

## **6. Materials of Each Session**

### **6.1 Advances in Automation and Instrumentation for Biotechnology and Health Care**

#### Session Abstract

Organizers: Jingyue Ju, Columbia University, and Takeaki Ozawa, The University of Tokyo

The ability to sequence each person's genome cost-effectively and to visualize molecular dynamics in living cells could give rise to strategies for diagnosing, treating and preventing disease. This session consists of four talks from leading experts in genome technology development and single cell analysis from the United States and Japan. It will begin with presentations by Japanese speakers, who will introduce a topic of soft materials, which make it possible to visualize biomolecules in living cells. These talks will lead into the U.S. speakers on automated devices and assay processing and on advances in new DNA sequencing technologies. The advances in automation and instrumentation in these genomics technologies will have broad applications in clinical medicine and health care, eventually leading to the realization of the \$1000 genome paradigm for personalized medicine. Progress in mechanistic fabrication and molecular design at nanoscale will offer opportunities for development of a next-next generation of sequencing and imaging technologies for healthcare.