

第18回「イオンビームによる表面・界面解析」特別研究会

2017年12月15日(金)～2017年12月16日(土)

物質・材料研究機構 WPI-MANA 棟オーデトリウム

Program

December 15 (Friday)

13:00 Opening

13:00-13:05 Welcome address

Masakazu Aono

*Executive advisor, International Center for Materials Nanoarchitectonics (MANA),
National Institute for Materials Science*

Session 1

13:05-13:45 Invited talk

“High Resolution Concentration Depth Profiles for Analysing Soft Matter Surfaces with NICISS”

Gunther Andersson

*Flinders Centre for NanoScale Science and Technology, Flinders University,
Australia*

13:45-14:05

“Low energy atom scattering spectroscopy of Cr₂O₃(0001)”

K. Umezawa

*Dept of Physics, College of Arts and Sciences,
Dept. of Quantum and Radiation Engineering, Graduate School of Engineering
Osaka Prefecture University*

14:05-14:25

“Surface analysis of native oxides on GaN(0001): An LEIS and RHEED study”

Yoshihiro Irokawa, Taku T. Suzuki, Kazuya Yuge, Akihiko Ohi, Toshihide Nabatame, Koji Kimoto, Tsuyoshi Ohnishi, Kazutaka Mitsuishi, and Yasuo Koide

National Institute for Materials Science

14:25-14:45

“New Electrical Potential Observation Technique by Active Voltage Contrast Imaging using Helium Ion Microscopy”

Chikako Sakai, Nobuyuki Ishida, Shoko Nagano, Keiko Onishi, Daisuke Fujita
National Institute for Materials Science

14:45-15:05

“Magnification properties of electrostatic divergent lens with extremely short focal length”

Saba Maeda, Hiroshi Tsuji, and Yasuhito Gotoh
Department of Electronic Science and Engineering, Kyoto University

15:05-15:20 Coffee Break

Session 2

15:20-16:00 Invited talk

“Metastable Induced Electron Spectroscopy as tool for investigating the surface of ionic liquids”

S.Krischok¹, A. Ulbrich¹, T. Ikari², W.J.D. Beenken¹, V. Kempter³, M. Marschewski³, and O. Höfft⁴

¹*Institut für Physik and Institut für Mikro- und Nanotechnologien, TU Ilmenau, Germany*

²*Ube National College of Technology, Department of Electrical Engineering*

³*Institute of Energy Research and Physical Technologies, TU Clausthal, Germany*

⁴*Institute of Electrochemistry, TU Clausthal, Germany*

16:00-16:40 Invited talk

“First Principles Simulations of Reactive and Non-Reactive Gas/Surface Dynamics”

J.I. Juaristi

Departamento de Física de Materiales, Facultad de Químicas, Universidad del

País Vasco (UPV/EHU), Centro de Física de Materiales CFM/MPC(CSIC-UPV/EHU), and Donostia International Physics Center (DIPC), Spain

16:40-17:00

“Electron energy dependence of intensity oscillations of scattered keV proton beam from an ESD surface of KBr”

Yuuko Fukazawa, Kenya Tasaki, Ryoki Nakagawa, and Yasufumi Susuki
Division of Science Education, Osaka-Kyoyaku University

17:00-17:20

“Theory on the Anomalous Asymmetric Scattering of the Spin-Polarized 4He+ Beam with Paramagnetic Target Materials”

O. Sakai^{1,2} and T. T. Suzuki²

¹*Comprehensive Research Organization for Science and Society*

²*National Institute for Material Science*

17:20-17:30 Break

17:30-18:00 Short presentation by sponsors

アドキャップバキュームテクノロジー株式会社

株式会社アールデック

株式会社オプティマ

シエンタオミクロン株式会社

株式会社トヤマ

伯東株式会社

18:15-20:15 Banquet (WPI-MANA Building Cafeteria)

December 16 (Saturday)

Session 3

9:00-9:40 Invited talk

"In situ measurement of solar storm helium"

H. Yurimoto¹, A. Tonomi¹, K. Bajo¹, C. T. Olinger², D. Reisenfeld³, A. J. G. Jurewicz⁴, S. Itose⁵, I. Sakaguchi⁶, M. Ishihara⁷, K. Uchino⁸ and D. S. Burnet⁹

¹*Hokkaido University*

²*Physics and Nuclear Engineering, United States Military Academy, USA*

³*Department of Physics & Astronomy, University of Montana, USA*

⁴*CMS/SESE, Arizona State University, USA.*

⁵*JEOL Ltd.,*

⁶*National Institute for Materials Science*

⁷*Department of Physics, Osaka University*

⁸*Graduate School of Engineering Sciences, Kyushu University*

⁹*Division of Geological and Planetary Sciences, California Institute of Technology, USA*

9:40-10:00

"Development of a novel imaging system for transmission SIMS using MeV C60 primary ions"

Kaoru Nakajima¹, Kazuki Yamamoto¹, Hiroaki Ishii¹, Junpei Sawada¹, Shunya Kitamura¹, and Kenji Kimura¹

¹*Department of Micro Engineering, Kyoto University*

10:00-10:20

"Solid-Liquid Transitions of Thin Water and Alcohol Films"

Ryutaro Souda

National Institute for Materials Science

10:20-10:40

"Ambient Secondary Ion Mass Analysis with MeV-energy Heavy Ion by Using Pipe Nozzle"

Toshio Seki^{1, 4}, Kenta Ishii¹, Takaaki Aoki^{3, 4} and Jiro Matsuo^{2, 4}

¹*Department of Nuclear Engineering, Kyoto University,*

²*Quantum Science and Engineering Center, Kyoto University*

³*Academic Center for Computing and Media Studies, Kyoto University*

⁴SENTAN, Japan Science and Technology Agency (JST)

10:40-10:55 Coffee Break

Session 4

10:55-11:15

“Evaluation of sensitivity for oxygen by means of TOF-ERDA”

Keisuke Yasuda¹, Yuta Kajitori¹, Momomi Oishi¹, Yoichi Haruyama¹, Yoshinori Nakata² and Kotaku Suzuki²

¹Kyoto Pref. Univ.

²Wakasa Wan Energy Research Center

11:15-11:35

“Study of background noise in high-resolution ERDA spectrum for improvement on detection limit of hydrogen”

I. Harayama, T. Tamura, K. Tsujita, Y. Watahiki, D. Sekiba

Faculty of Pure and Applied Sciences, University of Tsukuba

11:35-11:55

“High Resolution Li Depth Profiling of Thin Films Stacked Li Ion Battery by Means of TERD Technique with 5MeV He⁺2 Ion Beam”

K. Morita¹, B.Tsuchiya², J. Ohnishi³, T. Yamamoto³, Y. Iriyama³, H. Tsuchida⁴, T.

Majima⁴, K. Suzuki⁵

¹*Department of Research, Nagoya Industrial Science Research Institute*

²*Department of General Education, Faculty of Science and Technology, Meijo University*

³*Department of Material Engineering, Graduate School of Engineering, Nagoya University*

⁴*Quantum Energy Science and Engineering Education and Research Center, Kyoto University*

⁵*Department of Research, The Wakasa-wan Energy Research Center*

11:55-12:15

“Development of Simultaneous 1H and 2D Hydrogen Isotope Detection with 15N

Nuclear Reaction Analysis”

Markus Wilde¹, Masuaki Matsumoto², Liang Gao³, Thomas Schwarz-Selinger³,
Armin Manhard³, Wolfgang Jacob³

¹*Institute of Industrial Science, The University of Tokyo*

²*Tokyo Gakugei University*

³*Max-Planck Institute of Plasma Physics, Germany*

12:15-12:25 Break

12:25-13:05 Lunch on seminar

“Authors' Rights in Open Science - Open or Close?”

Mikiko Tanifuji

Deputy Managing Director, Materials Data Platform Center (DPFC)

*Research and Services Division of Materials Data and Integrated System
(MaDIS), National Institute for Materials Science*

13:05-13:15 Break

Session 5

13:15-13:35

“Refractive index enhancement in YAG crystals induced by swift heavy ion irradiation”

H. Amekura¹, Rang Li², Feng Chen², N. Okubo³, and N. Ishikawa³

¹*National Institute for Materials Science*

²*School of Physics, State Key Laboratory of Crystal Materials and Key Laboratory of Particle Physics and Particle Irradiation (MOE), Shandong University, Jinan 250100, China*

³*Japan Atomic Energy Agency (JAEA)*

13:35-13:55

“In-situ measurement of Ion Beam Induced Luminescence analysis during focused proton microbeam irradiation”

Wataru Kada¹, Takahiro Satoh², Kenta. Miura¹, Masashi Koka³, Naoto Yamada²,
Tomihiko Kamiya¹, and Osamu Hanaizumi¹

¹*Faculty of Science and Technology, Gunma University*

²*National Institutes for Quantum and Radiological Science and Technology,*

Takasaki Advanced Radiation Research Institute

³Beam Operation Co., Ltd

13:55-14:15

“Beam profiles of fast carbon cluster ions passing through tapered microcapillaries”

R. Murase¹, T. Majima^{1,2}, M. Saito¹, H. Tsuchida^{1,2}

¹*Department of Nuclear Engineering, Kyoto University*

²*Quantum Science and Engineering Center, Kyoto University*

14:15-14:35

“The RBS analysis for a thin amorphous Si layer formed on clean and H-terminated Si(001) surfaces followed by medium-energy IBIEC treatments”

G. Yachida, Y. Hoshino, K. Inoue, and J. Nakata

Department of Mathematics and physics, Kanagawa University

14:35-14:55

“Development of external RBS analysis at University of Göttingen”

M. Saito^{a,b}, K. Holm^{a,c}, S. Koike^d, F. L. Bregolin^a, H. Hofsäss^a

^a *II. Physikalisches Institut, Georg-August-Universität Göttingen, Germany*

^b *Toray Research Center Inc.*

^c *Institut für Physik, Martin-Luther-Universität Halle-Wittenberg, Germany*

^d *Department of Neurobiology, Max Planck Institute for Biophysical Chemistry, Germany*

14:55 Closing