

第19回「イオンビームによる表面・界面解析」特別研究会

2018年12月7日(金)～2018年12月8日(土)

京都大学宇治キャンパス 総合研究実験1号棟4階 HW401

Program

December 7 (Friday)

13:00 Opening

13:00-13:05 Opening remarks

Ikuji Takagi

Quantum Science and Engineering Center, Kyoto University

Session 1 Chair: Taku Suzuki

13:05-13:45 Invited talk

“Surface and Interface Analysis of Liquids and Wet Cells with Ion Beam Techniques - Vacuum or Ambient”

Dae Won Moon

DGIST, Department of New Biology, Daegu, Korea

13:45-14:25 Invited talk

“Ion Beam Induced Luminescence analysis and imaging system utilizing focused ion microbeam for in-situ diagnostics of radiation induced changes during irradiation”

Wataru Kada¹, Takahiro Satoh², Ivan Sudić³, Natko Skukan³, Kenta Miura¹, Masashi Koka⁴, Naoto Yamada², Yasuyuki Ishii¹, Milko Jakšić³, and Osamu Hanaizumi¹

¹ Faculty of Science and Technology, Gunma University

² Takasaki Advanced Radiation Research Institute, National Institutes for Quantum and Radiological Science and Technology (QST)

³ Rudjer Boskovic Institute, Croatia

⁴ Beam Operation Co., Ltd

14:25-14:45

“Ambient Secondary Ion Mass Analysis of Fatty Acids with MeV-energy Heavy Ion”

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

¹ Department of Nuclear Engineering, Kyoto University

² Academic Center for Computing and Media Studies, Kyoto University

³ Quantum Science and Engineering Center, Kyoto University

⁴ SENTAN, Japan Science and Technology Agency (JST)

14:45-15:00 Coffee Break

Session 2 Chair: Hidetsugu Tsuchida

15:00-15:40 Invited talk

“Status of Ion Beam Analysis at CIBA, NUS: Proton Induced Gamma Emission (PIGE), Channeling Contrast Microscopy (CCM) and High Resolution Rutherford Backscattering (RBS)”

Thomas Osipowicz

Centre for Ion Beam Applications, Department of Physics, NUS, Singapore

15:40-16:00

“Atomic arrangement and spin polarization at Ge/Fe(100) surfaces: spin-polarized ion scattering spectroscopy study”

Taku Suzuki

National Institute for Materials Science

16:00-16:20

“Low energy atom scattering of BaF₂(111)”

Kenji Umezawa

Dept. of Physics, College of Arts and Sciences,

Dept. of Quantum and Radiation Engineering, Graduate School of Engineering

Osaka Prefecture University

16:20-16:40

“Surface temperature of KBr crystal placed on a sample-heater in a vacuum chamber”

Yuuko Fukazawa, Kenya Tasaki, and Yasufumi Susuki

Division of Science Education, Osaka-Kyoiku University

16:40-17:00

“Coincidence measurements of secondary ions and forward-scattered projectiles in fast

heavy-ion collisions with microdroplets”

S. Mizutani¹, T. Majima¹, K. Kitajima¹, M. Saito¹, and H. Tsuchida²

¹Department of Nuclear Engineering, Kyoto University

²Quantum Science and Engineering Center, Kyoto University

17:00-17:10 Coffee Break

17:10-17:50 Short presentation by sponsors, Chair: Manabu Saito

アルバック・ファイ株式会社

アドキャップバキュームテクノロジー(株)

伯東株式会社

シエンタ オミクロン株式会社

18:00-20:00 Banquet (Café Restaurant Kihada)

December 8 (Saturday)

Session 3 Chair: Jiro Matsuo

9:00-9:40 Invited talk

“Dopant Behavior in Semiconductor Materials and Nanostructures Analyzed by Atom Probe Tomography”

Yasuo Shimizu

Institute for Materials Research, Tohoku University

9:40-10:00

“Sputtering yield of thin Si(100) film impinged by monoatomic and diatomic nitrogen ions”

Yasushi Hoshino and Gosuke Yachida

Department of Mathematics and Physics, Kanagawa University

10:00-10:20

“The epitaxial growth of deposited amorphous Si layer on hydrogen-terminated surfaces using ion beam induced epitaxial crystallization with ion beam mixing”

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

Department of Mathematics and Physics, Kanagawa University

10:20-10:40

“Resonant elastic scattering analysis of phenylalanine thin film on silicon substrate”

Masahiro Nakakami and Yasuhito Gotoh

Department of Electronic Science and Engineering, Kyoto University

10:40-10:55 Coffee Break

Session 4 Chair: Keisuke Yasuda

10:55-11:35 Invited talk

“Improvement in Sensitivity to Biomolecules in MeV-SIMS by Adding Gold nanoparticles or Ionic Liquid Matrices”

Kaoru Nakajima, Hiroshi Nomura, Ryosuke Tatemichi, Fumiyuki Kobayashi, and Kenji Kimura

Department of Micro Engineering, Kyoto University

11:35-11:55

“Studies of Reactions of Li in Cathode and Anode with Metal Electrodes of Li Ion Batteries under Over-Charging and Over-Load Conditions by Means of High Resolution TERD and RBS

Techniques with 5MeV He⁺² Ions”

K. Morita¹, B.Tsuchiya², J. Ohnishi³, T. Yamamoto³, Y. Iriyama³, H. Tsuchida⁴, T. Majima⁴,
R. Ye⁵

¹ Department of Research, Nagoya Industrial Science Research Institute

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

³ Department of Materials Design Engineering, Graduate School of Engineering, Nagoya University

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

⁵ Department of Systems Innovation Engineering, Faculty of Science and Engineering, Iwate University

11:55-12:15

“Performance of the in-air ERDA system at WERC”

K. Suzuki

The Wakasa Wan Energy Research Center

12:15-13:30 Lunch

Session 5 Chair: Takuya Majima

13:30-13:50

“Secondary electron emission from carbon foil induced by swift charged projectiles”

Toshiaki Kaneko¹, Atsushi Daiju¹, and Hidemi Ogawa²

¹ Graduated School of Science, Okayama University of Science

² Graduate School of Hum. and Sci., Nara Women’s University

13:50-14:10

“Measurement of Auger electrons emitted through Coster–Kronig transitions under irradiation of fast C₂⁺ ions”

Y. Shiina¹, R. Kinoshita¹, M. Matsuda², M. Imai³, K. Kawatsura⁴, M. Sataka⁵, K. Sasa⁵ and S. Tomita¹

¹ Institute of Applied Physics, University of Tsukuba

² Nuclear Science Research Institute, Japan Atomic Energy Agency

³ Department of Nuclear Engineering, Kyoto University

⁴ Theoretical Radiation Research Laboratory

⁵ Tandem Accelerator Complex, University of Tsukuba

14:10-14:30

“Improvement of high sensitivity HERDA for hydrogen observation”

Y. Sugisawa¹, M. Uenomachi², K. Tujita¹, D. Sekiba¹, I. Harayama¹, K. Shimazoe², H. Takahashi², K. Ozeki³

¹ Institute of Applied Physics, University of Tsukuba

² Department of Nuclear Management and Engineering, University of Tokyo

³ Department of Mechanical Engineering, Ibaraki University

14:30-14:50

“Influence of hydroxyl radicals on ion damage of biomolecules in aqueous solutions”

Akihiro Kajiwara¹, Shinji Nomura¹, Takaya Sato¹, Makoto Imai¹, Takuya Majima¹, Manabu Saito¹, Hidetsugu Tsuchida^{1,2}

¹ Department of Nuclear Engineering, Kyoto University

² Quantum Science and Engineering Center, Kyoto University

14:50 Closing