

# Physics



## Old Dominion UNIVERSITY

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### Welcome from the Chair



The summer was a productive one for our faculty and students, who traveled extensively to report new results from their research and collaborate with their peers throughout the world. The new academic year is now well underway and we look forward to many more great things. We are happy to welcome lots of new faces to the department this fall, including Jozef Dudek, an assistant professor specializing in Lattice QCD calculations. We also have seven

new graduate students and a new member of the staff, Daniel Turbin. The Department continues to grow and change – please visit when you get a chance and see for yourself.

Gail Dodge

### Special Event Invitation

Please join us for a reception to unveil the portrait of Cliff Adams, the founder and first chair of the Department of Physics and founder of the ODU Research Foundation. The reception will be held Tuesday, November 14 at 6 pm in the first floor atrium of the OCNPS building at 4600 Elkhorn Avenue. All alumni and friends are welcome!

Please RSVP by November 7.

e-mail: [avialet@odu.edu](mailto:avialet@odu.edu) or call (757)683-3468

### About this Newsletter

This newsletter will be published three times per year. Its purpose is to establish and maintain a line of communication with our alumni and friends. Lots of great things are happening in physics at ODU and we want to help make you a part of them. We would also like to hear from you. In each issue we will feature an alumnus and we invite you to submit your name for inclusion.

### News/ What's Happening

Construction projects are underway everywhere on campus. In the vicinity of the OCNPS building there are several projects in addition to the start of our new addition (the pilings are in and the building should start in January or February).



On the left is a picture

of the new residence halls right across the street. They will soon be completed as the campus becomes more residential and pedestrian in nature. The first of these is scheduled to open in October. At right is the newly opened Computer Science building located just outside our north entrance. In addition an orchid greenhouse is under construction across from the pond in front of the OCNPS building.



### New Staff Member



Welcome to Daniel Turbin, our newest staff member. Daniel comes to us via the vocational technical education program where he studied both electronics and machining. He will be helping Bob Evans with set-up and repair of undergraduate labs and also assisting with routine shop duties.

## Alumnus in the Spotlight Drs. Dorin and Luminita Todor

This second issue of our newsletter features two physics alumni Dorin and Luminita Todor, husband and wife, who graduated together in December 2000. They are a fitting representation of the international flavor of the department as well as a testament to the success of our international students.

Luminita arrived at Old Dominion University in January, 1995 in time to begin the Spring semester. She had grown up with a love of physics and had won first prize in the Physics National Olympics in Romania, but opportunities were bleak, especially for women, so she came with the hope that her husband and children could soon follow. Six months later Dorin was also accepted into the physics Ph.D. program and arrived with the couple's two children, eight year old Horia and seven year old Alina. For the next five years they lived the difficult graduate student life most of our readers know so well while adjusting to an entirely new life and culture along with raising their children.

Luminita specialized in experimental nuclear physics under the mentorship of Professor Charles Hyde-Wright and Dorin in radiation/health physics with Professor Gary Copeland. After graduation Dorin did his post-doc work at Sloan Kettering and Luminita went to Carnegie-Mellon to continue her research in nuclear physics.

Presently Luminita is a second year student with George Mason University, School of Law, working on her J.D. degree specializing in Intellectual Property. She also works for Staas and Halsey, LLP, a law firm in Washington, DC. She is registered to practice before the U.S. Patent and Trademark Office and has experience in patent prosecution for mechanical devices, electronics and wireless communications. She is a member of the American Intellectual Property Law Association (AIPLA), the American Bar Association (ABA) and the American Physical Society (APS).

Dorin is a medical physicist at Virginia Commonwealth University, the Medical College of Virginia Hospitals and Physicians, in the Department of Radiation Oncology. His tasks are largely clinical but he also does research and teaching. As chief of the Brachytherapy service, he is involved with the planning and delivery of radiation treatments for prostate and breast cancer patients, as well as research and development of new treatment modalities. At the American Brachytherapy Society meeting this year, a symposium was organized on "Real Time High Dose Rate Prostate Brachytherapy" where he was one of the two distinguished presenters.

Both children, Horia and Alina, graduated from Maggie L. Walker Governor's School for Government and International Studies in Richmond. Horia attends the University of Virginia where he was admitted as an Echols Scholar, and Alina enrolled at the College of William and Mary as a Monroe Scholar.

Their continued success is an example of what can be accomplished when talented people are given an opportunity to study in the United States. The Commonwealth of Virginia, and the nation, has benefited, and will continue to benefit, by giving such deserving people a chance. We are very proud of their accomplishments.

## Featured Faculty Dr. Jozef Dudek

The newest addition to our faculty is Dr. Jozef (Jo) Dudek. Jo comes to ODU from Jefferson Lab where he



Dr. Jo Dudek

was a Postdoctoral Research Fellow at the Theory Center. His research focuses on the fundamental interaction between quarks and gluons, and the possibility of exotic states of matter such as pentaquarks (four quarks and one anti-

quark) or hybrid mesons (a quark, anti-quark pair with one or more gluons). The search for exotic mesons is one of the main scientific goals for the proposed \$300 million energy upgrade to the Jefferson Lab accelerator. The GlueX experiment, to be located in the future experimental Hall D, will use a 9 GeV photon beam to look for excited states of the "glue" that binds two quarks together.

Jo uses a variety of techniques in his work, including phenomenological models of the interaction between two quarks (flux-tube models) and Lattice QCD calculations, in which one attempts fundamental simulations using powerful supercomputers. He is also preparing tools (partial wave analysis) with which to analyze the torrents of data that are expected from the GlueX experiment. Jo enjoys working closely with experimentalists, and such a collaboration will be crucial to the success of the GlueX experiment and future discoveries in hadronic physics.

Jo received his D.Phil from the University of Oxford, where he was offered a Royal Commission for the Exhibition of 1851 Research Fellowship in 2004. Jo has a joint appointment with ODU and Jefferson Lab and will continue his research there alongside the theory group as he assumes his academic duties at ODU. Currently he is teaching Introductory General Physics.



Dorin, Luminita, Alina & Horia Todor

## Course Attraction Physics 231N

University Physics (Physics 231 and 232) is the calculus-based introductory course taken by engineers, chemists and physics majors. Teaching these courses is difficult because of the wide range of student interests and backgrounds, not to mention the fact that some of these students do not want to study physics.

Professor Desmond C. Cook has enjoyed teaching these courses for many years and, judging by the student evaluations, has managed to please the students while maintaining high standards. He was recently designated as a University Professor, the first in the Physics Department to be so honored. Prof. Cook is leading a discussion among the faculty about whether to change these courses and, if so, how?



**Professor Des Cook**

Should we cover less material? Offer a separate course for physics majors? Hopefully next year will bring some answers as we try to find the best way to meet the educational needs of all the students.

## International Travel

Summer is a time for travel, and our faculty has represented our department and the University all over the globe, giving talks and collaborating with their colleagues abroad.

- Gil Hoy spent one month working with the Gamma Optics group at the Catholic University in Leuven, Belgium.
- Charles Hyde-Wright presented his research at the Second Workshop on the QCD Structure of the Nucleon in Rome.
- Toza Popovic attended the 6<sup>th</sup> International Conference of the Balkan Physical Union in Istanbul, Turkey, where he presented his work. He also spoke at the 23<sup>rd</sup> Summer School and International Symposium on the Physics of Ionized Gases in Kopaonik, Serbia.
- Rocco Schiavilla spent the Summer at the University of Pisa in Italy.
- Lepsha Vuskovic reported on her research at the 10<sup>th</sup> European Particle Accelerator Conference in Edinburgh, Scotland.
- Larry Weinstein and Sebastian Kuhn gave talks at the Conference on the Intersection of Particle and Nuclear Physics in Puerto Rico.
- Colm Whelan traveled to the Institutes of Nuclear Physics in Debrecen, Hungary and at the University of Frankfurt to give talks. He also visited the University of Palermo, Italy and Queens University in Belfast, Ireland, where he is an International Fellow.

## Student News-Activities

This Fall we have seven new graduate students in the Ph.D. program representing five foreign countries plus the United States. A warm welcome to Subashini De Silva (Sri Lanka), William Ford (USA), Tao Li (PRC), Michael Mayer (USA), Ana Samolov (Serbia), Janardan Upadhyay (India) and Aye Lu Win (Burma). We also welcome Doaa Teama (Egypt) who began in the Spring. In the current graduate population of the department fifteen foreign countries are represented – the most diverse of any department at ODU!



**Physics Graduate Student Association**

There are two organizations that provide direct support to students in physics—The Society of Physics Students (SPS), chartered by the national organization, and the Physics Graduate Student Association (PGSA). Both are off to a great start this year!

SPS has elected the following officers: President, Peter Bradshaw; Vice President, Brian Wieland; Treasurer, Kevin Brannick; Secretary, Jim McGhee. The academic advisor is Dr. Charles Hyde-Wright. One of the major activities for the year, the annual Pumpkin Drop is scheduled to be held on October 31st. For more information on SPS see: <http://www.physics.odu.edu/~sps/SPS.htm>

PGSA officers are: Chair, Mike Shaffer; Co-Chair, Kurnia Foe; Secretary, Jan Drake; Social/Community Coordinator, Sharon Careccia; SGA Rep, Serkan Golge; Treasurer, Jason Martinez; Web Master, Jixie Zhang. The academic advisor is Dr. Larry Weinstein. For more information on PGSA and its activities see: <http://www.physics.odu.edu/~zhang/PGSA/>

Our most recent graduate, Dr. Minarni (Mimi) Shid-diq has been appointed as a postdoctoral research associate at Yale University. Mimi will be joining a team of researchers who are searching for evidence of a new light, weakly interacting elementary particle known as an "axion." The search will be conducted at the free electron laser at Jefferson Laboratory, where laser light will be sent through a very strong magnetic field in vacuum. Researchers will then look for the production of an axion-like particle, which has been predicted to exist by particle theorists.