Sunday, 17 November 2019

17:00 - Registration
18:00  Mixer (- 21:00)
Monday, 18 November 2019

09:00 Opening (Multipurpose Hall)

Chair: J. Matsuo

09:10 18-PL-1 Leonard C. Feldman, Rutgers University, USA (Plenary)
Nano-Scale Materials Modification and Materials Analysis

09:55 18-I-1 Rainer D. Beck, Ecole Polytechnique Fédéralde de Lausanne, Switzerland (Invited)
Quantum State-Resolved Studies of Methane/Surface Scattering by Vibrational Spectroscopies

10:25 Coffee Break (Small Hall)

Chair: L. Breuer

10:45 18-I-2 Norito Ishikawa, Japan Atomic Energy Agency, Japan (Invited)
Nanohillocks Created in Ceramics Irradiated with Swift Heavy Ions

11:15 18-I-3 Ricardo M. Papaléo, Pontifical Catholic University of Rio Grande do Sul, Brazil (Invited)
Fast Ion Bombardment of Ultrathin Polymer Films: Damage Efficiency under Spatial Confinement

11:45 18-O-1 Kaoru Nakajima, Kyoto University, Japan
Sputtering of Biomolecular Thin Films Irradiated with MeV C_{60} Ions

12:05 18-O-2 Mikolaj Gołuński, Jagiellonian University, Poland
Molecular Dynamics of Organic Monolayer on Free-Standing Graphene Bombarded with keV C_{60} Clusters in Transmission Direction

12:25 Lunch (Small Hall)

Chair: R. Wilhelm

13:45 18-PL-2 Yutaka Kamada, National Institutes for Quantum and Radiological Science and Technology, Japan (Plenary)
Construction Status and Research Regimes of Large Superconducting Tokamak JT-60SA for Fusion Energy Development

14:30 18-O-3 Andreas Kirschner, Forschungszentrum Jülich GmbH, Germany
Erosion Data Needs and Application for Plasma-Wall-Interaction
Modelling in Fusion Research

14:50 18-O-4 Friedrich Aumayr, TU Wien, Austria
Erosion of Realistic Fusion Relevant Materials? Influence of Surface Roughness and Morphology on the Sputtering Yield

15:10 Coffee Break (Small Hall)

Chair: F. Aumyar

15:35 18-I-4 Daniel Primetzhofer, Uppsala University, Sweden (Invited)
Electronic Stopping of keV Ions in Single-Crystalline Self-Supporting Targets

16:05 18-O-5 Janine Schwestka, TU Wien, Austria
Low-Energy Electron Splash from Graphene Driven by Charge Exchange of Highly Charged Ions

16:25 18-O-6 Sascha Creutzburg, Helmholtz-Zentrum Dresden-Rossendorf, Germany
Transmission of Highly Charged Xenon Ions Through a Monolayer of Molybdenum Disulfide

16:45 Coffee Break (Small Hall)

Chair: N. Ishikawa

17:00 18-I-5 Feng Chen, Shandong University, China (Invited)
Ion Beam Modification of 2D Materials for Photonic Applications

17:30 18-O-7 Wararu Kada, Gunma University, Japan
Fluorescent Defect Formation in Single Crystalline Diamond by Focused Proton Irradiation

17:50 18-O-8 Chun-Shang Wong, Sandia National Laboratories, USA
Characterization of W(111)+H Adsorption System using Multi-Angle Ion Scattering and Direct Recoil Maps

18:10 18-O-9 Ryu Murase, Kyoto University, Japan
Incident Molecular Axis Dependence of Secondary Ion Emission from Phenylalanine Target by Fast C⁺⁺ Impacts
18:30  18-O-10 Kousuke Moritani, University of Hyogo, Japan
Collision Induced Protonation of 1,4-Didodecylbenzene by Energetic Water Cluster Impact

(18:50 Dinner)
Tuesday, 19 November 2019

Chair: L. Feldman

09:00  19-PL-3 Richard A. Wilhelm, TU Wien, Austria (Plenary)
      Ion Beam Spectroscopy with 2D Materials

09:45  19-O-1 Barbara Bruckner, Uppsala University, Sweden
      On the Influence of Surface Oxygen on Energy Spectra Obtained with keV Ions

10:05  19-O-2 Pedro Luis Grande, Universidade Federal do Rio Grande do Sul, Brazil
      The Time Dependent Potential (TDPOT) Model for Charge-State Dependent Stopping of Slow Highly Charged Ions

10:25  Coffee Break (Small Hall)

Chair: K. Kimura

10:45  19-I-1 William J. Weber, University of Tennessee, USA (Invited)
      Inelastic Interactions of Ions with Perovskites

11:15  19-O-3 Shigeo Tomita, University of Tsukuba, Japan
      Characteristics of Kinetic Energy Sensitive Detection of keV Particles using Superconducting Tunnel Junction

11:35  19-O-4 Svenja Lohmann, Uppsala University, Sweden
      Studying Ion-Solid Interactions with Pulsed Ion Beams in a 3D-Transmission Approach

11:55  Group Photo

12:05  Lunch (Small Outing)

Chair: J. Juaristi

15:15  19-I-2 Ricardo Diez Muiño, Donostia International Physics Center, Spain (Invited)
      Electronic Friction in Dynamical Processes at Surfaces

15:45  19-O-5 Peter Bauer, Johannes Kepler University, Austria
      Electronic Stopping: Limits of the Free Electron Gas Model
16:05  19-O-6  Lukas Deuchler, Christian-Albrechts-Universität zu Kiel, Germany  
TDDFT Kohn-Sham Spectra During Resonant Neutralization of Hyperthermal H+ Incident on Al(111)

16:25  19-O-7  Alex M. Imai, Kyoto University, Japan  
Charge-State Evolution for C- and W-Ions Through C-Foil Penetration

16:45  Coffee Break (Small Hall)

Chair: S. Facsko

17:00  19-I-3  Lin Chen, Lanzhou University, China (Invited)  
Charge Transfer of Low-energy Ions Scattering on LiF(100), HOPG and Metal Surfaces

17:30  19-I-4  Toma Susi, University of Vienna, Austria (Invited)  
Quantifying Transmission Electron Microscopy Irradiation Effects using Two-Dimensional Materials

18:00  19-O-8  Joseba Iñaki Juaristi, Donostia International Physics Center, Spain  
Ab Initio Molecular Dynamics Simulations of the Alignment Resolved O2 Scattering from Highly Oriented Pyrolytic Graphite

18:20  19-O-9  Hisayoshi Yurimoto, Hokkaido University, Japan  
Aberration-Corrected Focused Ion Beam for Time-of-Flight Secondary Neutral Mass Spectrometry

(18:40 Dinner)
Wednesday, 20 November 2019

Chair: W. Weber

09:00 20-PL-4 Yoshio Hishikawa, Medipolis Proton Therapy and Research Center, Japan (Plenary)
Proton Therapy at a Resort: Medipolis Proton Therapy and Research Center

09:45 20-I-1 Hidetsugu Tsuchida, Kyoto University, Japan (Invited)
Fast Ion Interactions with Liquid Jet Targets under Vacuum using the Capillary Microbeam Method

10:15 20-O-1 Markus Wilde, The University of Tokyo, Japan
Simultaneous $^1$H and $^2$D Quantification in Surface Layers with $^{15}$N Nuclear Reaction Analysis

10:35 Coffee Break (Small Hall)

Chair: C. Sosolik

10:55 20-I-3 Akane Kitamura, Japan Atomic Energy Agency, Japan (invited)
Fabrication of Microstructure on Fluoropolymers by Ion Beam Irradiation

11:25 20-O-9 Michael Probst, University of Innsbruck, Austria
DFT FUNCTIONALS FOR PLASMA-WALL INTERACTIONS: A DATA-DRIVEN APPROACH FOR MOLECULES CONTAINING BE, W AND H

11:45 20-O-2 Denise Erb, Helmholtz-Zentrum Dresden-Rossendorf, Germany
In-Situ GISAXS for Morphological Characterization of Ion-Induced Nanopatterning on the Crystalline Ge(001) Surface

12:05 20-O-3 Hiroshi Amekura, National Institute for Materials Science, Japan
Matrix-Material Dependence on the Elongation of Embedded Gold Nanoparticles Induced by 4 MeV C$_{60}$ Ion Irradiation

12:25 Lunch (Small Hall)

Chair: K. Nakajima

13:45 20-I-4 Lars Breuer, Universität Duisburg-Essen, Germany (Invited)
Molecular Secondary Ion Mass Spectrometry by Laser Post-Ionization
14:15  20-O-4  Michal Kański, Jagiellonian University, Poland
Computer Simulations of Irganox 1010 Sputtered by Large Water Clusters

14:35  20-O-5  Eliezer Kolodney, Technion-Israel Institute of Technology, Israel
Emission of Velocity Correlated Clusters in Fullerene-Solid Single Collision and Diagnostics of the Impact Energized Subsurface Nanovolume

14:55  20-O-6  Yasuhiro Gotoh, Kyoto University, Japan
Irradiation Effects of High Energy Proton Beam to Phenylalanine Thin Films

15:15  Coffee Break (Small Hall)

      Chair: C. Linsmeier

15:35  20-I-5  Gregor Hlawacek, Helmholtz-Zentrum Dresden-Rossendorf, Germany
(Invited)
Focused Ion Beam Materials Modification with Noble Gas Ions

16:05  20-O-7  Paul S. Szabo, TU Wien, Austria
Solar Wind Sputtering of Planetary Mineral Analogues

16:25  20-O-8  Takuya Majima, Kyoto University, Japan
Secondary Ion Emission from Ethanol Droplet Surfaces by MeV-Energy Heavy Ion Impact

16:45  Coffee Break (Small Hall)

17:00  Poster Introduction Session

      Chair: Peter Bauer

20-P1 Mitsuo Tosaki, Kyoto University, Japan
2-D Diffraction Patterns of Single-Crystal Si Wafer Isotropically Irradiated with Monochromatic X-Rays

20-P2 Mitsunori Kurahashi, National Institute for Materials Science, Japan
Alignment Resolved O₂ Chemisorption on Ag(110)

20-P3 Masahide Fujimoto, Tokyo Gakugei University, Japan
Quantification of Hydrogen in the Black TiO₂ by Nuclear Reaction Analysis
20-P4 Kohtaku Suzuki, The Wakasa Wan Energy Research Center, Japan
Hydrogen Analysis of Ceramics by using In-Air ERDA

20-P5 Alexander Breuers, Universität Duisburg-Essen, Germany
An Experimental Approach to Generate Ultra-Short Ion Pulses

20-P6 Yanran Liu, Shandong University, China
Enhancement of Out-of-Plane Charge Transport in a Vertically Stacked Two-Dimensional Heterostructure using Point Defects

20-P7 Yue Liu, Shandong University, China
Enhanced Raman Scattering of CuPc Films on Imperfect WSe₂ Monolayer Correlated to Exciton and Charge-Transfer Resonances

20-P8 Masahito Tagawa, Kobe University, Japan
Importance of Atom-Surface Scattering on the Design Criteria of Future Air Breathing Ion Engine

20-P9 Keisuke Yasuda, Kyoto Prefectural University, Japan
Evaluation of Sensitivity for Oxygen by TOF-ERDA

20-P10 Yuka Hikima, Toho University, Japan
Fine Structure Evaluation by Pattern Recognition for Ion Microbeam Extracted from Tapered Glass Capillary Optics

20-P11 Pawel Kucharczyk, Universität Duisburg-Essen, Germany
Generation of Ultrashort Ion Pulses in the keV Range: Numerical Simulations

20-P12 Kenji Umezawa, Osaka Prefecture University, Japan
Surface Atomic Structure using Low Energy Atom Scattering Spectroscopy: BaF₂(111)

20-P13 Taku T. Suzuki, National Institute for Materials Science, Japan
Pulsed Jet Technique for Surface Analysis of a Gas Sensor at Near-Atmospheric Pressure

20-P14 Kei Mitsuhara, Ritsumeikan University, Japan
Measurement of Scattering Spectrum for Medium Energy Ne⁺ Incidence in the Geometry of ERDA
20-P15 Yuuko Fukazawa, Osaka-Kyoiku University, Japan
Dependence of Intensity Oscillations of Proton Beam Scattered from a KBr ESD-Surface on Energy and Current Density of External Electrons

20-P16 Yui Fukunaga, Nara Women’s University, Japan
Charge State Dependence of Incident Ions for Scattering Pattern by Graphene Sheet

20-P17 Yoshiki Murao, Kochi University of Technology, Japan
Surface Morphology of Si Irradiated with C₆₀ Cluster Ion Beam

20-P18 Momoe Otsuka, Nara Women’s University, Japan
Comparison of Experimental and Simulated Rainbow Scattering Patterns of Silicon Ions by Graphene Sheet

20-P19 Hideyuki Ohashi, Tokyo University of Science, Japan
Interaction Between H₂, O₂ Molecules and WO₃-Based Nanosheet and Application to H₂ Gas Sensor

20-P20 Minoru Nakamura, Tokyo University of Science, Japan
Surface Modification of ZnO by Ion Implantation of Bi, Eu, and Sn Followed by Annealing for Enhancing Gas Sensing Properties

20-P21 Tomoaki Nishimura, Hosei University, Japan
Effect of Mg Ion Implantation to GaN Substrate under Channeling Condition

20-P22 Barbara Bruckner, Uppsala University, Sweden
Electronic Stopping of Light keV Ions in Au and W Foils - Transmission vs. Backscattering

20-P23 Toshiaki Kaneko, Okayama University of Science, Japan
Electron Excitation Processes in Collision of MeV/atom Carbon Cluster Ions with Rare Gases

20-P24 Hiroshi Amekura, National Institute for Materials Science, Japan
Is a Non-Amorphizable Crystal Better for Optical Applications than an Amorphizable Crystal under Swift Heavy Ion Irradiation?
20-P25 Toshio Seki, Kyoto University, Japan
Ambient Secondary Ion Mass Analysis of Electrolyte of Lithium Ion Battery
with MeV-Energy Heavy Ion

20-P26 Shin-ichiro Sato, National Institutes for Quantum and Radiological Science
and Technology, Japan
Photoluminescence Properties of Implanted Praseodymium into Gallium
Nitride at Elevated Temperature

20-P27 Atsushi Kinomura, Kyoto University, Japan
Characterization of Diamond-Like Carbon Films by Slow-Positron and MeV
Ion Beams to Investigate the Origin of Water Wettability

20-P28 Taiki Matsuda, Kyoto University, Japan
Etching by Massive Cluster Ions from Electrospray Ion Source

20-P29 Masaki Tanaka, National Institute of Technology, Ube College, Japan
Oxidation of Potassium Adsorbed 4H-SiC(0001) Reconstructed Surface
Studied by Metastable-Atom Induced Electron Spectroscopy

20-P30 Manabu Saito, Kyoto University, Japan
Observation of Recurrent Fluorescence from Excited Naphthalenen Ions

20-P31 Takuto Watanabe, National Institute of Technology, Ube College, Japan
Carbon Nanotube Growth on Fe Pre-Adsorbed 6H-SiC(000–1) Surface by
Surface Decomposition Method

20-P32 Nobuyuki Nakamura, University of Electro-Communications, Japan
Interactions of Slow Highly Charged Bi$^{q+}$ Ions with HOPG Surface

20-P33 Kumiko Yokota, Kobe University, Japan
Hyperthermal Collision-Induced Erosion of Spacecraft Polymeric Materials
in Low Earth Orbit

18:00 Poster Session with Snacks & Beverages (Small Hall)
Thursday, 21 November 2019

**Chair: L. Henning**

09:00 21-PL-5 Stefan Facsko, *Helmholtz-Zentrum Dresden-Rossendorf, Germany*  
(Plenary)  
Emergence of Nanoscale Patterns under Ion Induced Non-Equilibrium Conditions

09:45 21-O-1 Ronnie Hoekstra, *University of Groningen, Netherlands*  
The Absence of the Single-Scattering Peak in keV Interactions of Sn Ions on Transition Metals, Mo and Ru

10:05 21-O-2 Yu Lei, *Chinese Academy of Sciences, China*  
K-Shell X-Ray Production in Silicon ($Z_2 = 14$) by ($1 \leq Z_1 \leq 53$) Slow Ions

10:25 **Coffee Break** (Small Hall)

**Chair: D. Primetzhofer**

10:45 21-I-1 Cristina Díaz, *Universidad Autónoma de Madrid, Spain* (Invited)  
Quantum State-Resolved Studies of H$_2$ Diffraction from Ionic Surfaces under Fast Grazing Incidence Conditions

11:15 21-I-2 Hocine Khemliche, *Université Paris-Sud, France* (Invited)  
Organization Dynamics at an Organic-Inorganic Interface Revealed in Real-Time by Grazing Incidence Fast Atom Diffraction

11:45 21-O-3 Stefan Krischok, *Technische Universität Ilmenau, Germany*  
Reconstruction of Metastable Induced Electron Spectra of Molecules on Solid Surfaces

12:05 **Outing**

18:00 **Conference Dinner at Yuushien**
Friday, 22 November 2019

Chair: G. Andersson

09:00 22-PL-6 John A. Kilner, Imperial College, UK (Plenary)
The Surface of Complex Oxides; Ion Beam Based Analysis of Energy Materials

09:45 22-I-1 Shigeo Matsuyama, Tohoku University, Japan (Invited)
Development of 3D Imaging Systems using Ion Microbeam

10:15 22-O-1 Satoshi Shigematsu, SUMCO Corporation, Japan
Influence of Oxygen on Copper Gettering in Hydrocarbon Molecular Ion Implanted Region using Atom Probe Tomography

10:35 Coffee Break

Chair: R. Hoekstra

10:45 22-I-2 Kazumasa Narumi, National Institutes for Quantum and Radiological Science and Technology, Japan (Invited)
Development of a Highly-Intense Negative C_{60} Ion Source for a Tandem Accelerator and Its Applications

11:15 22-O-2 Patrick Roy Johnson, Clemson University, USA
Low and Hyperthermal Energy Ion Scattering from Stepped Surfaces

11:35 22-O-3 Bun Tsuchiya, Meijo University, Japan
Dynamic Behavior of Lithium Ions in All-Solid-State Batteries with Charging and Discharging using Ion Beam Analysis

11:55 22-O-4 Hans Rudolf Koslowski, Forschungszentrum Jülich GmbH, Germany
LEIS Study of Cr Segregation and Preferential Sputtering of WCrY

12:15 Closing

12:20 Lunch (Restaurant)