzerland, brings together an international community of researchers in classical and quantum relativistic dynamics of particles and fields. The meeting will be held from June 11 - 15. The conference will be locally organized by **Ronald Mallett**. A detailed program will be posted on the Physics Department web page at a later date.

The Norman Hascoe Lectures on the Frontiers of Science

The Department of Physics has continued to play a leading role in a new lecture series funded by Mr. Norman Hascoe of Greenwich, Connecticut, aimed at exciting undergraduates with scientific interests in frontier areas of science. Each lecture is open to the public and is followed by a reception and an informal panel discussion. We are now in our seventh year and recently had three outstanding lectures in the general field of nanoscale science: **Nicholas Spencer,** Swiss Federal Institute of Technology, ETH, Zurich, presented a talk entitled "Block Copolymers, Surface Interactions, and Aqueous Lubrication." Marcel Utz hosted his visit. Robert Birge of the Chemistry Department hosted **Anthony Watts** of the University of Oxford who presented "Nanoscience at the Physics-Biology Interface: Studies on Biomembrane Proteins." Fotios Papadimitrakapoulos invited **Luis Brus**, Columbia, who gave his talk "Chemistry and Physics of Semiconductor Nanocrystals."

Nanoscale science involves application of the concepts and techniques of physics to systems at a higher level of complexity (e.g. the supramolecular and macromolecular) and is the focus of major federal research funding initiatives. Numerous disciplines are making advances in nanoscale science. We hope to expand our lecture program for next year and include even more areas of science.

News from the Classroom

Phil Best

The recipient of the Excellence in High School Teaching Award for 2005 is **Helen Elperina**, of Branford School. Helen's inspiring teaching is credited with raising enrollment in physics from 35 to 150 per year at her school, from 1994 to the present. We need more teachers like her!

Still the most popular outreach activity we do is the liquid nitrogen demonstration. Visits to local area schools were made by **Carol Artacho Guerra** and **Dave Perry**. A newer activity for us is a Saturday morning program for CPEP students. CPEP is the State's leading community-based group that encourages math and science education in inner-city schools. Each program consisted of an introduction to physics as a career by **Barry Wells**, an hour-long talk, followed by an hour of demonstrations. The talks, presented by **Ron Mallett** on time travel and black holes, and **Vernon Cormier** on tsunamis, were very well received. The demonstrations (Dave and Carol) were also a hit.

Professor Joe Redish, a nuclear physicist from Maryland and a leader in Physics Education Research, gave the Sigma Pi Sigma Colloquium, "How Students Think: Why Should Teachers Care." In this wide-ranging talk, Joe held our interest by illuminating the many discrepancies between what the teacher "knows," and the student thinks.

Professor **Philip Best** was presented the David Blick Science Education Award from the Neag School of Education for his accomplishments in science education. Phil does an incredible job and we are delighted that he has been recognized for his efforts.

There were 20 new inductees into the Sigma Pi Sigma Honor Society this year: undergraduates: **Davitt Driscoll**, **Nicholas Destefano**, **Colin Kelley**, **Miroslaw Klapyk**, **Laura Mariano**, **Charles Rogers** and **Geoffrey Smith**; graduate students: **Marco Ascoli, Tim Bragdon**, **Jennifer Carini**, **Sam Emery**, **Marko Gacesa**, **Brad Moser, Drew Procyk**, **Jerome Sanders** and **Erin Seder;** staff: **Carolina Artacho Guerra** and **Dave Perry**; post doc: **Chris Verzani**; and faculty: Professor **Vernon Cormier**.

Since the last newsletter the Director of the Undergraduate Laboratories, **Gloria Ramos**, resigned to teach at Citrus College in Southern California. Gloria made many friends here while rejuvenating the labs with a number of innovations, including the introduction of Heller-style Labs. She is succeeded by **Carolina Artacho Guerra**, a graduate of Bryn Mawr College. Carol has made an auspicious start in her new job, leading us to new computers in a more-tightly controlled network. Carol has also been very enthusiastic in outreach activities.

The 23rd Workshop on Complex Fluids and Biophysics was held at the Physics-Biology Building on June 10, 2005. The one-day workshop, organized by **Andrey Dobrynin** and **Greg Huber**, was especially designed for postdocs and grad students. There were approximately 90 attendees - mostly from the New England area. It featured invited lectures from M. Bowick (Syracuse), H Brenner (MIT), B. Dubin-Thaler (Columbia University), A. Hosoi (MIT), S. Sheiko (UNC) and B. Slepchenko (UCNC).

New Biology-Physics Building Wins 2004 AIA Connecticut Design Award

Photo by Robert Benson

The new Biology-Physics building by Allan Dehar Associates has won the American Institute of Architects Connecticut Design Award for 2004. Architecture firm Allan Dehar Associates reports: One of the jurors stated "In such a large building the architect was able to break down the spaces and create humane interiors. The public space, which is just beautiful, carries the building. The circulation and energy of the plan is translated beautifully in the volumetric organization of the very handsome structure." Physics is pleased to be part of the building and we couldn't have said it better.

World Year of Physics

The UConn Physics Department World Year of Physics Program is based on the international statement: "The World Year of Physics 2005 is a United Nations endorsed international celebration of physics. For more information about the many events available, please visit http://www.physics2005.org."

Like the rest of the physics community, the University of Connecticut Physics Department will be celebrating this year with an outstanding set of events. Beginning in September 2005, there will be a series of colloquia given by internationally renowned physicists that reflect Einstein's fundamental contributions to the entire domain of physics. The lectures range from general relativity, elementary particle and astrophysics to atomic, molecular, optical and condensed matter physics. In addition, the department will provide an opportunity for outreach to schools from K - 12. A web page has been established on the physics department web site which contains a detailed summary of the many activities and lectures taking place in the department.

Members of the UConn Physics Department World Year of Physics Committee are **Thomas Blum, Samuel Emery**, **Gayanath Fernando, Elizabeth Taylor-Juarros, Ronald Mallett (Chair), Cynthia Peterson, Chandra Roychoudhuri, Robert Schor, and Winthrop Smith.** Please visit our web page at www.physics.uconn.edu and click on Spotlight: Year of Physics 2005 Press Room.

Bill Stwalley Elected Vice Chair of DAMOP

William Stwalley was recently elected Vice Chair of the Division of Atomic, Molecular and Optical Physics (DAMOP) of the American Physical Society. Executive Committee members are elected by their fellow DAMOP members after being asked by the nominating committee if they wish to run . The position is part of a four year sequence, from Vice Chair to Chair Elect to Chair to Past Chair of DAMOP and began this past May. Congratulations, Bill!

2005 Dissertation Award in Nuclear Physics

Andriy Kurylov, who recently received his Ph.D. from UConn, is the recipient of the 2005 Dissertation Award in Nuclear Physics. Each year, the Division of Nuclear Physics of the American Physical Society recognizes an outstanding Ph.D. thesis with this award, which comes with a $2000 prize and an invited talk at the April meeting of the APS. Andriy was awarded the prize for his work on radiative corrections relevant to the interpretation of neutrino oscillation experiments and searches for physics beyond the Standard Model of electroweak interactions. He presented his work at the APS meeting in Tampa, Florida, held this past April.

Andriy came to UConn from the Ukraine. From the time he was in sixth grade, Andriy's ambition was to study physics. He participated in regional and national physics "Olympiads," winning three Ukranian national titles by the time he graduated from high school. The collapse of the former Soviet Union prevented his attending the Moscow Institute of Technology, which has one of the strongest programs in physics in Russia. Instead, he enrolled in the Ternopil State Technical University and earned bachelor's and master's degrees in engineering. Just prior to coming to UConn in 1997, he had begun a term as staff engineer at Ternopil State.

At UConn, Andriy was supervised by Associate Prof. Michael Ramsey-Musolf, who had also received the DNP Dissertation Award in 1990. His Ph.D. research consisted of studies in theoretical nuclear and particle physics, focusing on the effects of supersymmetry in precision electroweak processes, radiative corrections to neutrino-nucleus reactions, and time-reversal violation.

After completing his Ph.D., Andriy accepted a position as a post-doc in theoretical physics at Caltech, working with Dr. Ramsey-Musolf, Dr. Petr Vogel, and Prof. Marc Kamionkowski on supersymmetry, neutrino physics, and dark matter. During his second year at Caltech, he was recruited by McKinsey & Co – one of the world's largest business strategy consulting firms and a former employer of Prof. Robin Côté. He accepted an offer from the company and moved to Minneapolis with his fiancée in August 2004. He is currently an associate with the firm. His work consists of conducting core analyses and problem-solving targeted at answering critical top management-level issues for clients. A solid grounding in physics can take one to remarkable places.

A New Nibarger

After studying ultrafast laser interactions with **George Gibson** for 5 years, **John Nibarger** (Ph.D. 2000) and his wife, Lisa, took a 3-month vacation. They spent 6 weeks backpacking through France, Switzerland, and Italy before coming back to the states for another 6 weeks of R&R. Fully rested, John started his post-doc at the National Institute of Standards and Technology (NIST) in Boulder, CO. John switched fields from AMO physics to magnetism and solid state physics at NIST. He first worked on magnetic standards and later studied magnetization dynamics in thin (2-100 nm) ferromagnetic materials using a pulsed inductive microwave magnetometer (PIMM). His ultrafast atomic work proved handy studying magnetization dynamics in the slower (1 ns) regime of ferromagnetic resonance. While at NIST, Lisa worked in the Molecular Chemistry Developmental Biology (MCDB) department at the University of Colorado studying satellite cells (muscle stem cells). In the summer of 2003, John accepted a research position at StorageTek, a magnetic tape drive and storage solutions company. John is currently designing the next generation of magnetic sensors for tape drives. Currently, anisotropic magnetoresistance (AMR) is used for magnetic sensors. However, with increasing areal density in tape storage, the more sensitive sensors employing giant magnetoresistance (GMR) will be needed. Hard disk manufacturers migrated to GMR in

the late 90s and it appears that tape will be following in their footsteps a decade later. On the home front, their first child, Leah Summer, was born on July 19th, 2004. Lisa is doing wonderfully and adjusting well to life as a full-time mom. John, Lisa, Leah, their dog, Keela, and cats, Jerry and Gizmo, thoroughly enjoy life in Superior, Colorado. Feel free to contact John at nibal_13@hotmail.com.

New Faces

Birgit Kaufmann joined our department as an Assistant Professor in Residence last fall. Her Ph.D. in 1999 from the University of Bonn in Germany was awarded for analytical methods of calculating spectra of reaction-diffusion models and quantum spin chains. Since graduating, she continued her study of integrable models at the Laboratoire de Physique Statistique at Ecole Normale Superieure in Paris and at UCLA in a three-year post-doc working with Hubert Saleur. She returned to the Univ. of Bonn as Visiting Assistant Professor to continue work with Dr. Saleur and to begin a project studying ultracold bosons in an optical lattice. Then it was back to the States in 2003 as a Visiting Assistant Professor at Oklahoma State.

Birgit's research interests continue to be two-pronged: exactly solvable models, and non-equilibrium phenomena in bosonic systems. She envisions further exploring the interplay between the models and condensed matter theory. Birgit, her husband Ralph - a new faculty member in the math department - and their son Julian are settling into Storrs quite nicely.

Dr. Maurizio Ungaro joined the experimental nuclear physics group as a postdoctoral fellow to work with Professor Kyungseon Joo in Spring 2004. Maurizio obtained his undergraduate degree from Università degli studi di Genova, Genova, Italy, and in December, 2003, completed his Ph.D. at Rensselaer Polytechnic Institute, Troy, NY under the supervision of Prof. Paul Stoler. Mauri is an expert in the study of Delta (1232) excitation in high momentum transfer and has also made important contributions to the understanding of nucleon excitations in general. He is currently at the Thomas Jefferson National Accelerator Facility where he is working on the CEBAF Large Acceptance Spectrometer (CLAS) detector operation with Professor Joo.

On January 1, 2005, **Christopher Verzani** became the postdoctoral supervisor for the NASA project, which includes laboratory simulation of x-ray emission from comets. This project, with Professors Kessel, Smith, and the late Edward Pollack, includes an active collaboration with the NASA/Caltech Jet Propulsion Laboratory. In fact, it was there in Pasadena that Chris joined the group for his first day of work. He has B.S. and M.S. degrees from Creighton University and his Ph.D. from Kansas State University. Prior to joining our group, he had a research appointment at the National Institute of Standards and Technology in Gaithersburg, MD.

Our new Funding Facilitator was hired on September 29, 2004. **Anthony Barresi** transferred from the Office of Sponsored Programs where he worked as a temporary Grant Manager. Prior to arriving at UConn, Anthony was employed in fiscal management at WFSB and WTIC. His experience in the financial area is a great asset to our department. We welcome Anthony, his wife Jennifer and their two children, Alex and Miranda, to UConn.

Carolina Artacho Guerra joined our department this fall as the new Manager of Laboratory Services. Carol, a native of Spain, received her B.A. degree in Physics from Bryn Mawr College. After working at CVI Laser Corp. in Putnam, CT and in Albuquerque, NM, she taught physics at The Williams School in New London. Carol has completed projects in a "KECK Northeastern Astronomy Consortium Internship" and an "Advanced Studies Program Astronomy Internship."

Paul Klemens at 80

Recollections and Appreciation by Dwight Damon,

I met Paul in fall 1960 when I interviewed for a job at the Westinghouse Research Laboratories, and later I accepted the offer of a position in Paul's group that was concerned with the transport properties of solids. I left my first meeting with Paul with a vague sense that there was something wrong with what I said or did. Alex Maradudin explained that Paul and John Ziman had had some sharp disagreements about transport theory and that Paul wasn't all that happy to see me walk in with Ziman's "Electrons and Phonons" under my arm.

Over the next few years we worked on a number of problems that shared a common theme of the scattering of electrons and phonons by solute atoms in dilute metal alloys. Theoretically Paul was able to show that the presence of a local mode of vibration associated with the solute atom would enhance the strength of the scattering of electrons by the solute. Experimentally I was able to show that the electrical conductivity of some gold alloys did exhibit this enhanced scattering.

At this time much of the solid-state research under the direction of R.R. Heikes was directed towards the development of thermoelectric power generation. As part of this effort Paul developed a formalism relating the values of the quantities electrical conductivity, thermoelectric power, and electronic thermal conductivity that did not depend on a detailed knowledge of the band structure and the energy dependence of the scattering. This was important to the thermoelectric power program because knowledge of these latter properties for many of the compounds studied was not available. Practical power development never came to much, but Paul's formalism served me very well in interpreting my measurements of the thermal properties of a number of compounds.

Paul left Westinghouse for UConn in 1967 and three years later I rejoined him. Together with **Roger Klafky** and **Nagavarapu Mohan,** I measured the thermal conductivity of a number of Al-Mg alloys. We published the first values of the lattice thermal conductivity of Al. At the same time, **Al Boulay** and N**anjundiah Sadanand** made measurements of the thermal conductivity of some copper alloys. For Paul I think this was in part a completion of the work he started many years ago while at CSIRO in Australia.

Paul pursued many other projects with many other people, such as the propagation of ultrasound in solids. He worked with John DeKlerk at Westinghouse and **Fred Lipschultz** at UConn on ultrasonics. He advised and consulted with research groups throughout the world. Many people sought his advice and were grateful for his kindness and wisdom. Paul is an experimentalist's theorist—his calculations end up with a result or a prediction that the experimentalist can use. My thesis advisor, A. N.Gerritsen of Purdue University once said something to the effect that Paul Klemens was always ready to come into the laboratory and talk physics over the potentiometer.

This is a purely personal note concerned with my research work as it was shaped and guided by Paul. It is by no means a summary of Paul's career. I must mention that the Klemens (Paul and Ruth) and the Damons (Dwight and June) share many interests (music and theater) and have been friends for many years. Our elder daughter had her first dinner party at the Klemens' home the day after her sister was born.

A personal note by Quentin Kessel:

When I returned to join the faculty in 1971, I had a distinguished visitor from Denmark who exclaimed: "You don't have *the* P.G. Klemens here, do you?" This was my introduction to the extraordinary international reputation Paul has earned. He has continued to make important contributions in thermal conductivity, and in 1986 at the Fifth Int'l Conference on Phonon Scattering in Condensed Matter, Paul received a citation for pioneering contributions to the physics of phonon scattering in solids. This award was later renamed the Klemens Award for Contributions in Phonon Physics at the 10th Int'l Conference on Phonon Scattering in Condensed Matter, Phonons 2001.

My own remembrance: A Defender Of The Faith by Dave Markowitz

It was the end of the tumultuous sixties. Marauding bands of unruly students marched through science buildings around the country and, sadly, even committed violence, all to protest U. S. involvement in Viet Nam and what they considered was academic support of the war through sponsored research. Guys and girls looked alike deliberately: the same spaghetti hair, baggy clothes, scowling faces, raucous voices,

refusal of makeup and, in some cases, avoidance of soap. Not many ladies or gentlemen among them.

Paul Klemens, always a gentleman, felt it was his duty to protect the physics building from harm. It was impossible to lock students from the building but one could deny them entry into a research laboratory. In one episode, hordes of students jostled him and grabbed his thermal conductivity sample, a metal bar, but he stood his ground.

That was one of the last run-ins we had in the old physics building before we moved, and then comparative peace reigned over the campus for awhile.

Ryan Sears: First Intel and First Born

Immediately after receiving my Ph.D. in 2003 under the guidance of Boris Sinkovic, I went to work at Intel in California. Intel is Intel. Everybody there was as crazy as I am, so you can imagine the chaos. But, I hung in there; and learned so much that my head spun. (I should have paid more attention in my optics classes).

My son, Isaac, was born on May 10, 2004. Kate did great. I always knew she had an inner strength and it really showed when she delivered Isaac without a single complaint. She is definitely my hero. Moments after birth, he had his eyes open and was alert. He even knew my voice. He was crying, as newborn babies do, and I picked him up and started talking to him. He looked up at me and stopped crying. Talk about yanking every heartstring at once. I thought all that talk about seeing and meeting your baby for the first time and how you would feel was just the sentiment of fools. But, I guess I just never had a basis of comparison, because at that moment, everything people said made sense and more.

I managed a transfer from our CA site to our CO site to work as a senior engineer in charge of a technology ramp at the CO site. We moved to be closer to our families, so Isaac could grow up near his grandparents. Kate and I now live in Colorado Springs, CO and recently closed on a cute house, so we are finally acting like grown-ups. Isaac is as cute as ever, and he is in full motion now. He crawls all over the place and can stand when holding onto things, which puts all my electronic equipment at jeopardy. Work is as hectic as ever. When I was at the CA site, I was responsible for a small part of our 90nm flash technology, but now, I own the entire tool set responsible for printing all the metal interconnect layers on our logic + analog devices (like the Centrino processor and the x-scale processors that go into smart phones). It's quite an increase in responsibilities now that not only do I serve as a technical leader, but I have to do all the planning for the group. It's great experience for me when I finally decide to take over the world, so I don't mind. :~)

I hope to visit Storrs next year and give a talk about lithography as one of those 'physics in the work place' type talks for students.

Cheers, Ryan.

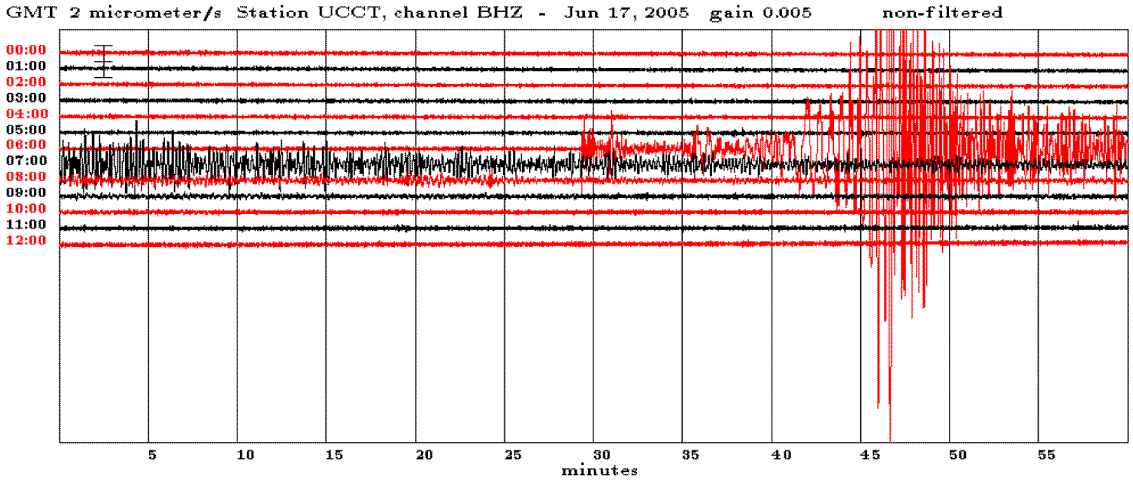
See the Earth Move *by Vernon Cormier*

Our updated UCCT seismic station will produce visible recordings of any earthquake above a magnitude 5, anywhere in the world. We completed set-up of the station in January, just after the magnitude 9 earthquake in the Sumatra-Andaman Islands that triggered the devastating tsunami in the Indian Ocean. We obtained excellent recordings of a magnitude 8 earthquake from this same region in March. The event in March extended the fault rupture region of the December event further to the south, but did not trigger a tsunami.

Set-up and maintenance of the seismograph station is handled by a joint agreement with Columbia University's Lamont-Doherty Earth Observatory, and is part of a combined seismograph network for monitoring earthquakes in New York and New England managed by Columbia, Boston College, and MIT. All data are collected and telemetered by radio or satellite in real time and are retrievable over the internet as digital data files or as graphic images of components of ground motion (vertical, north-south, east-west) and different frequency pass-bands of motion (broadband, long-period, and short-period). To view seismogram images that are updated every 10 minutes go to www.ldeo.columbia.edu/cgi-bin/LCSN/WebSeis/24hr_heli.pl. Select UCCT to see how different frequency bass-bands of data appear.

Our seismograph station was funded by an NSF instrumenta-

tion and facilities grant with matching funds from the University of Connecticut. It was part of an equipment grant that also included funds for a 16 dual processor cluster computer for study of elastic wave propagation in Earth's deep interior. The geophysics cluster has been integrated with the physics Beowulf cluster.



Seismogram of the vertical component of ground velocity at Storrs, CT due to a magnitude 6.6 earthquake that occurred off the coast of Northern California on the evening of June 16, 2005. This image is a simulated drum recording. The horizontal axis is time, with each 1 hour interval displaced vertically. Hence, the seismogram is "read like a book" from left to right starting from the topmost trace. The start of each hour of the trace is marked at the left in Greenwich Mean Time. Note the increase of activity at 06:30.

Tsunami Tragedy

We generally don't cover world news here in our annual newsletter. We prefer to stick to physics and local news and leave the international news reporting to folks more qualified. However, the events of December 26, 2004 still leave us feeling overwhelmed by the amount and emotional cost of the devastation caused by the earthquake and resulting tsunami in South and Southeast Asia. While we feel very fortunate to not have lost any of our members, many of whom originate from that part of the globe, we are saddened by the destruction in their home countries and their loss of friends and family members. Please accept our heartfelt sympathy.

Our departmental web page (http://www.physics. uconn.edu) provides a link for those who would like information regarding contributing aid. We also provide a link for the International Office (http://www.disp.uconn.edu) for those requiring more information. The pages are worth reading; stories of hope and faith can be found there along with current news. The Department wishes to thank everyone for their donations, monetary and otherwise. We would also like to publicly acknowledge **Hashini Mohottala**, her husband, **Sanjeewa Karunaratne**, **Kalum Palandage**, **Gayanath Fernando**, **Herath Bandara** and **Deborah Rea** (International Office), and all the other volunteers for their work in this relief effort. Thanks to the University of Connecticut for providing necessary storage and transportation. Our help will be needed for quite some time; your donations, ideas and other volunteer activities are welcomed.

The students from Sri Lanka received a nomination as a group to receive the CT Higher Education Community Service Award for performing exemplary community servicefor their tsunami relief efforts. They were given a certificate for the nomination at the Community Service Award Ceremony on April 21, 2005. Pictured are Hashini Mohottala, Kalum Palandage, Sanjeewa Karunaratne, Paul Labossier, Deborah Rea, and Commissioner of Higher Education, Valerie Lewis.

Photo courtesy of Premier Portraits, LLC.

In Memorium
Edward Pollack (4/28/1931-2/11/2005)

Our spirited Professor Edward Pollack, teacher, scholar and mentor, passed away on February 11, 2005. As might have been expected of Ed, he was extraordinarily active until a brain tumor caught him unawares. In January he and Rita visited their son's family in Indianapolis to celebrate the birth of their fifth grandchild, then traveled to Pasadena, California where Ed performed research under his NASA grant at the NASA/Caltech Jet Propulsion Laboratory (JPL). After a full day at the laboratory, he was admitted to a hospital, underwent emergency surgery, flew back to Connecticut for rehabilitation, and continued to plan for the future.

Ed was the longest-serving member of our faculty, having joined the department in 1963. Before then he had graduated from City College of New York (1952), served as a researcher at the Army's Fort Detrick in Maryland, and taught at both New York University and City College of New York while he earned his Ph.D. in physics from New York University (1963). At Connecticut, he established a laboratory for the investigation of low-energy atomic collisions with funding from the U.S. Army Research Office, Durham and followed this with numerous grants from NSF, NASA and other funding sources. A Fellow of the American Physical Society, he was a pioneer in the measurement of energy losses in slow collisions of ions with atoms and molecules. Ed was Chair of the Local Organizing Committee when UConn Physics hosted the Division of Atomic, Molecular and Optical Physics (DAMOP) meeting in 2000.

Ed partnered and interacted with a wide range of scientists. His current NASA grant is in partnership with Connecticut College and JPL; he carried out experiments at Lawrence Livermore National Laboratory, the National Institute of Standards and Technology, and the Laboratoire des Collisions Atomiques et Moleculaires in Orsay, France. He published frequently in scholarly journals and made numerous presentations of his research, including talks at conferences on nearly every continent.

Ed was a superb teacher who prepared meticulously for every class and devoted long hours assisting students in his office. Over the years, he supervised nearly 20 Ph.D.s and provided guidance with their career choices. He took great pride in their successes. Within the department, he served on nearly all of the committees at some time, including chairing the Faculty Teaching Assignments Committee and serving as advisor to Sigma Pi Sigma, the physics honor society.

His long-term colleague and collaborator Professor Winthrop Smith remembers Ed as a "dyed-in-the wool New Yorker," with a sense of humor and a love of life that showed in both his professional career and his varied cultural interests. He loved music, he was a skilled violinist and served on the board of Connecticut's National Public Radio and TV. A devoted family man, he rejoiced in his children's and his wife's many accomplishments. We continue to miss him even as we continue to benefit from the good works he did for our department.

More information about Ed Pollack can be found on his web page at http://www.physics. uconn.edu/faculty/pollack.html.

TWO NEW ENDOWMENTS... OUR USE OF ENDOWMENT MONEY

Although bittersweet in nature, one of our new endowmentshas been established by the family of the late Professor **Edward Pollack**. Rita Pollack established the endowment in order that a special atomic, molecular and optical physics colloquium be given each year in Ed's name. Substantial sums have already been received by the University of Connecticut Foundation from faculty, alumni and friends, adding to the Pollacks' gifts.

Another new endowment has been initiated by our Professor **Paul Klemens** who began here as Department Head in 1967. Paul's endowment provides financial support to a graduate student in the field of condensed matter physics. Although Paul retired in 1991, he remains professionally active and was honored by the department in May on the occasion of his 80th birthday. (See page 7 for more on Prof. Klemens.)

Our continuing endowments contribute to our "quality of life" in important ways. The endowment of Drs. **Henry and Constance Katzenstein** once again brought a Nobel Laureate to campus for a ninth annual "Katzenstein Distinguished Lecture." Additionally, this fund provides a monetary prize for the best undergraduate physics paper of the year. This year, the Katzenstein Prize for the best science essay by a graduating senior was won by **Davitt Driscoll** for his paper "Extraction of Single Spin Polarization Observables in Single Pion Electroproduction." Davitt is advised by **Kyungseon Joo** and plans to attend graduate school at Michigan State this fall.

The **Georgiana and Marshall Walker** endowment rewards the student voted by the faculty as the best Teaching Assistant of the year. Congratulations to **Andrew Carmichael**, this year's winner.

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.

Maturing endowments include those established by **Isaac S. Blonder** (our first physics major, B.S., 1938) and **Nagavarapu S. Mohan** (Ph.D., 1975). Ike's, the Isaac S. and Lois W. Blonder Graduate Fellowship in Physics, and Mohan's, the KMS Nagavarapu Graduate Award in Physics, are both intended to support graduate students. The department's Graduate Affairs Committee has decided to use the income from these funds for summer fellowships for incoming graduate students. With this extra incentive, we expect to compete for the best physics graduates from across the country. Significant donations have been made to the Endowment for Physics Research and Graduate Education in honor and memory of **Kurt Haller**.

We are grateful to those of you who contribute to these funds. Many of you respond to the general solicitations sent out by the University; we would be delighted if you used the fund numbers on the next page to direct such contributions to the Physics Department. Your contributions make a world of difference to us, both to our morale and to our effectiveness in assisting our students.

Reaching Out to Young Students

As the keynote speaker at the National Gallery for America's Young Inventors Ceremony held on April 30 in Akron, Ohio, **Ronald Mallett** was met at the Akron Airport and driven to downtown Akron in a DeLorean (the one used in the movie "Back to the Future"!) with a police escort! The keynote lecture was entitled "The Science of Time Travel." The ceremony was held for the induction of eight brilliant young men and women from across the country. Their induction was the result of a competition that was open to students from K - 12. This year the inductees were from as far away as Texas and New York and ranged in age from 16 to 18. The highly sophisticated projects (which might well have been master's theses) ranged from the effects of nanoparticles on selective gas permeability of thin-film membranes using supercritical fluid to contracting actuators using dielectric electroactive polymers. A letter from President Bush congratulating the inductees was read during the ceremony. The well-publicized event was attended by well over 600 people.

STAY IN TOUCH

We're adding a new feature to our departmental web page as well as assisting our Alumni Office in updating their records. We would like to start an email distribution list for our Physics Alumni so that we can update you promptly when we have important news to share. We are asking you to help us by logging on to our site http://www.phys.uconn.edu and clicking onto the link for Alumni. That will take you to a page that requests your contact info, including your email address. There is also a place for any comments you would like to send us.

I/we would like to support the Physics Department programs.
Please direct my gift of $_____ to:

- Edward Pollack Endowment for Physics (30958-2014)
- Ruth and Paul Klemens Endowment (30951-2014)
- Endowment for Physics Research and Graduate Education (30911-2014)
- Marshall and Georgiana Walker Graduate Award Fund (30876 -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)
- KMS Nagavarapu Graduate Award Endowment (30723-2014)
- Physics Department Unrestricted Fund (20555-2014)

Matching Gift

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

My company is: _____
_____
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_____
phone/fax _____
email _____

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 3026
Storrs, CT 06269-3206

Thank you for your support!

Any news about yourself that you are interested in sharing? We have enjoyed the unsolicited mail we receive as a result of our newsletters so now we're actively soliciting. Please send suggestions to: David Markowitz, Editor at the Department address.

SAVE THE DATE
September 16, 2005

Invitations for the Katzenstein dinner have gone out to those of you with New England, NY, NJ and PA addresses. If you are interested in attending and live outside of this area, please contact Kim Giard at 860-486-4924, email: kim.giard@uconn.edu for an invitation.