

Call for Papers

Special Topic on: Nanoscale materials, devices, and systems for biosensing, biomanipulation, and biofabrication

This special topic focuses on utilizing state of the art nanoscale materials, devices, and systems for advanced biosensing, biomanipulation, and biofabrication. These nanoscale materials, devices, and systems can be organic, inorganic, and hybrid, and their applications for advanced biosensing, biomanipulation, and biofabrication are of interest to this special issue. Nanotechnology has seen rapid progress in recent years, with advanced capabilities to generate and manipulate precisely engineered nanoscale organic and inorganic materials and their assemblies pointing towards the emergence of disruptive functionalities for diverse biological and biomedical applications. Furthermore, nanofabricated devices and systems such as nanofluidics, nanoelectromechanical systems (NEMS), and nanophotonic structures with critical dimensions comparable to the molecular scale open up new possibilities for direct observation, manipulation, and analysis of biomolecules, thus providing a novel basis for ultrasensitive and high-resolution sensors and medical diagnostic systems. Nanoscale surface patterning and engineering tools for precisely controlling biomolecule- and cell-surface interactions and nanotools such as atomic force microscopy and optical and magnetic tweezers are also extremely powerful for controlling cell fate and function and biofabrication and studying molecular and cellular biomechanics.

Consequently, the ASME Journal of Nanotechnology in Engineering and Medicine (JNEM) calls for submissions for a special topic on *Nanoscale materials, devices, and systems for biosensing, biomanipulation, and biofabrication*. The special topic will be a collection of research articles and review papers related to the current developments of nanotechnology and its applications and implementations for biological and biomedical areas.

Topics of interest include, but are not limited to, the following:

- Molecular machines, motors, and self-assembly
- Nanomaterials such as carbon nanotubes and fullerenes
- Inorganic nanostructures including nanoparticles, nanofibers, nanoshells, nanowires, nanorods, and nanotubes
- Nanoscale biological scaffolds and biomaterials
- Micro/Nanoelectromechanical systems (MEMS/NEMS)
- Nanofluidic channels and pores
- Nanoscale photonic structures and devices
- Nanoscale surface patterning and engineering
- Nanoscale tools such as atomic force microscopy and optical and magnetic tweezers

Submission Instructions, Timeline, and Review Process:

1. Manuscripts must be prepared according to the Journal's guidelines:
<http://journaltool.asme.org/Content/AuthorResources.cfm>
2. Please select the special topic on *Nanoscale materials, devices, and systems for biosensing, biomanipulation, and biofabrication* when submitting the manuscript.
3. Submit your manuscript online at the ASME Journal Tool website:
<http://journaltool.asme.org/Content/index.cfm>
4. Review Process: All manuscripts submitted for this special topic will be subjected to a peer review process to ensure a high quality standard. Please indicate in your cover letter that the submitted manuscript has not been published previously, is not under review by any other journal, and will not be submitted elsewhere before a final decision is made by JNEM.
5. Important Dates:
Paper submission by: Dec. 1, 2014
First author notification by: Feb. 15, 2015
Publication of Special Topic: May 1, 2015

Editor for the Special Topic:**Jianping Fu, Ph.D.**

Dr. Jianping Fu has been an assistant professor of Mechanical Engineering and Biomedical Engineering (courtesy appointment) at the University of Michigan (UM), Ann Arbor since 2009. Dr. Fu received his Ph.D. degree in Mechanical Engineering from the Massachusetts Institute of Technology (MIT) in 2007, with a major of biological engineering and a minor of micro/nanomechanics and engineering. Dr. Fu was an American Heart Association Postdoctoral Fellow in the Department of Bioengineering at the University of Pennsylvania from 2007 to 2009. Dr. Fu's current research focuses on Bio-Microelectromechanical and -Nanoelectromechanical Systems (BioMEMS/NEMS), Lab-on-Chip (LOC), mechanobiology, stem cell biology, and applying microfabrication technology to illuminate biological systems at both the molecular and cellular levels. Dr. Fu is the recipient of the American Heart Association Scientist Development Grant (2012), the National Science Foundation CAREER Award (2012), the Mechanical Engineering Outstanding Faculty Achievement Award (2014), and the Robert M. Caddell Memorial Award for Research (2014). More information can be found at <http://me.engin.umich.edu/ibbl/>.

**Co-Editor for the Special Topic:****Donglei (Emma) Fan, Ph.D.**

Dr. Donglei Fan is an Assistant Professor in the Department of Mechanical Engineering at the University of Texas at Austin since January 2010. She received her bachelor's degree in chemistry from the Department of Intensive Instruction, an honor program for gifted youth, in the Nanjing University (NJU) in 1999, master's (2003) and doctorate (2007) degrees in Materials Science and Engineering from the Johns Hopkins University (JHU). She also obtained another master's degree in Electrical Engineering from JHU in 2005. Between 2007 and 2009, she was a Postdoctoral Fellow at JHU. Prof. Fan's research focuses on innovative design, synthesis, manipulation, assembling, and manufacturing of nanoentities for applications in biosensing, NEMS, nanorobotics, and energy conversion and storage devices. Prof. Fan received the National Science Foundation CAREER Award in 2012. She was one of 30 selected US young engineers, who attended the National Academy of Engineering (NAE) 2013 EU-US Frontier of Engineering Symposium in France. She was honored as a Recognized Mentor by the Siemens Foundation in 2012 and nominated for the 2010 MIT Technology Review's TR35 award, which recognizes the world's top young innovators. Dr. Fan is also one of 24 national-wide finalists of the Beckman Young Investigator Award in 2013. Dr. Fan's work has spurred a series of publications on journals including Nature Nanotechnology, Nature Communications, Proceedings of National Academy of Science, Nano Today, Physical Review Letters, Advanced Materials, as well as a few patent disclosures. More information can be found at <http://www.me.utexas.edu/directory/faculty/fan/donglei/221/>

