News Stories

Louis Mansky Leads Team that Discovers Possible Approach to Stopping a Highly Infectious Virus

Building upon long-term research efforts, a team led by IEM Member Dr. Louis M. Mansky, Professor in the Departments of Diagnostic and Biological Sciences, and Microbiology and Immunology, and Director of the Institute for Molecular Virology, has made a discovery that could help to prevent the spreading of a very infectious virus, human T-cell leukemia virus type 1 (HTLV-1), that disproportionately affects people in remote areas of Central Australia. The research, which has been published in the *Journal of Virology*, shows how a mutation the research team created in a structural protein affects the production and infection ability of the virus. “Further research is needed to understand the molecular nature of how HTLV-1 virus particles are produced from infected host cells,” says Dr. Mansky. “In doing so, we will be able to better apply this knowledge toward creating strategies to prevent HTLV-1’s spread.”

Michael McAlpine Demonstrates 3D-Printing of Electronics Onto Skin

Dr. Michael C. McAlpine, Benjamin Mayhugh Associate Professor of Mechanical Engineering and IEM Member, has demonstrated the first successful 3D printing of electronics onto skin. The printing is made possible by a continuous tracking process that accounts for small movements of the person on whom the electronics are printed and a curing process that occurs at room temperature. When they are no longer needed, the electronics can be easily peeled off by tweezers or washed off with water. “We imagine that a soldier could pull this printer out of a backpack and print a chemical sensor or other electronics they need, directly on the skin,” says Dr. McAlpine. “It would be like a ‘Swiss Army knife’ of the future with everything they need all in one portable 3D printing tool.” The research, “3D Printed Functional and Biological Materials on Moving Freeform Surfaces,” was published in the journal *Advanced Materials*.
Jian-Ping Wang Profiled for Spintronics Approach to Parkinson’s Disease

IEM Member Dr. Jian-Ping Wang, Distinguished McKnight Professor and Robert F Hartman Chair of Electrical and Computer Engineering, was profiled in the University of Minnesota publication Legacy for his work on the application of spintronics to Parkinson’s disease. Spintronics takes advantage of the additional functionality made possible by using multiple features of electrons, as they spin, instead of just the single function of an electron charge, itself. Dr. Wang says that the additional functionality can lead to potentially revolutionary functionalities in Deep Brain Stimulation (DBS). “The traditional approach, which electrically stimulates the brain’s neural cells, requires direct contact with brain tissue, which isn’t always good for the patient,” says Dr. Wang. “Using spintronics for deep magnetic brain stimulations would eliminate that contact, with higher density, lower power, and better control.”

A New Spin on Parkinson’s Disease

Earl E. Bakken Medical Devices Center Celebrates its 10th Anniversary & Graduates its 10th Class of Innovation Fellows

The IEM-affiliated Earl E. Bakken Medical Devices Center (MDC) is celebrating its first decade of serving as the global-standard of an academically based medical device maker space for students, faculty, clinicians and industry. It began as a vision and then brought to fruition by its Director, Dr. Arthur G. Erdman, Professor of Mechanical Engineering, and Co-Chair of the IEM Medical Devices theme. A key aspect of the MDC has been its Innovation Fellows program, which celebrated the graduation of its 10th class on May 17th. This year’s graduates are among 61 Fellows trained by the program, who have identified thousands of unmet clinical needs, generated hundreds of invention disclosures and numerous patents, and established multiple start-up companies. This 10th year of the MDC has been highlighted by its key assistance in the life-saving surgery of conjoined twins, and the honor of being named for the medical device industry’s father, Earl E. Bakken. Earl E. Bakken Medical Devices Center | MDC Innovation Fellows Program

Jerry Vitek Interviewed by KARE 11 for DBS Implant to Treat Essential Tremor

IEM Member Dr. Jerrold L. Vitek, Professor and Chair of the Department of Neurology, was interviewed by KARE 11 for a recent deep brain stimulation (DBS) implant on a patient with an especially severe case of Essential Tremor. The condition, which had affected the patient for 37 years, had progressed to the point at which it limited his ability to eat, drink or write his name, and was “one of the worst cases of essential tremor” that Dr. Vitek had seen. Abbott’s Infinity Deep Brain Stimulation system, which uses electrical current to block the abnormalities that cause the symptoms, was implanted into the patient, who’s tremors stopped as soon as the system was turned-on. Dr. Vitek says that the knowledge developed, through extensive research, of where to place the system’s leads, has played a big role in its effectiveness. “With all that work, the anatomy and physiology and the research that’s been done, we have been able to identify a part of the brain that causes the tremor for people.”

U. of M. Brain Implant Calms Tremors >

Announcements

Registration Open for 2018 Neural Interfaces Conference, June 25-27, Marriott Hotel City Center in Minneapolis

This conference provides a forum for presentation and discussion of state-of-the-art developments in areas that include neural stimulation, neural plasticity, functional electrical stimulation, deep brain stimulation, auditory prosthesis, visual prosthesis, cortical prosthesis, peripheral nerve interfaces, biomaterials, microelectrode array technology, brain computer/machine interfaces, and other related areas. Registration > Scientific Program | Lodging & Directions >