SISS-17

The Scientific International Symposium on SIMS and Related Techniques Based on Ion-Solid Interactions

Date: June 25 and 26, 2015

Venue: Meeting Room on the 4th floor, University Building #14,

Seikei University, Tokyo

Organizing Committee:

Hisayoshi Yurimoto (Hokkaido University), Chair
Akio Takano (NTT-AT), Executive Committee
Masashi Nojima (Tokyo University of Science)
Satoka Aoyagi (Seikei University)
Songsu Cho (Ametek)
Makishi Ishikawa (Ametek)
Syuji Ishikawa (Hitachi High-Tech Solutions)
Akiya Karen (National Institute for Materials Science)
Masahiro Kudo (Seikei University)
Toyomitsu Miyasaka (Asahi Kasei)
Jiro Matsuo (Kyoto University)
Atsushi Murase (Toyota Central R&D Labs.)
Suguru Nishinomiya (Nippon Steel & Sumitomo Metal)
Retsu Oiwa (Oxford Instruments)
Shinya Otomo (Furukawa Electric)
Reiko Saito (Toshiba)
Yasuo Shimizu (Tohoku University)
Tatsuya Shiramizu (Mitsubishi Electric)
Takahiko Suzuki (ULVAC-PHI)

Program and Contents

June 25, 2015 (Thu)

Opening remark (9:55-10:00)

Plenary (10:00-12:10)

O1-1. (10:00-10:40) *- Plennary talk -* ………………………………………………………….. 1

Projectile Assisted Surface Chemistry: A possible Route to Enhance Molecular Secondary Ion Yields?

A. Wucher (*Universität Duisburg-Essen*)

O1-2. (10:40-11:10) *- Invited -* ……………………………………………………………….. 2

Low Energy Cesium: an Alternative Pathway for Organic Depth Profiling

L. Houssiau (*University of Namur*)

O1-3. (11:10-11:40) *- Invited -* ……………………………………………………………….. 4

ToF-SIMS depth profiling of nanoparticles

L. Yang (*Xi'an Jiaotong Liverpool University*)

O1-4. (11:40-12:10) *- Invited -* ……………………………………………………………….. 6

Transmission SIMS: A novel approach to achieving higher secondary ion yields of intact biomolecules

K. Kimura (*Kyoto University*)

Lunch (12:10-13:00)

Inorganic Session (13:00-15:20)

O1-5. (13:00-13:30) *- Invited -* ……………………………………………………….………… 8

Atom Probe Analysis on Compound Semiconductor Devices for Automotive Applications

K. Nishikawa (*Toyota Central R&D Labs., Inc.*)

O1-6. (13:30-14:00) …*- Invited -* ……………………………………………………….……… 10

Dynamic SIMS is Not Dead (in fact, it's more fun than ever!)

C. Magee (*Evans Analytical Group, Inc.*)

O1-7. (14:00-14:20) ………………………………………………………….....………………… 12

Investigation of dopant and impurity profiles on SiC-MOSFET by Dynamic SIMS and dual-beam TOF-SIMS

J. Sameshima (*Toray Research Center Inc.*)

O1-8. (14:20-14:40) ………………………………………………………….....………………… 13

Probing fast grain boundary diffusion by ToF-SIMS depth profiling with Selective Attenuation of Specific Secondary Ions (SASI)

H. Téllez (*Kyushu University*)

O1-9. (14:40-15:00) 15

3D-SIMS application by using Checker Board of IMS-7f

T. Asakawa (*Seiko Epson Corporation*)

O1-10. (15:00-15:20) 16

Applications of TOF-SIMS in Materials Protection

Chunli Dai (*Chinese Academy of Science.*)

Break (15:20-15:40)

Maker Session (15:40-17:00)

O1-11. (15:40-16:00) 18

The LEAP 5000 ando State of the Art Applications

Ty Prosa (*AMETEK−CAMECA*)

O1-12. (16:00-16:20) 19

Recent development of PHI nano TOF II with various capabilities

T. Miyayama (*ULVAC-PHI, Inc.*)

O1-13. (16:20-16:40) 20

In order to expand the Application of FILMER

T. Ishikawa (*TOYAMA CO. LTD.*)

O1-14. (16:40-17:00) 22

TOF.SIMS 5 - A Success Story for All Kind of SIMS Applications

T. Grehl (*ION-TOF GmbH*)

Poster short presentation for posters (17:00-17:40)

Poster session (17:40-19:00)

P-1. 24

Development of high-precision analysis of multilayer structure

T. Imazawa (*Mitsubishi Electric Corporation*)

P-2. 26

Quantitative and Qualitative Study of halogen and sodium doped Silicon and Silicon Oxides by Atom Probe Tomography

N. Mayama (*Toshiba Nanoanalysis*)

P-3. 28

Cluster Analysis of Aerosol Particles with FIB-TOF-SIMS

M. Morita (*Kogakuin University*)

P-4. …………………………………………………………………………………………………… 29

Observation of Boron Ionization in Silicon by Nonresonant Photoionization Sputtered Neutral Mass Spectrometry

H. Akutsu (*Toshiba Corporation Semiconductor & Storage Products Company*)

P-5. …………………………………………………………………………………………………… 31

TOF-SIMS depth profiling of Li in glasses by C_{60} sputtering

Y. Lang (*ASAHI GLASS CO., LTD.*)

P-6. …………………………………………………………………………………………………… 33

Cluster secondary ion mass spectrometry of polyester/melamine resin

S. Nishinomiya (*Nippon Steel & Sumitomo Metal Corporation*)

P-7. …………………………………………………………………………………………………… 34

The Effect of Yield and Damage Cross-Section on Imaging Analysis of Organic Materials by Different Primary Bi ions in TOF-SIMS

R. Shishido (*Tohoku University*)

P-8. …………………………………………………………………………………………………… 36

Chemical mapping of organic/inorganic chemicals in frozen-hydrated biological samples

D. Aoki (*Nagoya University*)

P-9. …………………………………………………………………………………………………… 38

Development of SIMS instruments with Focused Cluster Ion Beam toward New Applications

K. Suzuki (*Kyoto University*)

P-10. …………………………………………………………………………………………………… 39

Removal of Damage Layer on Polymer Surface by Using Ar-GCIB

S. Iida (*ULVAC-PHI, Inc.*)

P-11. …………………………………………………………………………………………………… 41

Practical examples of mass scale calibration with quaternary ammonium ion in TOF-SIMS

D. Kobayashi (*Asahi Glass CO., LTD.*)

P-12. …………………………………………………………………………………………………… 43

Evaluation of Linearity of the Instrumental Intensity Scale in Static TOF-SIMS Using Mo or Pd Isotopes

A. Murase (*Toyota Central R&D Labs., Inc.*)

P-13. …………………………………………………………………………………………………… 45

Development of a cycloid mass separator by rotating electric field

M. Nojima (*Tokyo University of Science*)

Social meeting (19:00-20:00)

June 26, 2015 (Fri)

Inorganic & Bio-Medical 1 (9:00-10:50)

O2-1. (9:00-9:30) *- Invited -* ………………………………………………………………………… 47

MALDI-MS-Based Metabolomic Imaging for Visualizing Spatiotemporal Metabolic Behaviors

D. Miura (*Kyushu University*)

O2-3. (9:30-9:50) ………………………………………………………………………………… 49

Three-Dimensional Image of Cleavage Bodies in Nuclei Is Configured Using Gas Cluster Ion Beam with Time-of-Flight Secondary Ion Mass Spectrometry

N. Masaki (*Hamamatsu University School of Medicine*)

O2-4. (9:50-10:20) *- Invited -* ………………………………………………………………………… 51

Imaging the Distributions of Cholesterol and Sphingolipids in Cellular Membranes with High-Resolution SIMS

M. Kraft (*University of Illinois*)

O2-5. (10:20-10:50) *- Invited -* ………………………………………………………………………… 53

Biomolecular imaging of tissues, liposomes and fossils using TOF-SIMS

P. Sjövall (*SP Technical Research Institute of Sweden*)

Break (10:50-11:00)

Inorganic & Bio-Medical 2 (11:00-12:20)

O2-6. (11:00-11:30) *- Invited -* ………………………………………………………………………… 54

ToF-SIMS 3D Imaging and Depth Profiling of (Bio)Polymers

B. Hagenhoff (*Tascon GmbH*)

O2-7. (11:30-11:50) ………………………………………………………………………………… 56

Interfacial analysis of organic multilayer by using 3D TOF-SIMS imaging

H. Noda (*FUJIFILM Corporation*)

O2-8. (11:50-12:20) *- Invited -* ………………………………………………………………………… 57

Application of NanoSIMS to Deep Subseafloor Life

F. Inagaki (*Japan Agency for Marine-Earth Science and Technology*)

Lunch (12:20-13:15)

Inorganic & Bio-Medical 3 (13:15-14:45)

O2-9. (13:15-13:45) - *Invited* - ………………………………………………………… 59

Enhancing SIMS ionisation using water cluster ion beams

N. Lockyer (*The University of Manchester*)

O2-10. (13:45-14:05) ………………………………………………………… 61

Energy dependent proton attachment to amino acid via large water, methanol cluster ions

K. Moritani (*University of Hyogo*)

O2-11. (14:05-14:25) ………………………………………………………… 63

Comparative Study of Cluster SIMS and Other Techniques for Highly Accurate Organic Analysis

M. Fujii (*Kyoto Universitye*)

O2-12. (14:25-14:45) ………………………………………………………… 65

A study of the primary energy dependence of peptide fragmentation

Y. Yokoyama (*Seikei University*)

Break (14:45-15:00)

SIMS Related Technique Session (15:00-17:50)

O2-13. (15:00-15:20) ………………………………………………………… 67

A New Ambient Analysis using MeV-SIMS for Liquid-Solid Interface

M. Kusakari (*Kyoto University*)

O2-14. (15:20-15:50) - *Invited* - ………………………………………………………… 68

Surface analysis of oxide layer on steel using SIMS and APT

S. Kim (*National Institute for Nanomaterials Technology*)

O2-15. (15:50-16:20) - *Invited* - ………………………………………………………… 69

Atom probe investigation of nano-features behavior about nuclear materials

K. Nishida (*CRIEPI*)

O2-16. (16:20-16:40) ………………………………………………………… 71

Analysis of amino acids by the scanning atom probe

M. Taniguchi (*Kanazawa Institute of Technology*)

O2-17. (16:40-17:10) - *Invited* - ………………………………………………………… 73

Quantitative Analysis of the Outer Surface by LEIS: Applications to Catalysts, Graphene, Ionic Liquids, and NPs

H. Brongersma (*ION-TOF GmbH*)

O2-18. (17:10-17:30) ………………………………………………………………………………… 74

Low Energy Ion Scattering for thin film analysis

T. Grehl (*ION-TOF GmbH*)

O2-19. (17:30-17:50) ………………………………………………………………………………… 75

Low Energy Ion Scattering Studies of Segregation in Materials for Electrochemical Energy Conversion Devices

J. Druce (*Kyushu Univ.*)

Closing remark (17:50)