

9th iCeMS International Symposium

“Mesoscale Control and Engineering of Self-Organized and Excitable Systems in Biology and Chemistry”

Thursday 2 December 2010

9:00-9:15 **Welcome address** Norio Nakatsuji (Director of iCeMS, Kyoto University)

Session I (Chair: K. Agladze)

- 9:15- 9:55 Eberhard Bodenschatz Max Planck Institute for Dynamics and Self-Organization
Wave Emission from Heterogeneities in the Heart
- 9:55-10:35 Valentin Krinsky Max Planck Institute for Dynamics and Self-Organization
New methods of diagnostics of excitable media: heart, brain.
- 10:35-11:15 Arkady Pertsov SUNY Upstate Medical University
Electrical control of cardiac excitation: Paradox of field induced polarization
- 11:15-11:40 Coffee break

Session II (Chair: E. Bodenschatz)

- 11:40-12:20 Kenichi Yoshikawa Kyoto University
Non-Turing Scenario on Spatio-Temporal Structure Formation on Multi-Cellular Organisms
- 12:20-13:00 Irving Epstein Brandeis University
Reaction-Diffusion Patterns in Structured Media
- 13:00-14:00 Lunch

Session III (Chair: A. Pertsov)

- 14:00-14:40 Kevin Kit Parker Harvard University
Engineering Cardiac Tissue Microenvironments In Vitro
- 14:40-15:20 Nenad Bursac Duke University
How to Turn Fibroblasts into an Actively Conducting Tissue
- 15:20-16:00 Konstantin Agladze iCeMS, Kyoto University
Photo-control of engineered cardiac tissue
- 16:00-16:40 John Ryan Oxford University
Imaging functional membrane proteins and receptors reconstituted in lipid bilayers
- 16:40-17:00 Coffee break
- 17:00-19:00 Poster session (venue: iCeMS main building, 2nd fl Exhibition Room)
- 19:00- Reception (banquet)

Friday 3 December 2010

Session IV (Chair: V. Krinsky)

- 9:30–10:10 Yoshiki Kuramoto Kyoto University
Collective Description of Oscillator Assemblies
- 10:10–10:50 Ryo Kobayashi Hiroshima University
Mathematical modeling of crawling animals
- 10:50–11:05 Coffee break

Session V (Chair: I. Epstein)

- 11:05–11:45 Yong Chen iCeMS, Kyoto University
*Cardiomyocytes on Patterned Surfaces:
Formation of Cellular Microclusters and Guided Electric Conduction*
- 11:45–12:25 Tomohiko Yamaguchi Nanosystem Research Institute,
Advanced Industrial Science and Technology (AIST)
Entropic Viewpoint for Emergence in Chemical Systems
- 12:25–14:00 Lunch

Session VI (Chair: T. Yamaguchi)

- 14:00–14:40 Narine Sarvazyan George Washington University
Novel strategies to facilitate integration and survival of bioengineered tissues.
- 14:40–15:05 Shin Kadota iCeMS, Kyoto University
Excitable cardiac tissue derived from pluripotent stem cells
- 15:05–15:45 Seiji Takagi Hokkaido University
Dynamic patterns in rhythmic contraction of protoplasm of true slime mould
- 15:45–16-25 Keisuke Morishima Tokyo University of Agriculture and Technology
Construction and Function Emergence of Cellular Build up Wet Nano Robotics
- 16:25–17:00 Coffee break
- 17:00–18:30 Discussion, round table, concluding remarks

Saturday 4 December, 2010 (optional—for those who wish to attend)

- 9:00–13:00 Visits to laboratories
- 13:00– Lunch, informal discussions, culture program

Acknowledgement: this symposium is partly funded by the Kyoto University Foundation