In 2011, the world celebrated the 50th anniversary of the first manned space flight, performed by Russian cosmonaut Uri Gagarin. To celebrate this remarkable date, a NASA delegation--Professors A. Ignatiev and A. Freundlich (Univ. of Houston) Mrs. S. Tabarovsky, Organizing Committee member (Houston) and Professor Samson Mil'shtein (UMass Lowell)—traveled to the first Eco-center established in the Kaluga district to visit the new Gagarin monument and to set a corner stone for a monument honoring the first man on the moon, American astronaut Neil Armstrong, whom Russians hold in very high regard.

Prof. Mil’shtein was invited to talk about principles of design of high efficiency solar cells at the “Second International NASA Symposium on Nanotechnology and Energy in Space”. The Symposium was held at Chernogolovka Research Center of Russian Academy of Science, near Moscow, on August 1 – 6, 2011.

The first high efficiency solar cell, described at the Symposium, was designed by UMass ECE students in the Advanced Electronic Technology Center and is already produced by students of Houston University. The cooperation between these two groups will continue in fabrication of the second solar cell designed at UMass.

Attendees of the Symposium were invited to visit the Star City, the Space Research Center of Russian Academy of Science, where they had the opportunity to watch the preparation of a Russian cosmonaut for an upcoming space flight and the pleasure of meeting Russian cosmonaut Sergei Krikalev, the only one of the world’s 523 cosmonauts to have participated in six different space flights. Russian engineers and space scientists openly expressed regrets about ending of the American shuttle program, which was the platform for very successful cooperation between the two countries.

Later, in December 2011, Prof. Mil’shtein also attended the opening of the Uri Gagarin monument at the NASA center in Houston.
ECE Department Hosts Indian Delegation, Establishes VLSI Certificate

On November 23rd, an Indian delegation (Dr. Vishwas Deshpande (principal) and Dr. Rajesh Pande) from Babaramdev College of Engineering, Kamla Nehru Institute at Nagpur, India visited the ECE Department for collaboration with UMass Lowell. The primary purpose of the visit was to initiate a VLSI certificate program. The VLSI labs, including the design lab and the fabrication lab (Distributed Semiconductor Instructional Processing Laboratory, along with Microwave Laboratory) were shown to the delegation by Professor Kanti Prasad, along with Professor Tenneti Rao.

Professor Prasad hosted a luncheon in honor of the delegation in the Trustee’s Room, and a Memorandum of Understanding (MoU) was signed by Dr. Donald Pierson on behalf of the University and by Professor Kanti Prasad as Director of VLSI program, along with the delegates, Dr. Vishwas Deshpande and Dr. Rajesh Pande. The Luncheon was attended by Catherine Kendrick and Joanne Talty from Continuing Education; Vice Provosts Dr. Donald Pierson, Dr. Charlotte Mandel, and Dr. Julie Chan; Dr. John Ting, the Dean of Engineering; Dr. Martin Margala, ECE Department Chair; and Professors Dr. Aldo Crugnola, Dr. Tenneti Rao, Dr. Jayant Kumar, along with our industrial partners Robert Meisenhelder (Director, University Gifts and Grants, Analog Devices), and Ian Humphrey (Goodrich Corporation).

In order to ensure that the MoU results in useful endeavors, Professor Prasad is reciprocating the visit to Nagpur in order to pursue the certificate program, which will be held during the summer at UML through Continuing Education. The delegation spoke very highly of our University, and they certainly plan to make use of our expertise in this global high-tech environment.

Prof. Joel Therrien receives $275k grant from NSF for studying toxicity of nanomaterials using biosensors

Professor Joel Therrien, along with co-PI's Prof Braunhut, Prof Marx, and Prof Willis from biology, chemistry, and mechanical engineering respectively, received a one year grant of $275,000 from the National Science Foundation for studying the toxicity of nanomaterials. The work will make use of a biosensor based on living human cells attached to a piezoelectric transducer to determine the toxicity of various nanomaterials. The sensor functions by exploiting the changes in mechanical qualities of living cells when they undergo changes due to exposure to toxic materials. These mechanical changes change the frequency that the piezoelectric element oscillates at. The major advantage of this sensor is that there is no need to know the mechanism of toxicity that any single material exhibits in advance; the cells "know" what is toxic intrinsically. This project will expand on their previous work that showed the toxicity of carbon nanotubes [Wang G, Dewilde AH, Zhang J, Pal A, Vashist M, Bello D, Marx KA, Braunhut SJ, Therrien JM, A living cell quartz crystal microbalance biosensor for continuous monitoring of cytotoxic responses of macrophages to single-walled carbon nanotubes. Part Fibre Toxicol. 2011 Jan 25;8:4]
Prof. Samson Mil’shtein Publishes Papers, Book Chapter

Professor Mil’shtein and his research group generated the following recent publications:


ECE Students Attend Homeland Security Conference

Doctoral student Anup Pillai and undergraduate student Charles McPherson attended the 2011 IEEE Homeland Security Conference held at Westin Hotel, Waltham, MA. They were demonstrating a contactless handheld fingerprinting system as well as a network protocol secured by using biometrics. The IEEE Conference on Technologies for Homeland Security (IEEE HST) is the leading international conference addressing the challenges of homeland security technology innovation gaps. Since conception, this annual conference has gained prominence and recognition for bringing together science and technology leaders from around the world.

The demonstration was attended by a large crowd of conference participants. The leading technology experts did positively comment on the novel work being done by students at the Advanced Electronic Technology Center, UML ECE Dept.

Shown at left: Anup Pillai presenting the poster (top picture); Charles McPherson setting up the demonstration (bottom picture)