

**Call For Papers**  
**IEEE Transactions on Biomedical Engineering Letters (TBME Letters)**  
**Special Issues 2009**

Biomedical engineering spectrum has grown up fast in last two decades. As a result of this fast growth, several sub- and inter-disciplinary areas in the BME spectrum, such as Neural Engineering, Bio-Nano-Technology, Bio-Information-Technology and Medical Imaging, have become key areas of research with their designated publications. At the same time, the research enterprise has been directed to new novel concepts as well as application based system integration technologies.

TBME LETTERS is a separate but companion publication to IEEE Transactions on Biomedical Engineering (TBME). TBME LETTERS is aimed at fast publishing of novel breakthrough research at the bleeding edge of rapidly emerging technologies and scientific advances with high potential impact in biomedical applications and health care. TBME Letters are short papers (**up to 4 printed pages**) well focused on highly novel scientific and technological advances warranting a fast publication without waiting for a fully exploited validation of the methodology with statistical significance. Since such novel ideas are time sensitive, TBME LETTERS publication an expedited review process with a decision within six weeks, and expected to be published within 4 months. TBME LETTERS announces the Call for Papers for the following 3 Special Issues to be published in 2009.

**1. Special Issue: Emerging Technologies in Biomedical Robotics and Biomechatronics**

The primary focus of Biorobotics is to analyze biological systems from a “biomechatronic” point of view, trying to understand the scientific and engineering principles underlying their extraordinary performance. This profound understanding can be used to guide the design and fabrication of novel, high performance bio-inspired machines and systems, for many different applications; and to develop novel nano-, micro-, macro-devices that can act upon, substitute parts of, and assist human beings in diagnosis, surgery, prosthetics, rehabilitation and personal assistance. The Special Issue will cover the topics (but are not limited to):

- Instrumentation, real-time systems, sensors, actuators, minimally invasive interventions.
- Medical imaging, reconstruction, analysis, visualization, virtual reality, computer-assisted interventions.
- Biologically-inspired robots.
- Robots as scientific tools in biomedical research.

**Guest Editors:** Arianna Menciassi, Scuola Superiore Sant’Anna, CRIM Lab, Pisa (Italy) [arianna@sssup.it](mailto:arianna@sssup.it);  
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Paper submission deadline: February 1, 2009  
- Notification of acceptance: March 15, 2009  
- Final manuscript due: April 15, 2009  
- Publication date: May-June, 2009

**2. Special Issue: Emerging Technologies in Neuronanoengineering and Neuroprostheses**

Recently, fast emerging technological advances in bioelectronics, bio-nano-sensor-technology, and neural engineering have created exciting advancements in the understanding in several areas of neuroscience. Advanced technological developments are critical to address challenges of improving our basic knowledge of the nervous system, neurophysiology and neurological disorders, and to develop devices to interface with neural tissue. The aim of this Special Issue is to publish highly innovative, novel and interesting research activities with potential impact in neural engineering and related areas with a specific attention to the development of emerging technologies and innovative approaches to increase our understanding of the

neurological functions; develop efficient neural sensing and interfacing systems; and develop and test more effective and clinically usable systems to restore sensorimotor or other neural functions for neural-rehabilitation in disabled people. The Special Issue will cover primarily the topics (but are not limited to):

- Bio-nano sensors and electronics
- Implantable neural interfaces
- Biophysics of neural computation
- Neuro-mechanical models of neural regeneration
- Neuromorphic systems
- Micro- and nanoparticles for neuroprotection and neural regeneration
- Motor neural prostheses and brain-to-machine systems
- Sensory neural prostheses (vestibular, cochlear, visual, etc.) and Cybernetic prostheses

**Guest Editors: Silvestro Micera**, Scuola Superiore Sant'Anna, Italy, [micera@sssup.it](mailto:micera@sssup.it); **Dominique Durand**, Case Western Reserve University; [dominique.durand@case.edu](mailto:dominique.durand@case.edu); **Janos Vörös**, ETH Zurich, CH, [janos.voros@biomed.ee.ethz.ch](mailto:janos.voros@biomed.ee.ethz.ch)

Paper submission deadline: March 1, 2009

- Notification of acceptance: April 15, 2009

- Final manuscript due: May 15, 2009

- Publication date: August, 2009

### **3. Special Issue: Emerging Technologies in Therapeutic Ultrasound**

Significant progress in the field of therapeutic ultrasound has taken place during the last two decades. Advancements in our understanding of the bioeffects of intense ultrasound, physics and engineering of therapeutic devices, and its clinical applications have been made. These successes build on a rich history of pioneering research that spanned the second half of the twentieth century. It is fair to state, however, that much of the recent progress is propelled by technological advances that led to significant improvements in the delivery of intense ultrasound and monitoring the tissue response to a myriad of application modes, alone or in conjunction with other therapeutic agents. Image guidance has become an integral part of the therapeutic application demonstrating the feasibility of treatment control and damage assessment in real time. This special issue seeks original contributions from the international scientific community in the general area of therapeutic ultrasound. Topics include, but are not limited to:

- Novel therapeutic devices and transducer technologies.
- Tissue response and bioeffects.
- Drug and gene delivery.
- Treatment guidance, monitoring, and control.; and quality assurance.
- *In vivo* studies.
- Clinical applications.

**Guest Editor: Emad S. Ebbini**, University of Minnesota Twin Cities, [emad@umn.edu](mailto:emad@umn.edu)

Paper submission deadline: April 20, 2009

- Notification of acceptance: June 15, 2009

- Final manuscript due: July 15, 2009

- Publication date: October, 2009

Specific inquiries can be directed to Guest Editors or Atam P. Dhawan, Senior Editor In-Charge of TBME LETTERS at [dhawan@adm.njit.edu](mailto:dhawan@adm.njit.edu) More Information is available on the website <http://tbme.embs.org>.