

Programme

Monday 5 March 2012

13:00-13:10 Opening Address

Progress of NanoBME Research and Education at Tohoku University for Five Years – 2007-2011

Takami Yamaguchi (Leader, The Tohoku University Global COE Programme "Global Nano-Biomedical Engineering Education and Research Network Centre")

Session 1 (Chair: Prof. Hiroshi Fukuda)

13:10-13:25 **Electrophysiological Mapping of the Cochlear Nucleus using the Multi-channel Surface Microelectrodes**

Tetsuaki Kawase (Graduate School of Biomedical Engineering, Tohoku University)

13:25-13:40 **Development of Fully Implantable Retinal Prosthesis with 3-Dimensionally Stacked LSI**

Tetsu Tanaka (Graduate School of Biomedical Engineering, Tohoku University)

13:40-13:55 **High-Resolution and High-Speed Chemical Imaging Sensor Systems**

Tatsuo Yoshinobu (Graduate School of Biomedical Engineering, Tohoku University)

13:55-14:10 **Imitation Learning as a Tool of Rehabilitation for Motor Disorders after Brain Damage.**

Shin-Ichi Izumi (Graduate School of Biomedical Engineering, Tohoku University)

14:10-14:25 **Electrochemistry-Based Bionic Devices**

Matsuhiko Nishizawa (Graduate School of Engineering, Tohoku University)

14:25-14:40 **A Compact Sensor System for Reading Braille**

Mami Tanaka (Graduate School of Biomedical Engineering, Tohoku University)

14:40-15:00 Coffee Break

Session 2 (Chair: Prof. Matsuhiko Nishizawa)

15:00-15:15 **Passive Human Assistive Systems Controlled by Servo Brakes**

Kazuhiro Kosuge (Graduate School of Engineering, Tohoku University)

15:15-15:30 **Drug Delivery using PLGA Microspheres and GI Research in our Laboratory**

Kouhei Fukushima (Graduate School of Biomedical Engineering, Tohoku University)

15:30-15:45 **High Frame Rate Ultrasonography for Detailed Analysis of Cardiovascular Dynamics**

Hideyuki Hasegawa (Graduate School of Biomedical Engineering, Tohoku University)

15:45-16:00 **Nano-bio-imaging with Radiopharmaceuticals and Application to Health Sciences**

Kotaro Hiraoka (Cyclotron and Radioisotope Center, Tohoku University)

16:00-16:15 **Development and Aging of the Human Brain Studied with Brain Magnetic Resonance Image (MRI) of Healthy Japanese**

Hiroshi Fukuda (Institute of Development, Aging and Cancer, Tohoku University)

16:15-16:30 **Test-retest Reliability of [¹¹C]Doxepin Binding to Histamine H1 Receptors in Living Human Brain**

Kazuhiro Yanai (Graduate School of Medicine, Tohoku University)

16:30-16:45 **Enhancement of Ultrasonic Tissue Heating with Microbubbles Generated by Extremely High Intensity Focused Ultrasound Pulse**

Shin-ichiro Umemura (Graduate School of Biomedical Engineering, Tohoku University)

17:00-19:00 Banquet

Tuesday 6 March 2012

Session 3 (Chair: Prof. Natsuko Chiba)

- 9:00-9:15 **High Resolution Biomedical Imaging by Combination of High Frequency Ultrasound and Laser Photonics**
Yoshifumi Saijo (Graduate School of Biomedical Engineering, Tohoku University)
- 9:15-9:30 **Student Competition for Education of Molecular Robotics**
Satoshi Murata (Graduate School of Engineering, Tohoku University)
- 9:30-9:45 **A Particle Model of Cellular Flow in Microcirculation**
Takami Yamaguchi (Graduate School of Biomedical Engineering, Tohoku University)
- 9:45-10:00 **Prestin, the Inner Ear Motor Protein – Its Structure and Function**
Hiroshi Wada (Graduate School of Engineering, Tohoku University)
- 10:00-10:15 **Mechanical States in Living Endothelial Cells Exposed to Fluid Shear Stress**
Masaaki Sato (Graduate School of Biomedical Engineering, Tohoku University)
- 10:15-10:30 **Sophisticated Regulation of Satellite Cells in Skeletal Muscle Repair**
Ryoichi Nagatomi (Graduate School of Biomedical Engineering, Tohoku University)
- 10:30-10:50 Coffee Break

Session 4 (Chair: Prof. Masaaki Sato)

- 10:50-11:05 **Clinical Trials of the Electronic Doctor's Bag in an Isolated Island and a Disaster Area of the Great East Japan Earthquake**
Makoto Yoshizawa (Cyberscience Center, Tohoku University)
- 11:05-11:20 **Biomedical Engineering via Electromagnetic Field – Hyperthermia –**
Tetsuya Takura (Graduate School of Engineering, Tohoku University)
- 11:20-11:35 **Development of Fluorescent Nano-Particle and Nano-Imaging System for Advanced Nanomedicine**
Noriaki Ohuchi (Graduate School of Medicine, Tohoku University)
- 11:35-11:50 **Analysis of the Function of Tumor Suppressor BRCA1 using Molecular Imaging**
Natsuko Chiba (Institute of Development, Aging and Cancer, Tohoku University)
- 11:50-13:30 Lunch Break & Poster Session

Session 5 (Chair: Prof. Makoto Yoshizawa)

- 13:30-13:45 **Development of The Medical Engineering Device for Sendai Quake**
Tomoyuki Yambe (Institute of Development, Aging and Cancer, Tohoku University)
- 13:45-14:00 **Determination of Local Fine Structure of Blood Flows by Coupling Measurement and Simulation**
Toshiyuki Hayase (Institute of Fluid Science, Tohoku University)
- 14:00-14:15 **Clinical Application of Visualizing Fine Vascular Structures using MDCT and MRI - Arteries, Veins and Thoracic Duct -**
Kei Takase (Graduate School of Medicine, Tohoku University)
- 14:15-14:30 **Management Strategy for the Treatment of Brain Aneurysms**
Akira Takahashi (Graduate School of Biomedical Engineering, Tohoku University)
- 14:40-15:00 Awards Presentation & Adjournment