

**The Joint Symposium of
10th International Symposium on
Medical, Bio- and Nano-Electronics,
and
7th International Workshop on
Nanostructures & Nanoelectronics**

**Laboratory for Nanoelectronics and Spintronics
Research Institute of Electrical Communication
Tohoku University**

Organized by

**Research Institute of Electrical Communication
Tohoku University**

Co-Organized by

**Nano-Spin Engineering Seminar
Information Biotronics Seminar**

Cooperative Society

**CREST “Construction of ion and electron nano-channels
in super-resistive lipid bilayers”, JST**

**March 1-3, 2016
Sendai, Japan**

**The Joint Symposium of
10th International Symposium on Medical, Bio- and
Nano-Electronics, and 7th International Workshop on
Nanostructures & Nanoelectronics**

March 1-3, 2016

**Site: Laboratory for Nanoelectronics and Spintronics, Research
Institute of Electrical Communication, Tohoku University,
Sendai, Japan**

Organizer:

Symposium Chairs

Michio Niwano, Tohoku Univ.

Shin-ichiro Umemura, Tohoku Univ.

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Teng Ma, Tohoku Univ.

Daisuke Tadaki, Tohoku Univ.

- 15:45 ~ 16:15 Observation of Supported Lipid Bilayer Membranes Incorporated with Membrane Proteins
Ryugo Tero^{1,2}, Kohei Fukumoto¹, Yuya Suzuki¹, Yuya Niiyama¹(¹Department of Environmental and Life Sciences ²Electronics-Inspired Interdisciplinary Research Institute, Toyohashi University of Technology, Toyohashi, Japan)
- 16:15 ~ 16:45 Integration of human ion channels in bilayer lipid membranes formed in microfabricated apertures
Ayumi Hirano-Iwata,¹ Miyu Yoshida,¹ Shun Araki,¹ Daisuke Tadaki,¹ K. Ishibashi², Hideaki Yamamoto,³ and Michio Niwano^{1,4}(¹Graduate School of Biomedical Engineering, Tohoku University, Sendai, Japan, ²Hang-Ichi Corporation, Kanagawa, Japan, ³Frontier Research Institute for Interdisciplinary Sciences, Tohoku University, Sendai, Japan, ⁴Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University, Sendai, Japan)
- (Chair: Ryo Takagi)
- 16:45 ~ 17:15 Pulse driven light-addressable potentiometric sensors for chemical imaging
Carl Frederik Werner¹, Torsten Wagner², Michael J. Schöning², Ko-ichiro Miyamoto¹, Tatsuo Yoshinobu¹ (¹Department of Biomedical Engineering, Tohoku University, Sendai, Japan, ²Institute of Nano- and Biotechnologies (INB), FH Aachen, Jülich, Germany)
- 17:15 ~ 17:45 Non-invasive measurement of blood glucose level based on mid-infrared spectroscopy using optical-fiber probe
Saiko Kino and Yuji Matsuura (Graduate School of Biomedical Engineering, Tohoku University, Sendai, Japan)

Poster Presentation

- [P-1] Depth Profile of B Concentration in Heavily B-Doped Si Epitaxial Film Grown on Si(100) Using ECR Ar Plasma CVD without Substrate Heating
K. Motegi, M. Sakuraba, H. Akima and S. Sato
- [P-2] Characterization of Si and Si-Ge Alloy Heterostructures Formed on Si(100) by ECR Ar Plasma CVD without Substrate Heating
N. Ueno, M. Sakuraba, H. Akima and S. Sato
- [P-3] Preparation and thermoelectric properties of $\text{Cr}_{1-x}\text{Nb}_x\text{Si}_2$
H. Nagai, T. Takamatsu, Y. Iijima, K. Hayashi, Y. Miyazaki
- [P-4] Operation to motor-protein in neurons by electro-magnet
Shin Hasegawa, Kumiko Hayashi
- [P-5] Focal Spot Visualization and Treatment Evaluation in Ultrasonically Thermal Therapy Using Tissue Elasticity Imaging
Ryosuke Iwasaki, Ryo Takagi, Ryo Nagaoka, Hayato Jimbo, Shin Yoshizawa, Yoshifumi Saijo, and Shin-ichiro Umemura
- [P-6] Confocal ultrasonic setup for doxorubicin anti-tumor potentiation
Maxime Lafond, Jacqueline Ngo, Fabrice Prieu, Cécile Fant, Bernadette Rogez, Jean-Louis Mestas, Cyril Lafon
- [P-7] Estimation of tissue degeneration area using simulation of tissue temperature increase by HIFU exposure
Kentaro Tomiyasu, Ryo Takagi, Shin Yoshizawa, Shin-ichiro Umemura
- [P-8] In-situ Monitoring of Crevice Corrosion by Chemical Imaging Sensor
Sakura Sakakita, Ko-ichiro Miyamoto, and Tatsuo Yoshinobu
- [P-9] Photoacoustic applications for dentistry -pulp vitality test and hidden caries detection-
Azusa Yamada, Satoko Kakino, Yuji Matsuura
- [P-10] Vessel Filtering and Reconstruction of 3D Photoacoustic images
Israr Ul Haq, Ryo Nagaoka, Takahiro Makino, Takuya Tabata, Mototaka Arakawa, Yoshifumi Saijo
- [P-11] Visualization of Shear Wave Propagation by Dual Acoustic Radiation Pressure
Yuta Mochizuki, Hirofumi Taki, and Hiroshi Kanai
- [P-12] Formation of Stable Artificial Bilayer Lipid Membranes in Nano-Tapered Microapertures
Araki Shun, Ayumi Hirano-Iwata, Daisuke Tadaki, Kenichi Ishibashi, Hideaki Yamamoto and Michio Niwano
- [P-13] Study on Basic Characteristics of Nano-Bubbles Generated by Porous Alumina Thin Film
Natsuki Yamada, H. Saito, Teng Ma, Hideaki Yamamoto, Kenichi Ishibashi, Ayumi Hirano-Iwata, and Michio Niwano
- [P-14] Recording Multi-and Single-Channel Currents of Human Ion-Channels in Solvent-Free Bilayer Lipid Membranes in Taped Microapertures
Miyu Yoshida, Shun Araki, Ayumi Hirano-Iwata, Hideaki Yamamoto and Michio Niwano
- [P-15] STM Tip-induced Deformation of a Single Ag Nanoparticle Investigated by STM Light Emission

Spectroscopy

Masaki Hotsuki, Satoshi Katano, and Yoichi Uehara

[P-16] Nano-scale Structural and Electronic Properties of Graphene Oxide Investigated by Scanning Tunneling Microscopy

Tao Wei, Satoshi Katano, and Yoichi Uehara