2015 IEM Annual Conference and Retreat

September 21, 2015
McNamara Alumni Center
Minneapolis, MN
Cost: No charge if registered in advance.

CALL FOR POSTERS
In order to secure a spot in this year’s program, we ask you to submit your intent to participate by Midnight, Monday August 31, 2015. In addition, this year IEM will print your poster free of charge if we receive a PDF of your presentation by Noon September 8, 2015.

This year’s Institute for Engineering in Medicine (IEM) Annual Conference and Retreat will take place on September 21, 2015 from 8:00 AM – 5:30 PM at the McNamara Alumni Center on the University. This event brings together IEM members, industrial partners, and University faculty across multiple disciplines of life sciences from both Academic Heath Center and College of Science & Engineering, to discuss recent advances in IEM members’ research and interdisciplinary research collaborations.

Confirmed Keynote Speakers include:

Brooks Jackson, M.D., MBA
Vice President for Health Sciences and Dean of Medical School
University of Minnesota

Ravi V. Bellamkonda, Ph.D.
Wallace H Coulter Professor & Chair
Wallace H Coulter Department of Biomedical Engineering
Georgia Institute of Technology and Emory School of Medicine
President, American Institute of Medical and Biological Engineering

William J. Heetderks, Ph.D.
Director, Extramural Science Programs
National Institute of Biomedical Imaging and Bioengineering
National Institutes of Health
POSTER SESSION TIMING & AWARDS:
The poster/networking session will be from mid-afternoon, highlighting IEM research as well as other University faculty and their lab groups. An award of $300 for 1st place, $200 for 2nd place, and $100 for 3rd place will be presented to the top student poster presentations in each of the five IEM research themes: Cardiovascular Engineering, Neuroengineering, Cellular and Molecular Bioengineering, Medical and Biological Imaging, and Medical Devices. The second category for post-doc researchers with a $300 1st, $200 2nd, and $100 3rd place will be awarded for top presentations across themes at the conference.

IEM Conference and Retreat
Registration
Poster Session Registration

NEWS

Kelvin Lim’s PTSD Research Published in JAMA
Research led by IEM Executive Committee Member Dr. Kelvin Lim was recently published in the Journal of the American Medical Association (JAMA). Dr. Lim is Professor and Vice Chair for Research in the Department of Psychiatry, and Drs. T.J. and Ella M. Arneson Land-Grant Chair in Human Behavior. The randomized clinical trial, entitled “Meditation Interventions for Treatment of PTSD in Veterans,” compared the effectiveness of Mindfulness-Based Stress Reduction, a group program that teaches participants to increase their mindfulness, “moment-to-moment, non-judgmental awareness,” versus present-centered group therapy, in which participants focus upon their current life problems. The results showed that the Mindfulness-Based Stress Reduction was more effective than present-centered group therapy and comparable to standard therapies such as prolonged exposure. The Veterans Administration supported this research as part of its efforts to address posttraumatic stress disorder (PTSD), which affects 23% of veterans returning from the wars in Iraq and Afghanistan.

Mindfulness-Based Stress Reduction for Posttraumatic Stress

Medtronic Cardiac Monitors Implanted by Paul Iaizzo Show that Drones Can Cause Stress to Bears
A recent study that used data from Medtronic Reveal cardiac monitors, shows that drones can cause stress to bears. The study, reported by the BBC and other publications and led by Dr. Mark A. Ditmer, a University of Minnesota Postdoctoral Associate, took place in northern Minnesota, and shows that the heart rates of four black bears studied jumped significantly when drones flew within 20 meters of them. The cardiac monitors were implanted by Dr. Paul A. Iaizzo, Professor of Surgery and IEM Associate Director for Education and Outreach. The data was downloaded and analyzed during visits to the bear dens by Dr. Iaizzo and Dr. Tim Laske, Vice President of Research and Business Development at Medtronic.
AF Solutions, and IEM Industrial Advisory Board Member. Members of the bear research team led by Dr. Dave Garshelis, Adjunct Professor in the Department of Fisheries, Wildlife and Conservation Biology, discussed the cardiac changes and how they were correlated with the drone flights and other stressors. Bears get “stressed” by drones

**BRAIN Initiative Event Features IEM Director**

IEM Director Dr. Bin He’s research was featured in a video at an online “Hangout On Air” event hosted on August 7th by the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative. In the video, produced by the National Science Foundation’s “Science Nation” series and narrated by PBS NewsHour science correspondent Miles O’Brien, Dr. He discusses how the noninvasive brain-computer interface works and its potential to help people with disabilities become more independent by giving them the ability to perform daily tasks on their own. The Hangout hosts also discuss the tremendous benefit of the system being noninvasive and its future promise to those who will utilize it.

**BRAIN Hangout On Air**

**MnDRIVE Initiative Helps Bring Leading Brain Researchers to the University of Minnesota**

Featured in the "Duluth News Tribune", funding from the Minnesota Legislature’s MnDRIVE initiative has helped in the recruitment of six leading brain researchers to the University of Minnesota. These researchers have joined the MnDRIVE Brain Conditions team led by IEM Member Dr. Jerrold Vitek, Professor and Chair of the Department of Neurology. Dr. Vitek’s team focuses on neuromodulation, including Deep Brain Stimulation (DBS), which is used to address conditions such as essential tremor, which affects Parkinson’s Disease patients. Two of the team’s new members are [Dr. Michael Park](#), a neurosurgeon recruited from the University of Louisville and [Dr. Scott Cooper](#), a neurologist who was recruited from the Cleveland Clinic.

**Initiative Brings Top Brain Researchers**

**National Academy of Medicine Issues Summary on the Opportunities and Challenges Associated with Neuromodulation**

The National Academy of Medicine issued a summary of a workshop held in early March 2015 entitled “Non-Invasive Neuromodulation of the Central Nervous System: Opportunities and Challenges.” The workshop was organized to address the benefits and risks, regulatory, reimbursement and ethical issues associated with noninvasive neuromodulation, as rapid advances in the field lead to new medical devices. Such devices could include therapeutic ones that would treat nervous system disorders and nontherapeutic ones for cognitive and functional enhancement. To thoroughly address these issues and opportunities, stakeholders with a variety of backgrounds were invited to take part in the two-day meeting; including clinicians, regulatory experts, healthcare providers, payers, researchers, ethicists and people who develop neuromodulation technologies and devices.

**Non-Invasive Neuromodulation of the Central Nervous System: Opportunities and Challenges: Workshop Summary**

**University of Minnesota takes Leadership Role in New Minnesota Medical Manufacturing Partnership**

The University of Minnesota is among the leaders of the newly-established Minnesota Medical Manufacturing Partnership (MMMP), a federally-formed consortium of the state’s key participants in its medical technology community, according to a recent article in the University of Minnesota’s “Inquiry” publication. The article highlights the University of Minnesota’s strong track record of medical technology development, and cites the roles of both the Institute for Engineering in Medicine (IEM) and Medical
Devices Center (MDC) in this development, through IEM’s formation of interdisciplinary research collaborations and the MDC’s Innovation Fellows Program. The MMMP is one of twelve such “Manufacturing Communities” named by the U.S. Department of Commerce to support, through access to federal aid, the best-practices and economic development in the chosen sectors.

U Among Leaders in Federally Named Med Tech Partnership

Announcements

Application & Nomination Deadlines Approaching for 2016 Lemelson-MIT Student and Mid-Career Prizes

Applications are open for the $10,000 - $15,000 Lemelson-MIT Student Prize as are nominations for the mid-career $500,000 Lemelson-MIT Prize. The Student Prize honors “promising collegiate inventors across the nation” and is “open to teams of undergraduate students and individual graduate students who have inventions in categories that represent significant sectors of the economy.” Its initial application deadline is on October 13th. The mid-career Prize honours “Outstanding mid-career inventors dedicated to improving our world through technological invention” and “is awarded to outstanding mid-career inventors, who have developed a patented product or process of significant value to society, which has been adopted for practical use, or has a high probability of being adopted.” Its initial nomination deadline is on November 20th.

2016 Lemelson-MIT Prizes