ナノ工学・メカノバイオロジー融合医工連携研究センター
国際シンポジウム

首都大学東京・全学傾斜的研究費（研究環）
「iPS細胞由来組織再生材料の創成と応用−ナノバイオメカニクスによる細胞外基質生成の制御−」共催

Topics and Themes

This symposium covers a variety of important frontier topics in micro-nano science and technology, and mechanobiology, including the following:

- Nano/micro material processing technologies to generate technical innovation for bioscience and biomedical researches
- Mechanobiology research to understand living organisms as a system interacting with and adapting to the environment.
- Molecular sensing device, cell differentiation control device, biomaterials to advance medical field.

Date

March 8 (Thu), 2018

Venue

Large Conference Room, International House
Tokyo Metropolitan University
http://www.ic.tmu.ac.jp/about/access.html

Program

Opening Remarks
13:30 - 13:45

Session 1

13:45 - 14:15
Conformational switch, activation and clustering in mechanotransduction: from cell membrane to nuclear envelope
Mohammad R. K. Mofrad
(Departments of Bioengineering and Mechanical Engineering, University of California Berkeley)

Chair: Naoya Sakamoto

14:15 - 14:45
Mechanical forces driving cytoskeletal organization in living cells
Hirokazu Tanimoto (Institut Jacques Monod, France)

Chair: Hiromi Miyoshi

14:45 - 15:15
Nano/micro material processing technologies for fabrication of micro bio- and medical device
Ming Yang (Graduate School of System Design, Tokyo Metropolitan University)

Chair: Tetsuhide Shimizu

15:15 - 15:45
Break
Session 2

Mechanobiology

15:45 - 16:00
Physical contribution of the nucleus in cell traction force generation
Naoya Sakamoto (Graduate School of System Design, Tokyo Metropolitan University)

16:00 - 16:15
Mechanical effect of highly oriented actin fibers on nucleus morphology during osteogenic differentiation of human mesenchymal stem cell
MasashiYamazaki (Graduate School of System Design, Tokyo Metropolitan University)

Chair: Hiromi Miyoshi

Nano/micro-engineering

16:15 - 16:30
Near-infrared temperature imaging for heating of cultured cells using micro-magnetic particles
Han Van Cuong (Graduate School of Science and Engineering, Tokyo Metropolitan University)

16:30 - 16:45
Flexible control of nano/micro-structure of functional thin films by highly ionized physical vapor deposition technique
Tetsuhide Shimizu (Graduate School of System Design, Tokyo Metropolitan University)

Chair: Naoto Kakuta

Closing Remarks
16:45 - 17:00