

12th International Workshop on Nanostructures & Nanoelectronics

Online

March 14-15, 2022

Organized by

**Research Institute of Electrical Communication
Tohoku University**

Co-Organized by

**Nano-Spin Engineering Seminar
Cooperative Research Projects
Information Biotronics Seminar**

Cooperative Society

**Division of Soft-Nanotechnology,
The Japan Society of Vacuum and Surface Science**

12th International Workshop on Nanostructures & Nanoelectronics

【Online】



Organizer:

Symposium Chairs

Ayumi Hirano-Iwata, Tohoku Univ.

Ryugo Tero, Toyohashi Univ. of Tech.

Program Committee

Ayumi Hirano-Iwata, Tohoku Univ.

Organizing Committee

Ayumi Hirano-Iwata, Tohoku Univ.

Ryugo Tero, Toyohashi Univ. of Tech.

Teng Ma, Tohoku Univ.

Daisuke Tadaki, Tohoku Univ.

Program

March 14 (Monday)

Red: Local time in Japan (JST)

Blue: UTC

[Germany: UTC+1, China: UTC+8]

- 17:00 ~ 17:05** Opening Remarks
- 8:00 ~ 8:05** Ayumi Hirano-Iwata^{1,2}
(¹Research Institute of Electrical Communication, Tohoku University, Sendai, Japan, ²Advanced Institute for Materials Research, Tohoku University, Sendai, Japan)
- (Chair: Teng Ma)
- 17:05 ~ 17:50** Titania nanotubes in photocatalytic H₂ generation
- 8:05 ~ 8:50** Patrik Schmuki
(Department of Materials Science WW-4, LKO, Friedrich-Alexander University of Erlangen-Nuremberg, Erlangen, Germany)
- 17:50 ~ 18:20** The Scaffold of molecular nanocoils composed of organic conducting materials,
8:50 ~ 9:20 and its electromagnetic properties with AC magnetic field
Yoko Tatewaki¹, Tsuyoshi Minami², Sadafumi Nishihara³, Tomoyuki Akutagawa⁴,
Takayoshi Nakamura⁵
(¹Tokyo University of Agriculture and Technology, Koganei, Japan, ²The University of Tokyo, Tokyo, Japan, ³Hiroshima University, Hiroshima, Japan, ⁴Tohoku University, Sendai, Japan, ⁵Hokkaido University, Sapporo, Japan)
- 18:20 ~ 18:50** RT atomic layer deposition of aluminum silicate and SiO₂ multiple layers for ion
9:20 ~ 9:50 sorption
Fumihiko Hirose
(Yamagata University, Yonezawa, Japan)
- 18:50 ~ 19:10** Break
- 9:50 ~ 10:10**

(Chair: Ayumi Hirano-Iwata)

- 19:10 ~ 19:40** Reconstitution of membrane proteins into a micropatterned model membrane
10:10 ~ 10:40 Fuko Kueda¹, Fumio Hayashi², Kenichi Morigaki^{1,3}
(¹Graduate School of Agricultural Science, Kobe University, Kobe, Japan, ²Graduate School of Science, Kobe University, Kobe, Japan, ³Biosignal Research Center, Kobe University, Kobe, Japan)
- 19:40 ~ 20:10** Control of quenching efficiency in lipid bilayers on graphene oxide
10:40 ~ 11:10 Jocelyn Lau Min Yuan¹, Kensaku Kanomata², Fumihiko Hirose², Ryugo Tero¹
(¹Toyohashi University of Technology, Toyohashi, Japan, ²Yamagata University, Yonezawa, Japan)
- 20:10 ~ 20:40** Nanopore intelligent sensing towards single peptide sequencing
11:10 ~ 11:40 Yi-Lun Ying, Xinyi Li, Hongyan Niu, Yi-Tao Long
(State Key Laboratory of Analytical Chemistry for Life Science, School of Chemistry and Chemical Engineering, Nanjing University, Nanjing, China)

March 15 (Tuesday)

Red: Local time in Japan (JST)

Blue: UTC

[Germany: UTC+1, China: UTC+8]

(Chair: Daisuke Tadaki)

- 17:00 ~ 17:45** Shape-changing and conformable electrode arrays for peripheral nerve interfaces
8:00 ~ 8:45 Lukas Hiendlmeier¹, Francisco Zurita¹, Tetsuhiko Teshima², Leroy Grob¹, Fulvia Del Duca¹, Bernhard Wolfrum¹
(¹Neuroelectronics, ZEITlab, Munich Institute of Biomedical Engineering, Department of Electrical and Computer Engineering, Technical University of Munich, Munich, Germany, ²Medical & Health Informatics Laboratories, NTT Research Incorporated, Sunnyvale, CA, USA)
- 17:45 ~ 18:15** Electrochemical nano-imaging of vascular model and stem cell differentiation
8:45 ~ 9:15 Hitoshi Shiku^{1,2}, Yuji Nashimoto^{1,3}, Kosuke Ino^{1,2}
(¹Graduate School of Engineering, Tohoku University, Sendai, Japan, ²Graduate School of Environmental Studies, Tohoku University, Sendai, Japan, ³Frontier Research Institute for Interdisciplinary Sciences, Tohoku University, Sendai, Japan)

18:15 ~ 18:45 Anodic TiO₂ nanotubes for biomedical applications

9:15 ~ 9:45 Anca Mazare^{1,2}, Patrik Schmuki^{1,3,4}

(¹Department of Materials Science WW-4, LKO, Friedrich-Alexander University of Erlangen-Nuremberg, Erlangen, Germany, ²Advanced Institute for Materials Research, Tohoku University, Sendai, Japan, ³Regional Centre of Advanced Technologies and Materials, Olomouc, Czech Republic, ⁴Department of Chemistry, Faculty of Science, King Abdulaziz University, Jeddah, Saudi Arabia)

18:45 ~ 19:05 Break

9:45 ~ 10:05

(Chair: Ryugo Tero)

19:05 ~ 19:35 Artificial cell membrane systems for controlling intramembrane voltages

10:05 ~ 10:35 Ayumi Hirano-Iwata^{1,2}

(¹Research Institute of Electrical Communication, Tohoku University, Sendai, Japan, ²Advanced Institute for Materials Research, Tohoku University, Sendai, Japan)

19:35 ~ 20:05 Breakdown of the Nernst-Einstein relation in carbon nanotube porins

10:35 ~ 11:05 Zhongwu Li

(School of Mechatronic Engineering, China University of Mining and Technology, Xuzhou, China)

20:05 ~ 20:30 Non-raft membrane domain formation in cholesterol-containing lipids bilayers:
polyunsaturated lipid domains

11:05 ~ 11:30

Mervin Wei Shern Goh, Ryugo Tero

(Toyohashi University of Technology, Toyohashi, Japan)