News Stories

More than 360 High School Students, Representing 34 High Schools Throughout Minnesota, Participate in IEM's Inaugural Inspire Conference

On November 16th, IEM hosted its inaugural Inspire Conference as an outreach activity to inspire Minnesota high school students to pursue future careers in applying STEM principles to the challenges of medicine and delivery of healthcare. Among the event's more than 500 participants, were over 360 high school students representing 34 high schools in urban, suburban and rural areas of the state. The conference featured 32 “Inspire Talks,” half of which were delivered by faculty members who are working on understanding, diagnosing and treating cancer, heart disease, addiction, and other conditions. The other half were delivered by representatives of Minnesota’s medical technology companies including Medtronic, Boston Scientific, Abbott, 3M and Optum. Manny Villafana, who founded St. Jude Medical, Cardiac Pacemakers, Inc., and ATS Medical, delivered a lunch keynote address focused upon the challenges of entrepreneurship. “We have heard from numerous teachers about how the event positively impacted their students,” says IEM Director Dr. John C. Bischof. “The feedback clearly shows increased student interest in pursuing future careers that apply STEM to healthcare.”

Inspire Conference Program >

Wei Chen & Xiao-Hong Zhu Receive >$6 Million NIH BRAIN Initiative U01 Grant to Study Neural Circuits

IEM Members Dr. Wei Chen, Professor in the Departments of Radiology and Biomedical Engineering, and Dr. Xiao-Hong Zhu, Associate Professor of Radiology-CMRR, have received a U01 grant of more than $6 Million from the NIH BRAIN Initiative for research aiming to develop the next generation of human neuroimaging at a high and ultrahigh field. The project, entitled “Breaking Spatiotemporal Barriers of MR Imaging Technologies to Study Human Brain Function and Neuroenergetics,” is the third BRAIN Initiative grant awarded to the lab of Drs. Chen and Zhu, one of which served as the planning grant, for this newly awarded project. Drs. Chen and Zhu will serve as Co-PIs for the 5-year project. The success of the project will significantly advance the human neuroimaging technology with much-improved sensitivity and spatiotemporal resolution which are critical for mapping neural circuits and interconnect at mesoscopic (sub-millimeter) scale, and for imaging neuroenergetic metabolism and neurotransmitters supporting brain function at resting and working state.

NIH Project Reporter >
Research led by Paolo Provenzano Published in Nature Communications

IEM Member Dr. Paolo Provenzano, Associate Professor of Biomedical Engineering, is the Senior Author of research published in Nature Communications, in which the movement of breast cancer cells was stopped. In the study, “Bimodal sensing of guidance cues in mechanically distinct microenvironments,” Dr. Provenzano and his team used simulated microenvironments to determine how the cells moved and then how to stop that movement. “Cancer cells are very sneaky,” says Dr. Provenzano. “We didn’t expect the cells to change their movement. This forced us to change our tactics to target both kinds of movements simultaneously. It’s almost like we destroyed their GPS so they couldn’t find the highways. This stopped the cells in their tracks. The cells just sat there and didn’t move.” Dr. Provenzano says that the long-term objective will be to simultaneously suppress the movement of cancer cells and enhance the movement of immune cells to fight the cancer.

Researchers Stop Sneaky Cancer Cells in their Tracks >

Tom Hays Named Head of Department of Genetics, Cell Biology, and Development

IEM Executive Committee Member Dr. Thomas S. Hays has been named the new Head of the Department of Genetics, Cell Biology, and Development (GCD), a role he will begin on December 31st. Dr. Hays, a professor with expertise in genetics and cell biology, has been serving as the Associate Dean of Research at the College of Biological Sciences (CBS). A joint statement issued by the Deans of the Medical School and CBS describes Dr. Hays’ new responsibilities in the jointly managed department as including oversight of the research, instructional, creative, and outreach activities of faculty, aligning collegiate and departmental plans and programs. As GCD Head, Dr. Hays will have an integral role, ensuring top performance in all aspects of the CBS’ and Medical School’s shared missions. “Dr. Hays’ subject matter expertise, strong leadership ability coupled with the confidence of the faculty and staff make him the perfect choice for this role,” say the Deans.

Kamil Ugurbil Discusses with Journal Nature the Promise of Ultra-High-Field MRIs

IEM Member Dr. Kamil Ugurbil, Professor of Radiology-CMRR, discussed with the journal Nature the promise of using ultra-high-field MRI scanners, such as the 7 and 10.5-tesla systems used at the University of Minnesota’s Center for Magnetic Resonance Research (CMRR), which are far more powerful than the 1.5 to 3-tesla systems commonly used by healthcare providers. The resulting high resolution is better at showing brain function and connectivity, which can allow researchers to study the brain in greater detail, and clinicians to more effectively diagnose and treat brain conditions. One example is deep brain stimulation, in which 7-tesla scanners can be much more effective in guiding neurosurgeons in where to place electrodes. “If you’re not in the right place, you have to pull out your electrode and insert it again slightly differently,” says Dr. Ugurbil. But with a 7-tesla system, “you see your target, then you just go: one penetration and you have the result.”

The World’s Strongest MRI Machines are Pushing Human Imaging to New Limits >
Joseph Gaugler Discusses with Star Tribune Quest to Educate Residents of All 87 Minnesota Counties on Alzheimer's

IEM Member Dr. Joseph E. Gaugler, Professor and Robert L. Kane Endowed Chair in Long-Term Care and Aging, in the School of Public Health, is visiting all 87 counties in Minnesota to educate people on Alzheimer's and on available resources for people who have memory loss. “I’m not sure how long it will take,” says Dr. Gaugler. “But I wanted to visit all the counties in Minnesota — talk to people, learn their experiences about memory loss and share with them new insights about dementia and dementia care.” As reported by the Star Tribune, Alzheimer's affects 5.7 million Americans and more than 100,000 people in Minnesota. Approximately 250,000 family members are involved in their care. By visiting all of Minnesota’s counties, Dr. Gaugler is addressing a need that is especially strong in rural areas of the state, which have older populations than in the state’s urban areas.

University of Minnesota Professor Begins Statewide Tour to Shed Light on Alzheimer’s

Research by Roni Evans Shows Alternative to Opioids for Treating Neck & Back Pain

Recently-published research performed by IEM Member Dr. Roni L. Evans, Research Associate Professor and Dr. Gert Bronfort, Research Professor, each in the Integrative Health & Wellbeing Research Program, showed the effectiveness of rehabilitative treatments for neck and back pain in older adults, and the potential for these treatments to be used as alternatives to opioids. In the study, patients older than 65, who had experienced long-term neck and back pain, were treated with spinal manipulative therapy combined with rehabilitative exercises. “Pain management … is often under-appreciated and under-addressed,” says Dr. Evans. “A lot of the time, people can’t see the pain that you’re struggling with. It’s a very internal, subjective process, but it can have such severe consequences.” Dr. Michele Mainers of Northwestern Health Sciences University was the first author of the study.

In Light of Opioid Crisis Researchers Find Ways to Treat Pain without Prescription Drugs >

Announcements

New Carlson School Undergraduate Course for Evaluation of Medical Technologies is Open for Spring 2018 Registration

A new Medical Technology and Society course is being offered to undergraduates through the Carlson School of Management’s Medical Industry Leadership Institute (MILI). This course aims to provide knowledge of the skills, data, and methodology required to critically evaluate new medical technologies from a social perspective as well as from a business perspective in order to meet financial investment and regulatory compliance objectives. There are no prerequisites! MILI 3589 is approved as a technology and society liberal education theme course. Please contact Prof. Karaca-Mandic for questions at pkmandic@umn.edu.