

PROGRAMME

THURSDAY, 27 MARCH

13:00-13:15 OPENING ADDRESS:

**On the Tohoku University 2007 Global COE Programme
Global Nano-Biomedical Engineering Education and Research Network Centre**

Takami Yamaguchi

(Professor, Graduate School of Engineering, Tohoku University, Leader, Tohoku University Global COE Program "Global Nano-Biomedical Engineering Education and Research Network Centre")

Plenary Lecture I

Chair: Prof. H.Wada (Tohoku University)

13:15-14:00 **Mechanoelectric Transduction of Adult Inner Hair Cells**

David He

(Professor, Department of Biomedical Sciences, Creighton University, USA)

Podium I

Chair: Prof. S. Umemura (Tohoku University)

14:00-14:20 **Ultrasonic Vascular Elastography for Tissue Characterization of Arterial Wall**

Hideyuki Hasegawa

(Associate Professor, Department of Electronic Engineering, Graduate School of Engineering, Tohoku University)

14:20-14:40 **Molecular Imaging with Functional Nano-objects for Cancer Diagnosis**

Noriaki Ohuchi

(Professor, Department of Surgical Oncology, Graduate School of Medicine, Tohoku University)

14:40-15:00 **Development of the Super Stent System for Esophageal Carcinoma**

Tomoyuki Yambe

(Professor, Department of Medical Engineering and Cardiology, Institute of Development, Aging and Cancer, Tohoku University)

15:00-15:15 BREAK

Podium II

Chair: Prof. T. Yambe (Tohoku University)

15:15-15:35 **Nano-bio-imaging with Radiopharmaceuticals and its Application to Health Sciences: Imaging Study on Functions of the Histaminergic Nervous System**

Manabu Tashiro

(Associate Professor, Division of Cyclotron Nuclear Medicine, Cyclotron and Radioisotope Center, Tohoku University)

15:35-15:55 **Parallel Scanning System for the Chemical Imaging Sensor**

Tatsuo Yoshinobu

(Professor, Department of Electronic Engineering, Graduate School of Engineering, Tohoku University)

15:55-16:15 **Analysis of Vascular Structure using Dual MDCT: Evaluation of 3 and 4 Dimensional Morphology of Vascular Structures and Analysis of Organic Blood Perfusion**

Shoki Takahashi

(Professor, Department of Radiology, Graduate School of Medicine, Tohoku University)

16:15-16:35 **High Intensity Focused Ultrasound Treatment Enhanced with Nano- to Micro-Particles**

Shin-ichiro Umemura

(Professor, Department of Electrical and Communication Engineering, Graduate School of Engineering, Tohoku University)

- 16:35-16:55 **Study of Power Supply Units for Fully Implantable Retinal Prosthesis with 3-D Stacked LSI**
Tetsu Tanaka
(Associate Professor, Department of Bioengineering and Robotics, Graduate School of Engineering, Tohoku University)
- 16:55-17:15 **Evaluation of Anatomical Positional Changes of the Spine on Pre and Post Chiropractic Treatment**
Takeshi Ogura
(Ph.D. Student, Division of Cyclotron Nuclear Medicine, Cyclotron and Radioisotope Center, Tohoku University)
- 18:00-20:00 BANQUET

FRIDAY, 28 MARCH

Plenary Lecture II

Chair: Prof. T. Yamaguchi (Tohoku University)

- 9:00-9:45 **Composite Nanofibers for Biomedical Applications**
Chwee Teck Lim
(Associate Professor, Division of Bioengineering, National University of Singapore)

Podium III

Chair: Prof. H. Fukuda (Tohoku University)

- 9:45-10:05 **Computational Biomechanics of Arterial Diseases over Micro to Macro Levels**
Takami Yamaguchi
(Professor, Department of Bioengineering and Robotics, Graduate School of Engineering, Tohoku University)
- 10:05-10:25 **Estimation of Cardiac Function during Cardiac Assistance with a Rotary Blood Pump**
Makoto Yoshizawa
(Professor, Research Division on Advanced Information Technology, Information Synergy Center, Tohoku University)
- 10:25-10:45 **Cell-Matrix Contact Area Modulates Traction Forces and Proliferation of Smooth Muscle Cells**
Masaaki Sato
(Professor, Department of Bioengineering and Robotics, Graduate School of Engineering, Tohoku University)
- 10:45-11:00 BREAK

Podium IV

Chair: Prof. M. Yoshizawa (Tohoku University)

- 11:00-11:20 **Biomechanics in the Inner Ear**
Hiroshi Wada
(Professor, Department of Bioengineering and Robotics, Graduate School of Engineering, Tohoku University)
- 11:20-11:40 **Normal Brain Aging and its Risk Factors -Analysis of Brain MRI of Healthy Japanese Subjects**
Hiroshi Fukuda
(Professor, Department of Nuclear Medicine and Radiology, Institute of Development, Aging and Cancer, Tohoku University)
- 11:40-12:00 **In Vivo Measurement of Cholinesterase Density in the Brain using [¹¹C]donepezil**
Nobuyuki Okamura
(Assistant Professor, Department of Pharmacology, Graduate School of Medicine, Tohoku University)
- 12:00-13:00 LUNCH BREAK

Plenary Lecture III

Chair: Prof. T. Hayase (Tohoku University)

- 13:00-13:45 **Quantitative Models of Gastric Electrical Activity**
Martin L. Buist
(Assistant Professor, Division of Bioengineering, National University of Singapore)

Podium V

Chair: Prof. F. Arai (Tohoku University)

- 13:45-14:05 **Determination of Fine Structure of Blood Flows by Coupling Measurement and Simulation**
Toshiyuki Hayase
(Professor, Transdisciplinary Fluid Integration Research Center, Institute of Fluid Science, Tohoku University)
- 14:05-14:25 **Evoked Potentials in Response to Electrical Stimulation of the Cochlear Nucleus by Means of a Multi-Channel Surface Microelectrode**
Tetsuaki Kawase
(Associate Professor, Department of Otolaryngology-Head and Neck Surgery, Graduate School of Medicine, Tohoku University)
- 14:25-14:45 **Development of an Active Palpation Sensor Wearable on a Finger for Detecting Prostate Cancer and Hypertrophy**
Mami Tanaka
(Associate Professor, Department of Bioengineering and Robotics, Graduate school of Engineering, Tohoku University)
- 14:45-15:05 **Medical Applications of Implantable Devices Utilizing Electromagnetic Fields for Hyperthermia**
Hidetoshi Matsuki
(Professor, Department of Electrical and Communication Engineering, Graduate school of Engineering, Tohoku University)
- 15:05-15:20 BREAK

Podium VI

Chair: Prof. T. Kawase (Tohoku University)

- 15:20-15:40 **Recruitment of Tumor Suppressor, BRCA1 to DNA Double-strand Breaks Induced by Laser Micro-Irradiation**
Natsuko Chiba
(Associate Professor, Department of Molecular Immunology, Institute of Development, Aging and Cancer, Tohoku University)
- 15:40-16:00 **Mechano-Bio Systems (Manipulation of Micro-nano Scale Objects in a Chip)**
Fumihito Arai
(Professor, Department of Bioengineering and Robotics, Graduate School of Engineering, Tohoku University)
- 16:00-16:20 **Engineering the Microenvironment of Living Cells in Culture**
Hirokazu Kaji
(Assistant Professor, Department of Bioengineering and Robotics, Graduate School of Engineering, Tohoku University)
- 16:20-16:40 **Accuracy Verification of Ultrasonic Measurement for Ultrasonic-Measurement-Integrated Simulation Using Poly (vinyl alcohol) Hydrogel Straight Tube Phantom**
Lei Liu
(Ph.D. Student, Department of Bioengineering and Robotics, Graduate School of Engineering, Tohoku University)
- 16:40-16:55 ADJOURNMENT