



Quanta

A publication for the faculty, staff, students, alumni and friends of the Department of Physics at Virginia Tech

www.phys.vt.edu

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Reflecting on 2010, we have many reasons to celebrate. Only few physics departments succeed in balancing their passion for research and their passion for education as well as we do. For the first time in living memory, all faculty members in the department – without a single exception – are funded by major research grants, awarded through a very competitive national review process. At the same time, we saw a record number of graduations this year: 26 bachelors and 8 fresh PhDs left our department, looking for new adventures and continued growth.

And our new astronomy course, a Virginia Tech signature experience, is drawing record numbers of students. Thanks to these successes, we count amongst the healthiest physics programs in the nation.

Yet, 2010 was also a challenging year. To meet state budget reductions, the university encouraged faculty to retire, and we saw five retirements this year. Fortunately, we were able to conduct a national search for two full-time instructors which resulted in two excellent hires, and so we are confident that our students continue to experience high quality teaching at all levels. And we hope and expect our retirees to remain engaged with the department and share their wise counsel as we head into the future.

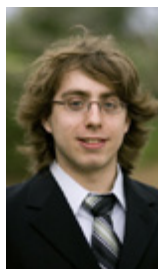
We hope that you, our friends and alumni, will also stay connected to us. I always enjoy hearing from you, and it is one of my greatest pleasures to reconnect with an alumnus or alumna who graduated many years ago. Please continue to support us, in these days of tight budgets, as we strive towards ever greater excellence. On the back page, you find more information about how you can help.

With best wishes for a wonderful holiday season and a Happy New Year,

Beate Schmittmann



For a second straight year, a physics student is named COS Outstanding Graduating Senior



Justin Waugh of Virginia Beach, Virginia, was named Outstanding Graduating Senior in the College of Science for the 2009-10 academic year.

Double-majoring in physics and electrical engineering, Waugh completed 195 credit hours in less than three years. He was inducted into Sigma Pi Sigma, as well as Eta Kappa Nu.

Justin is currently attending graduate school at the University of Colorado.



Department hosts conferences and workshops aplenty in 2010

Over the past year, the Department of Physics has hosted four very diverse conferences and workshops:

- **Summer School on Mathematical String Theory** (June 21- July 2, 2010)- The purpose of this summer school was to bring together young mathematicians and young physicists to learn a variety of topics pertinent to mathematical string theory. Organizers for this event were Ron Donagi and Tony Pantev of the University of Pennsylvania, and the department's own **Prof. Eric Sharpe**. Some of the topics included homological algebra, modular averages, and hodge theory, new and old.
- **Neuroimaging Technologies for Optimizing Performance** (September 23-24, 2010)- Organized by **Dr. Seong Ki Mun and Dr. Kenneth Wong** and held at the historic George Washington Masonic Memorial in Alexandria, VA, this workshop focused on themes such as individualized learning, neuroergonomics, and sleep deprivation. The organizers plan to hold these workshops on an annual or biannual basis in the future.
- **International Workshop on Accelerator-Driven Sub-Critical Systems & Thorium Utilization** (September 27-29, 2010)- This workshop was organized locally by **Prof. Bruce Vogelaar** and was sponsored by Virginia Tech, Virginia Commonwealth University, Jefferson Lab, Reference Metals Co., and the University of Virginia. It consisted of four sessions, with experts from around the world exchanging information on topics relevant to accelerator-driven sub-critical systems.
- **Complex Driven Systems- From Statistical Physics to the Life Sciences** (October 1-3, 2010)- This weekend-long symposium hosted scholars from around the globe, presenting recent advances in the understanding of statistical physics far from equilibrium and highlighting the growing importance of its applications to biological and soft matter systems. Organized by **Prof. Michel Pleimling and Beate Schmittmann**, the event also included a special session in honor of **Prof. Royce Zia's** achievements in his forty years of physics research.



Summer School participants enjoy a Saturday excursion to Dragon's Tooth trail



Complex Driven Systems symposium guests pose for a group photo

In short...

- The College of Science awarded its 2010 Certificate for Teaching Excellence to **Prof. Leo Piilonen**.
- **Prof. Patrick Huber** was awarded an Early Career Research Award from the Department of Energy to study neutrinos. The five-year grant was one of only 69 awarded out of a pool of 1,750 university and laboratory-based applicants. The ECRA is designed to bolster the nation's scientific workforce by providing support to exceptional researchers during the crucial early career years, when many scientists do their most formative work.
- **Prof. Giti Khodaparast** presented lectures at the Roanoke Valley Governors School in Spring 2010.
- A paper by **Profs. Djordje Minic and Chia-Hsiung Tze** received honorable mention in Gravity Research Foundation 2010 Essay Contest.
- **Prof. Tatsu Takeuchi** was named VT Scholar of the Week for May 2-8, 2010.
- **Tammy Harris**, program support technician, was accepted into the Administrative Professional Development Program for 2010-2011.
- **Prof. Rahul Kulkarni's** article "**Post-Transcriptional Regulation of Noise in Protein Distributions during Gene Expression**" was selected to appear in the *Virtual Journal of Biological Physics Research*.
- **Tina Lawrence**, departmental fiscal technician, completed the Research Administrator Certificate- Level I program.

Please welcome...

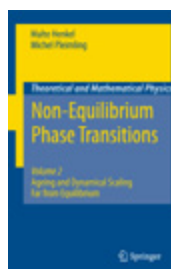


Almas Khan joined the department as a full-time instructor in Fall 2010. He received his undergraduate degree from University of Peshawar Pakistan, and his Master's degree in particle physics from the National Center for Physics, Islamabad Pakistan. In June 2010, Almas received his Ph.D. in theoretical high energy physics from the University of Delaware under the supervision of Prof. Stephen Barr.



Kriton Papavasiliou joined the faculty in Fall 2010 as a full-time instructor. After receiving his Master's degree from Virginia Tech in 1998, Kriton took a few years absence, during which he taught for a year at Hanover College in Indiana. He returned to Virginia Tech for his Ph.D., working with Dr. Alfred Ritter on broad-band anti-reflection coatings consisting of nanoparticles. This project was completed in Summer 2010.

New books by faculty

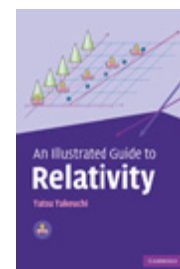


Non-Equilibrium Phase Transitions

written by: Malte Henkel and **Michel Pleimling**

An Illustrated Guide to Relativity

written and illustrated by **Tatsu Takeuchi**



Physics launches first Virginia Tech signature experience

by: Beate Schmittmann and Catherine Doss (published in VT News on August 27, 2010)



When Professor Nahum Arav joined the Department of Physics in January 2008, he says he had a dream: to introduce Virginia Tech students to the beauty and wonders of the universe.

This semester, his dream is becoming a reality. Introduction to Astronomy (PHYS 1055) has been launched as the university's first undergraduate signature experience, a unique learning environment that integrates a broad base of disciplines to enhance creative teaching and comprehension. Approximately 600 students from all majors are being offered an intense classroom experience, studying astronomy and planetary science in an integrated multidisciplinary context. Concepts from physics, chemistry, biology, history, and philosophy will be discussed to introduce students to scientific thinking and its cultural and technological impact.

"In this class, we explore the solar system and discuss current astronomy topics such as NASA space missions and asteroid collisions," Arav said. "It's consumer friendly for a broad base of students and does not require a strong background in math or physics."

Arav and a team of experts from instructional design, learning technologies, and assessment have been working together to create a model learning environment, on the basis of established pedagogical knowledge. Regular and guest lectures, high-quality movies, still images, and an audience response system provide a stimulating classroom experience. A team of advanced undergraduates with an interest in astronomy serve as learning assistants and provide individual support to students in small group settings.

Five physics professors retire

This year saw the retirement of five professors in the Physics family: **Marvin Blecher, Tetsuro Mizutani, Jimmy Ritter, Joseph Slawny, and Royce Zia.**



Prof. Royce Zia (center)

On March 4, 2010, a reception and dinner were held in Prof. Zia's honor at the German Club Manor. Numerous friends and colleagues toasted Royce's service to the department and his commitment to physics. Dinner was catered by one of Dr. Zia's favorite Blacksburg establishments, Our Daily Bread Bakery. Additionally, a special session was held in Royce's honor at the Complex Driven Systems symposium in October. (See page 2 for more details.)

A dinner and reception were held at the Hilton Garden Inn in Blacksburg on September 24, 2010 in honor of Prof. Blecher's forty-two years of service to the department. Family, colleagues, and friends (including some of Marvin's poker group) gathered to recall his dedication to scholarship and community at Virginia Tech. The department presented Marvin with a camcorder to capture his upcoming trip to the Galapagos Islands.

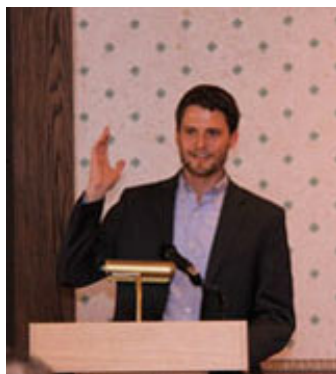


Prof. Marvin Blecher (center)

Student News

- Ph.D. student **Len-Liang Chou** and junior **Siddharth Venkat** won SigmaXi Research Awards.
- The Society of Physics Students' Virginia Tech chapter was named Outstanding SPS chapter for 2008-2009.
- Graduate student **Martin Rudolph** and **Kevin Finelli** (class of 2009) received honorable mentions from the National Science Foundation Graduate Research Fellowship Program.
- **Siddharth Venkat** co-authored an article in *Physical Review E* titled "**Mobility and asymmetry effects in one-dimensional rock-paper-scissors games**".

Awards Day 2010



Dr. Jerome Mettetal

The annual awards ceremony was held on Friday, April 9, 2010. Among the guests were donors, emeriti faculty members, and representatives from the College of Science and University Honors. Forty-five awards were given to graduate and undergraduate students in recognition of their scholastic achievement and dedication to learning.

Dr. Jerome ("Jay") Mettetal, recipient of the 2003 H.Y. Loh Award, gave the keynote address. In his talk, he expressed the importance of personal communication skills (such as writing, public speaking, and networking) in industry. Mettetal, who works in pharmaceutical research at Pfizer, traced his career trajectory, from his undergraduate work to where he is today. He also provided the audience with insight on the process by which pharmaceuticals are manufactured, from research to production.

Alumni News

- **Ashley Tabb** (class of '09) is now an assistant language teacher in the Japanese Exchange and Teaching (JET) program.
- **Seth Smith** (class of '01) is an assistant professor at Vanderbilt University in the Institute of Imaging Science. He has joint appointments in Biomedical Engineering and Radiology.
- **Brandon Nipper** (class of '08) married Virginia Moran in May 2010.
- **Beth Reid** (class of '03) was the recipient of a 2010 Hubble Fellowship.
- **Mark Washenburger** (class of '06) married Crysta Highfield in September 2010.
- **Nicole (Spencer) Luhning** (class of '07) was accepted into Santa Clara Law School.

Back to the Basics

by: Betty J. Wilkins

Fifteen years later, the Outreach team continues to bring physics to life in area schools.

In 1995, **Prof. Lay Nam Chang**, now dean of the College of Science, was looking for a way to address a need in Appalachia to encourage high school students to stay in school and aim to attend college. After contacting various area school systems, a program was established to match undergraduate physics mentors with eleventh and twelfth graders at Floyd County High School (FCHS). Thus, Physics Outreach was born.

Funded in its early years by a grant from the National Science Foundation, the Outreach team was able to get Citizens Telephone Cooperative to run a line to Blacksburg to connect FCHS to the Internet. With this connection to the Web, a wealth of knowledge was at the students' fingertips. **Peter Macedo** (class of '97) was "a tremendous help," says Prof. Chang. Peter mentored the students at Floyd County in the art of Web design.

Students were also encouraged to visit Virginia Tech, to take in the sights and sounds of college life. Some were even treated to lunch with VT football players.

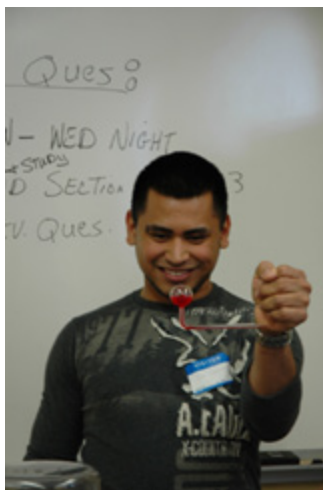
The Floyd County students were not the only ones to benefit from this partnership. The physics mentors learned skills in teamwork and what it means



Kyle Novak (class of '12) explains the thermal expansion of air using liquid nitrogen and a balloon

to perform service in the community. Consequently, they gained an understanding of diverse cultures.

Today, the mentors spread their reach even further, visiting middle and high schools throughout the New River and Roanoke valleys. Comprised of fifteen to twenty undergraduates, the team explains basic principles of physics using interactive demonstrations. Because it gives the students a hands-on lesson in electricity, the Van de Graff generator is a real crowd pleaser. Demonstrations involving the use of liquid nitrogen (as seen in the picture on the top-left) are also very popular.



Jose Umanzor-Alvarez ('10) demonstrates the Palm Glass to seventh graders at Dalton Intermediate

In addition to visiting area schools, the Outreach Team invites home-schooled children to campus to take part in the demonstrations. Also, Outreach provides its services to Imagination Camp, Center for Talented Youth, Kids' Tech University, College of Science Family Day, and to the Fun with Physics events.

"Outreach benefits the physics undergrads by reinforcing the basic principles and helping them learn how to convey this information to others in a simple way. They can also learn in this environment if teaching suits them. It benefits the community by showing kids that science can be fun" says **Josh Peebles**, Outreach Event Coordinator.



Robert Pattie (class of '03) during an April 2001 Outreach trip

Many things have changed since 1995. The graduation rate at FCHS has increased, and far more students now take physics in high school. The Outreach Team can also look forward to new adventures: Visit inner city schools in Roanoke, become more involved

with the education of future teachers and learn to engage the parents. Whatever happens next, the Outreach Team's mission remains the same: Encourage young students to seek knowledge, as it is the key to inventing the future.

Do try this at home!

The following is one of the demonstrations that the Outreach team performs at local schools and is perfectly safe for you to try at home:

The Coanda Effect

Equipment needed: a balloon, ping pong ball, or styrofoam ball; a hair dryer

Purpose: To show how a deflected jet of air will cause enough pressure difference to hold a ball suspended in midair.

Directions: Aim a jet of gas upward from the blower. Place the balloon, ping pong ball, or styrofoam ball in the jet and notice that it stays. The air jet may be tilted about 45° and the ball will remain suspended.



Kristen Brown (class of '10)

Quick Facts:

- The Outreach team visits about ten schools per semester.
- "Odd" items on the Outreach shopping list: tennis balls, eggs, liquid nitrogen, raquetballs, flashlights, and marshmallow peeps (yes, the Easter candy!).
- Some demos can only be performed in Robeson Hall. Those include the Rocket Cart (which involves a cart, a stool, and a fire extinguisher used to explain the recoil of a stream of released gas) and the Nose Basher (which involves suspending a bowling ball from the ceiling to demonstrate the principle of conservation of energy by the use of a large pendulum).

Learn more at <http://outreach.phys.vt.edu>



Instructor Matt Joyce and the Rocket Cart

Alumni Spotlight: Dr. Jack Smith (Class of '73)

Article and photos contributed by Lauren Carrier and Dr. Jack Smith

Like most college students, Jack Smith, M.D., Ph.D., Dean of The School of Biomedical Informatics (SBMI) at the University of Texas Health Science Center at Houston (UTHealth) was never expecting to follow the career path he has taken. During high school, Smith excelled in physics and chemistry and remembers participating in science fairs, which led him to pursue a Bachelor's degree in physics. Smith attended Virginia Tech to pursue an undergraduate degree in physics, and at the time, thought he would go on to earn his Master's in physics, but instead chose a very unique career path.

Smith particularly remembers a biophysics course as an undergraduate at Virginia Tech peaking his interest in medicine. Biophysics helped Smith to pursue his interests later on in healthcare, medicine and biomedicine. While an undergraduate at Virginia Tech, Smith was also a part of the co-op program. This program gave him the opportunity to work in the nuclear industry every other semester on projects about nuclear energy and the enrichment of nuclear materials. In addition to his co-op experience, Smith also worked with animal behavior professors on undergraduate projects in quantitative psychology as a lab assistant. This experience led him to an interest in quantitative approaches to psychology. The co-op program and lab assistant position provided him with practical experiences in the workplace that would help him later on in his career. Smith graduated with a Bachelor of Science in 1973 from Virginia Tech. His combination of experiences in biophysics and quantitative psychology led him to pursue a medical degree.

A medical degree at that time was rare for a quantitative scientist to pursue. Smith attended West Virginia University Medical School to earn his M.D.

While in medical school, Smith studied computing technology, healthcare, medical education, computing and mathematical modeling of biological systems. Smith worked on



Jack (circled) at The Ohio State University

multiple projects while at West Virginia University Medical School: these included characterizing the electrochemical activities of invertebrate nervous systems and mammalian sensory/motor systems. Smith worked on quantitative modeling and computer projects for recording and analyzing experimental data in neuroscience experiments. His senior year, he received a National Library of Medicine fellow-

ship in biomedical computing,

studying the modeling of biological systems for medical research and clinical applications at the University of Alabama, Birmingham. Smith graduated with his M.D. in 1997 and was fortunate enough to have the National Library of Medicine continue to support him as he transitioned into graduate school and into his pathology residency at Ohio State University.

At Ohio State, Smith earned his M.S. in Computer and Information Sciences in 1980 and his Ph.D. in Computer and Information Sciences in the area of artificial intelligence in 1986. At Ohio State, Smith's advisors were both medical and computer scientists with an interest in applying artificial intelligence in educational and clinical settings. Smith's advisors aided in his interest in artificial intelligence and guided him to pursue his Ph.D. in the field.



Dr. Jack Smith at UTHealth graduation

Smith was recruited from Ohio State University to become the first Chairman of the Department of Health Informatics at the University of Texas School of Allied Health at Houston. In January 2003, Smith became the Interim Dean, and just two years later he was appointed to Dean of SBMI at UTHealth, formerly known as the School of Health Information Sciences (SHIS). SBMI is the first and only of its kind in the United States.

Smith is a former team leader of medical informatics and healthcare systems at NASA's Lyndon B. Johnson Space Center in Houston, Texas. His work focused on creating a

risk assessment model to be used in the design and implementation of healthcare systems to support extended human exploration missions to the Moon and Mars. He also focused on the collection, storage, retrieval, analysis and transmission of medical information related to NASA spaceflight. Smith was appointed Director of the Bioinformatics component of the Clinical and Translational Science Award (CTSA) grant awarded to The University of Texas Health Science Center in 2006. He joined a large team of medical professionals who established the Center for Clinical and Translational Sciences in partnership with UTHealth, MD Anderson Cancer Center, and the Memorial Hermann Hospital System.

As Dean of SBMI, Smith's main goal is setting strategic direction and goals for the school while creating a supportive environment for students and faculty to succeed. He is the spokesperson for the school and his contacts range nationally to internationally. Smith is continuously interacting within UTHealth, the Texas Medical Center and the Houston community. An extremely important part of his job is being involved with development and fundraising activities and interacting with the government and private agencies that fund research. The school recently received two large grants totaling more than \$30 million. The first award was a \$15 million stimulus grant to establish the National Center for Cognitive Informatics and Decision Making in Healthcare (NCCD) at UTHealth. The school was one of only four in the nation awarded money through the Strategic Health IT Advanced Research Projects (SHARP). Others included Harvard University, the Mayo Clinic and the University of Illinois Urbana-Champaign. The second award was for \$15.3 million to establish a Health Information Technology Regional Extension Centers (REC). RECs help support and accelerate the meaningful use of electronic health records by providers, and the Gulf Coast Regional Extension Center (GCREC) is working to support primary care providers in the southern half of Texas.

Smith believes an important part of UTHealth's mission is to facilitate the creation of sustainable businesses and products from its intellectual property. In 2010, resources were given to SBMI to advance its entrepreneurship efforts and create a professorship in Entrepreneurial Biomedical Informatics and Bioengineering. The school's entrepreneurial endeavors will enhance faculty and student recruitment

and retention, and increase revenues through collaborative grants and commercialization activities in which the school and health science center are stakeholders.

Besides being the Dean of the first and only school of its kind in the country, Smith has his own research interests. Since his Ohio State days, Smith has had an interest in artificial intelligence, and is also interested in modeling complex problem-solving in healthcare, implementation of decision support and tutoring systems, modeling complex human problem-solving and the application of cognitive science to understanding human-computer interaction. Faculty and students in SBMI explore these research areas along with the relationships between brain function

and structure, improving biosecurity, understanding human-computer interaction, inventing new nanotechnology and changing space medicine. The school is innovative in the use of educational research and technology, revolutionizing how online educational and learning environments are designed and implemented for both biomedical scientists and healthcare professionals.



Dr. Smith (right) with Texas State Senator Florence Shapiro

What's your story? Gotten married? Added a new member to the family? Landed your dream job? If so, we'd love to share your good news in future issues. Visit www.phys.vt.edu for contact information, or use the form below. Mail your completed form to: Department of Physics at Virginia Tech, 123 Robeson Hall, Blacksburg, VA 24061.

NAME: _____
CLASS: _____
E-MAIL ADDRESS OR PHONE NUMBER: _____
YOUR GOOD NEWS: _____

John Hoffman (class of '11) awarded Robert Bowden Essay Prize



Bowden (left) with Hoffman

John Hoffman, a senior from Carrboro, North Carolina, was awarded the 2010 Robert Lee Bowden, Jr. Essay Prize.

The Bowden Essay Prize was established in 2008 to reward excellence in science writing. Today, good writing skills are becoming ever more critical, as most career paths require communication with non-technical audiences.

Below is an excerpt from Hoffman's winning essay:

The Teachers of Creativity

Any physicist or mathematician will tell you that their field, despite the otherwise "popular" opinion is one of the most imaginative and creative of all fields, science or otherwise. Sit through a couple of quantum mechanics lectures and the imagination part is not so hard to believe! As physicists, we talk about the world in a different language, just as great writers and poets talk about the world in English, Russian, or French. Works in both fields are sometimes subtle, elegant, simple, beautiful... and sometimes not, and isn't it interesting that great works of physics are described with much the same language as great works of literature? Consider a quote from the writer Andre Gide (or was it Einstein?) "Only those things are beautiful which are inspired by madness and written by reason," or rather the quote from Einstein (or was it Andre Gide?) "The most beautiful thing we can experience is the mysterious. It is the source of all true art and all science."

Allow me to draw another analogy: Victor Wooten, a famous musician, thinks of music as a language. For him, notes, rests, beats, and rhythms form the letters, words, prepositions of the musical "sentences" he speaks when he plays. He is an amazing soloist and improviser and when people ask him what he thinks when he solos he responds "when you asked [your] question were you thinking nouns, pronouns? Did you count the syllables? How many conjunctions did you use?" This causes the questioner to pause: it is not the answer he was expecting. Victor continues, "It's because your 'vocabulary' is big enough that you have a lot to choose from." Physics, in this sense, is no different from music.

Just as when Victor "plays what he feels," physicists write down what their intuition tells them. A musician's bad note is a physicist's sign error; resting too long is the

same as being off by a factor of two. Classical physics is like classical music while quantum, chaos, complexity, relativity, and particle same as being off by a factor of two. Classical physics is like classical music while quantum, chaos, complexity, physics make up our jazz, rock 'n' roll, and hip--hop. Gauss is our Mozart; Feynman is our Eddie Van Halen (I guess that would make "What the Bleep Do We Know" kind of like the time Paris Hilton tried to release an album). A physicist spends his or her entire life building a mathematical vocabulary large enough to describe the phenomena encountered in nature. When learning general relativity, one must learn to "speak" or "improvise" tensors without too much thought. When struggling through electricity and magnetism, it is most likely because a student is not "fluent" in vector calculus. So why, with all of these parallels to the "typical" creative fields does the wealth of beauty and imagination contained in physics so often give the impression of pure rote?

The answer lies in a language barrier. In a kindergarten classroom somewhere, a future physicist is learning $2+3=5$. In first grade she will learn $2+3=3+2$. Skip ahead ten years. If she's a fast learner, she is becoming comfortable with the unit circle, radians, maybe limits. As she graduates high school and begins college she is only beginning to be able to form the mathematical sentences to describe the most basic physical phenomena. By the time she graduates college she will be conversational in certain areas of the physical world, but hardly fluent. It has taken twelve years to build up the "language" to quantitatively discuss where a ball fired out of a cannon will land, and sixteen to truly discuss how that ball might behave if put into orbit around the earth. For comparison, Rosetta Stone software promises to have you conversing in French in six months. In that sense, teaching physics to high school students and undergraduates is roughly equivalent to teaching Shake-

speare to a tourist who knows how to ask, “where is the restroom?”

It is however at this point that excellent teaching is most critical. Not only is one teaching that $F=ma$, the teacher is showing the students the depth and power that Newton’s second law possesses as well as the excitement that lies ahead for them. Physics is not only a tool to solve problems, but a rich, powerful, and fundamental description of nature that no matter how hard one might try cannot be escaped. Without conveying these ideas in freshman physics, the subject is inevitably reduced to rote; it becomes an exercise in flipping to example problems of a similar nature or searching Wikipedia for another

person’s solution to the problem. At this level it is the responsibility of the teacher to show the student that only one percent of physics is walking away with a solution, the rest is the struggle to find the answer, approaching the problem in ways you have not yet, and the thrill of seeing a solution start to develop. It is at the most basic level that physics needs to be taught as an exciting exercise in creativity and imagination. An instructor need not only break the math barrier, but also the barrier between others and our way of thinking.

Want to read more? Go to <http://www.phys.vt.edu/awards/essays/bowden2010.pdf>



Ray Tipsword

In memoriam

It is with great sadness to that we report the loss of two remarkable members of the Physics family this year.

On December 4, 2009, **Dr. Ray F. Tipsword** passed away. Ray joined the department as an assistant professor in 1964 and served for 27 years. During his tenure, he was a very dedicated and popular teacher, earning the Certificate for Excellence in Teaching three years in a row. In 1986, Dr. Tipsword received the William E. Wine Award, having been nominated by students, alumni, and faculty in the College of Arts and Sciences. He served as acting department chair from 1979-80. On the eve of his retirement in 1991, Dr. Tipsword’s family established a graduate scholarship to honor his commitment to physics.



Dick Arndt

Dr. Richard (Dick) Arndt passed away on April 10, 2010 after a long battle with carcinoid syndrome. Dr. Arndt taught full-time in the department from 1967 until 1997. He received his Ph.D. from the University of California at Berkeley. In 1990, Dick received the Alumni Award for Excellence in Research. He donated the money he received for his award to the Theodore E. Leinhardt Scholarship, in honor of the late Prof. Ted Leinhardt.



Quanta 2010

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The Physics Department Annual Fund



Under the header “The Campaign for Virginia Tech: Invent the Future”, the university has launched its next fund raising campaign. At the same time, the Department of Physics is seeking strongly enhanced national and international recognition for its research and educational programs. With excellence in nanoscience, complex systems, and neutrino physics, the department is already targeting areas of nationally recognized importance. By strengthening these efforts and expanding them towards biological and medical problems on the one hand, and astrophysics and cosmology on the other hand, we will position the department at the leading edge of scientific discovery for many years into the future. We will continue to set high standards of excellence in undergraduate and graduate education, focused on fundamental principles and emerging frontiers.

Your support will be critical for our success. When you receive your College of Science Annual Fund letter or phone call, please earmark your support for the Physics Department. Simply make a notation on the gift card or let the caller know that you want to direct your donation to the Physics Department. You can also visit our website, <http://www.phys.vt.edu/giving> or give us a call at (540) 231-7472. We thank you in advance for your support.

Physics in Your Neighborhood!

Alumni Reunion – March 22, 2011 – Dallas, Texas (restaurant TBD)

For more information, go to <http://www.phys.vt.edu/events.html>