

August 1920, 2010

Dear Physics Alumnae and Alumni,

The Physics faculty and staff would like to invite you to our **Homecoming reception on Saturday, October 9**. We would love to have a chance to see you again. The homecoming reception will be in the foyer of Olin Physical Laboratory, and will be held three hours before the homecoming football game against Navy. The time is still uncertain because game time will not be set until a week or so before the game; dictated by TV scheduling. As soon as we know, we will post the time on our web page at <http://www.wfu.edu/physics>. If you do not have web access, let me know and I will be happy to give you a call when the time is set.

Let me update you on what has happened in the Physics Department since I last wrote to you. We have had two significant personnel changes and two faculty members who have been promoted. Various awards have been won by faculty members, graduate students, and undergraduate students. And a few other things of note have occurred. I'll begin with our personnel changes.

We have hired Sam Cho to a position previously vacated by Jacquelyn Fetrow who became Dean of the College on January 1 of 2009. Sam's research is in the general area of computational biophysics. His specific interests are protein and RNA folding, biomolecular assembly, molecular machines, and Graphics Processing Unit (GPU) based programming. Sam received his Ph.D. from the University of California, San Diego in 2007. Since then, he performed post-doctoral research at the University of Maryland, College Park, where he was awarded ~~the~~ an NIH (NRSA) Post-doctoral Fellowship.

We have also hired Jack Dostal as a lecturer. This is a new position which has been approved by the University to cover the teaching for faculty members who are on sabbatical. Jack obtained his MS in Physics from Iowa State University in Physics education research, and he earned his Ph.D. in the field of Physics Education from Montana State University in May 2009???. He was an Adjunct Assistant Professor at ~~visiting professor at~~ the University of Montana from ???-2008 to 2010.

Oana Jurchescu received the Ralph E. Powe Junior Faculty Enhancement Award from the Oak Ridge Associated Universities. This award program is prestigious and highly competitive. Young faculty in a wide variety of fields from over 120 member universities located across the USA are eligible to apply. Oana's research project is to study the structure and physical properties of organic semiconductors. The goal is to obtain a better understanding and control of the physical processes that govern charge transport in organic field effect transistors (OFETs), which are the basic building blocks of organic (plastic) electronics applications.

Brandon Turner, was awarded an American Physical Society Scholarship for Minority Undergraduate Physics Majors. Brandon is a rising junior who is engaged in research in the field of computational biophysics with Dean Jacque Fetrow. According to the APS website, the goal of this scholarship is to increase the number of under-represented minorities obtaining degrees in physics. It provides funding and mentoring to minority physics students to enhance their education and help them prepare for success in various careers.

Claire McClellan and Wesley Matthews have been named as Duke Energy Scholars by the Wake Forest University Scholarship Committee. The scholarship is awarded to undergraduate students majoring in the sciences or mathematics. The award is to recognize and encourage, in collaboration with a faculty member, development of new or evolving existing research. Claire is investigating novel organic semiconductors for plastic electronics applications, in Oana Jurchescu's group. Wesley is studying novel hydrogen-storage materials from first principles in Timo Thonhauser's research group.

Jason Bates received an award for the best student talk at the Eastern Gravity Meeting which was held at North Carolina State University in ~~Raleigh~~ Raleigh on May 21-22, 2010. Jason is a graduate student working with Paul Anderson. His talk was titled "Effects of Quantized Scalar Fields in Cosmological Spacetimes with Big Rip Singularities".

There were also several awards given by the Physics Department at our last colloquium of the academic year. Eric Carlson was the first recipient of the new **Physics Faculty Excellence in Teaching Award**, Todd L. Fallesen received the award for outstanding teaching assistant, and the **William E. Speas Memorial Award** went to graduating seniors Bradley I. Goetz and Laura J. Patton.

Daniel Kim-Shapiro's work in collaboration with Mark Gladwin at the University of Pittsburgh on the storage of blood was cited in a Wall Street Journal article. They are investigating why blood degrades as it is stored and hoping to find ways to store it for longer periods.

Last year I mentioned that a former WFU graduate student, Anthony Pecorella ('04)(MA '06), who worked with Jed Macosko was directing a brand new SimCity-like videogame called "CellCraft" which teaches Middle School students about how cells work. Anthony showed the game to various White House officials on May 12 of this year. There are currently over 500 websites that host the game. One of them is <http://www.kongregate.com/games/CellCraft/cellcraft> . In the first ten days that it was available on the internet it was played over one million times by people in over 140 countries. It was rated by gamers at kongregate.com and newgrounds.com in the top 100 games of all time (out of more than 30,000 games). Considering that these two sites are the 2nd and 5th largest gaming sites and cater to serious gamers, it's phenomenal that an educational game was rated so highly.

I also mentioned last year that Jed was partnering with high school students at Atkins Academic Technology High School in Winston-Salem, NC to produce a 3-minute, animated short that features characters based on the molecular machines that perform essential functions inside living cells. This film is now finished and was first shown publically on January 20 of this year at Wake Forest. You can watch the film and read more about it if you go to <http://www.wfu.edu/wowf/2010/20100121.cellsidestory.php> .

David Carroll's research group has come up with a new solar cell which is both significantly less expensive to make than the current commercially available solar cells and at the same time is about twice as efficient. They have received a patent from the European Patent Office. An application for one has also been submitted to the U.S. Patent Office.

Martin Guthold, in collaboration with Jed Macosko, several students, and ~~me myself~~, has invented a new technology which may dramatically cut the time it takes to develop new drugs. It is called "Lab-on-Bead NanoSelection". Martin ~~and~~, Jed, ~~and I~~ are ~~both-all~~ associated with the biotechnology company NanoMedica Inc. which will investigate ways in which the new technology can be used and commercially developed.

Last year we offered our majors and grad students two "Career Events". One was by Andrew Frey who received his B. S. degree from WFU in 1998. Andrew currently has a postdoctoral position at McGill University. The other was given by two representatives of the Navy, Lt. Gibbons and Lt. Rose. They came to talk about the Navy's educational and career opportunities within the programs for Nuclear Propulsion Officers, Nuclear Power Instructors, and Naval Reactor Engineers. If you would be willing to join our students for lunch and talk about your career, please let me know. Our students need to know the rewards and joys of all the careers our alumni have chosen. You can help them broaden their horizons.

Our tradition of broad involvement in undergraduate research continues. In the last 3 years, over 60 different undergraduates have engaged in research with our faculty. When you visit, if you look around the building, you will see posters and publications in our halls bearing the names of our students. You can also read about some of students and their research projects at <http://www.wfu.edu/physics/profiles/profiles.html>.

The number of students majoring in Physics has grown significantly in the last two years, and we now count 41 majors in their junior or senior years. This year we will also offer, for the first time, a Bachelor of Science in Biophysics. About a dozen of our majors have chosen this option.

I want to give special thanks to all of you who designated the Physics Endowment Fund as part of your alumni giving. This fund enables us to send students doing research to national and international conferences, and it also allows us to provide lunches at the career advising events. In addition this fund supports the annual faculty and student awards, and it is used to support student research and scholarship. This fund lets us do things for our students that we would not otherwise be able to do. Your generous contributions to the department create opportunities for our students that greatly enhance their educational experiences. This year, for the first time, we will have two Randall Ledford Scholars in the department: Zac Vance, a senior physics major from Statesville, NC, and entering first-year student Bradley Hicks, of Morganton, NC. Your generous contributions to the department create opportunities for our students that significantly enhance their educational experiences. The members of the Physics Department and the university community greatly appreciate the support of our alumni.

Please come by Olin Physical Laboratory and join the fun. We are looking forward to seeing you.

If you can't make it to Homecoming, please drop me a note or give me a call and tell me what you're up to. If this letter was forwarded to you, please let us know your current address.

Best Regards,

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