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## engineering the future of biomedicine

The annual international conference of IEEE Engineering in Medicine and Biology Society (EMBS), the IEEE Engineering in Medicine and Biology Conference (EMBC), is taking place this September in Minneapolis, Minnesota. I extend to you my personal invitation to attend this most important gathering of biomedical engineering professionals of the year. As an EMBS member, your attendance at our annual conference is not only important for you and your work but also for the field of biomedical engineering.

The theme of EMBC 2009 is *engineering the future of biomedicine*. This conference theme is reflected in the scientific programs being organized, which cover a broad range of topics, from biomedical instrumentation, signal processing, imaging, and medical devices, to neuroengineering, cell and tissue engineering, and health information technology. One of the unique features of EMBC 2009 is that it will provide platforms for the review of recent significant developments and potential future opportunities in biomedical engineering. Through a series of plenary and keynote lectures, symposiums, minisymposiums, and invited sessions, world leaders, leading experts, and active investigators and groups are invited to review the state-of-the-art research and report on the latest and hottest trends in the field.

Dr. Andrew Zachary Fire, 2006 Nobel Laureate in physiology or medicine, will deliver the conference keynote lecture titled "Use of New Nanotechnology-Based DNA Sequencing Technologies to Illuminate Cellular Regulation and Defense." Dr. Gary Glover of Stanford University will deliver a plenary lecture on "MR Imaging of Brain Function: Challenges,

Opportunities and Questions" and Dr. Douglas A. Lauffenburger of Massachusetts Institute of Technology (MIT) will deliver a plenary lecture on "Biological Engineering and Systems Biology—New Opportunities for Engineers in Biotech/Pharma Industry." Collectively, the invited talks at EMBC 2009 will cover the broad spectrum of R&D efforts in biomedical engineering and will stimulate intellectual exchanges with regard to the present position and future direction of the field. It is our hope that the series of state-of-the-art lectures and discussions will benefit academic investigators and industrial professionals as well as students and young investigators.

One of the distinguishing features of EMBC 2009 is the planned close integration of academic and industrial professionals. Minnesota is not only a state with one of the largest concentrations of medical device companies but is also a place where many medical device innovations have originated. For example, since the invention of the battery-powered cardiac pacemaker, companies in Minnesota have held a strong leadership role in fostering the growth of the implantable cardiac device industry. EMBC 2009 participants are invited to listen to the plenary talk by Dr. Earl Bakken, the coinventor of the battery-powered cardiac pacemaker and originator of more than 100 inventions, titled "The History of Short-Term and Long-Term Pacing." A number of industrial leaders and senior managers of R&D have committed to participate in EMBC 2009 through special symposiums, minisymposiums, workshops, and various invited sessions. This active participation by industrial colleagues will likely foster many future university–industry collaborations and interactions.

EMBC 2009 has also attracted a large number of submissions of papers for presentation, with a total of approxi-

mately 2,100 papers. This has been the largest number of submissions to date for an EMBC conference held in the United States, representing a significant interest from the biomedical engineering field. In addition, six pre-conference workshops are being organized by leading experts in the field, covering emerging topics such as deep brain stimulation, neural interfacing, biomicroelectromechanical system (bioMEMS), cardiovascular health informatics, medical device design, and technology commercialization. As a significant investment for students and young investigators, EMBC 2009 has arranged substantially discounted registration fees for registrants to attend these pre-conference workshops.

In addition to the rich scientific program, EMBC 2009 has arranged multiple social activities for participants and their spouses. Of note is the Bakken Museum Social on 4 September 2009. Guests at this event will learn about the history of bioelectricity and meet with Bakken and other key players in biomedical engineering and the health-care industry. Multiple tours are also organized, including visits to the Center for Magnetic Resonance Research at the University of Minnesota to see the highest-field human magnetic resonance imaging (MRI) scanner and to Boston Scientific Corporation and Medtronic, Inc., to witness the incredible innovation in medical devices. You may also want to visit the Mall of America, one of the largest shopping malls in the world.

Early September is the most enjoyable season in Minnesota. Come and join the international biomedical engineering community in this most stimulating biomedical engineering conference of the year. You will find the trip exciting and rewarding, both professionally and personally. I hope to meet you and welcome you all to Minneapolis this September!