August 1, 2007

Dear Physics Alumnae and Alumni,

The Physics faculty and staff would like to invite you to our **Homecoming reception on Saturday, September 15**. We would love a chance to see you again. You are also invited to our annual **homecoming seminar on Friday afternoon at 4:00** in Olin 101. The speaker will be Professor Edward Brown from the University of Rochester. Professor Brown got his B.S. degree at W.F.U. in 1992.

The homecoming reception will be in the foyer of Olin Physical Laboratory, and will be held three hours before the homecoming football game against Army. The time is still uncertain because game time will not be set until around Monday of that week, dictated by TV scheduling. Rather than picking a time that might conflict with the game (or sleeping in), we decided to just make our schedule contingent upon the football schedule. 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 give you a few updates on things happening in the Department. Daniel Kim-Shapiro has received a prestigious MERIT award from the National Institutes of Health (NIH). Most NIH investigators have to compete for external funding every 4 to 5 years. Each of these times only a small percentage of these investigators competes successfully and wins competitive renewal of the grant or a new grant (currently less than 20%). The NIH has a special mechanism to allow select investigators to continue their research for longer periods, up to ten years, without having to compete for renewal. The award is called a MERIT award: method to extend research in time. This provides these investigators with stable funding and relieves them of associated difficulties in having to spend so much time in writing grants. One cannot apply for these awards, one becomes eligible when (1) they have had ten years of continuous funding, (2) their last two grant applications scored in the top 5th percentile, and (3) they have shown themselves to be outstanding investigators. They can then be internally nominated at the NIH and selected for the award. Only 5% of NIH investigators (already a select group) ever get a MERIT award during their research careers. Professor Kim-Shapior's MERIT award is to continue his work studying the effects of Nitric Oxide in Sickle Cell disease. The award is for about $325,000 per year for up to 10 years.

Wake Forest University's Center for Nanotechnology and Molecular Materials, which is headed by David Carroll, announced this past year the spinoff of two companies based on technologies developed at the center. FiberCell Inc. is the sole international licensee of a novel new solar cell technology which is already breaking records in performance for organic photovoltaics. This technology has recently been featured in Scientific American, Physics World, Laser Focus World and many others. PlexiLight Inc. utilizes a new approach to the creation of white light for illumination. The technology is anticipated to be a low cost to high efficiency commercial lighting. You can read more in the following article in *Window on Wake Forest*: http://www.wfu.edu/news/release/2007.07.20.n.php. This year the Center also announced an expansion of its facilities to include new offices, a lecture hall, and enhanced microscopy facilities. Now occupying the whole Deacon Bvld. building, the Center also maintains labs on the Bowman Gray Campus, as well as the Reynolda campus. The Center will welcome five visiting scientists this year from Ireland, Thailand, and Turkey. The Center has 14 affiliated members on both Reynolda and Medical Campuses. More information non Center activities can be seen at the website: www.wfu.edu/nanotech or in its newsletter http://www.wfu.edu/nanotech/news.html.

Richard Williams organized the 9th International Conference on Inorganic Scintillators and their Applications which was held from June 4-8, 2007 on the campus of Wake Forest University. Scintillators are important for applications ranging from airport security to medical imaging to oil exploration, and for large international experiments in high-energy particle physics and astrophysics. A scintillator converts high-energy radiation to pulses of light that can convey both the location and energy of the intercepted ray. Topics of interest at the meeting range from fundamental processes of radiation interaction and light emission to crystal growth, defects, material engineering, quality inspection, and applications. Beginning in 1992, the SCINT conferences have been held in Chamonix, San Francisco, Delft, Shanghai, Moscow, Chamonix, Valencia, and last in the Crimean city of Alushta.

Physics major Patrick Nelli was one of 317 undergraduate students throughout the United States to be awarded a scholarship by the Barry M. Goldwater Scholarship and Excellence in Education Foundation. The monetary award will cover a significant part of Patrick's tuition and other expenses for his Junior and Senior years at Wake Forest. Patrick has been working with Professor Martin Guthold and plans a career in biophysics/biomedical research. In addition to Patrick, two other Wake Forest students who are not physics majors were honored by the Goldwater Foundation this year -- Junior Christopher Jackson also received a scholarship and Sophomore Anna Fedders received an honorable mention.

Martin Guthold was promoted to associate professor on July 1. In 2006 Martin was one of the leading authors on a paper published in the journal Science titled Fibrin Fibers Have Extraordinary Extensibility and Elasticity. Martin says that "For all naturally occurring fibers, fibrin fibers are the ones you can stretch the furthest before they break.

This was a stunning revelation because people hypothesized that these fibers stretched but broke much easier. In some cases, fibrin fibers had the ability to be stretched more than six times their length before they broke." This discovery, which makes these fibrin fibers the most stretchable known fibers existing in nature, will help medical researchers create more accurate blood clot models, provide new insights into the wound healing process and offer a deeper understanding of heart attacks and strokes.

Rick Matthews has been promoted to the position of Associate Provost. The position is to last for three years. Rick will be helping with the strategic planning process that is going on throughout the entire university. He will also be involved with various other issues including tenure and promotion. As a result of Rick's promotion I have been appointed as chair of the Physics Department.

On the educational front, we have been continuing our project to shoot videos on topics in introductory physics. These videos let us free up more class time for discussion and problem solving. The students so far seem to love them: "It is like bringing the class home with you." We are using interesting technology to stream both video and a synchronized PowerPoint presentation over the web at modest bandwidths. When we settle issues regarding rights to the images used in the presentations, we'll invite you to view these.

Ultimately we want to put these on the public web as a service to students everywhere and especially to high school teachers and students. These will complement the popular videos of classroom demonstrations that we have had online for a few years. These demo videos, along with an extraordinary set of resources for physics educational laboratory managers, has made our department's web site the most active at Wake Forest.

We are continuing to offer our majors and grad students a series of "Career Events". This resulted in part from the results of the alumni survey we sent out a few years ago. We supply pizza, our alumni provide the advice, and our students provide the questions. These have been a great success. 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. I love showing visitors the numerous posters and publications in our halls bearing the names of undergraduates.

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 conferences and allows us to provide lunches at the career advising events. 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.

I have many more stories to tell you, but I should save a few for homecoming weekend. Please come by Olin Physical Laboratory and join the fun. We miss you!

If you can't make it, 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.

One final note: many of you heard of Bill Kerr's struggle with the cancer that spread from his colon to his liver and later to his lungs. Bill completed his last chemotherapy series in the winter and his scans are consistently showing him to be cancer-free. He has announced his retirement at the end of the 2007-2008 academic year. We are very grateful to Bill for the excellent teaching, advising, and research that he has done during his many years at Wake Forest.

Best regards,

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