

# - ALC'19 Scientific Program-

**October 21, 2019 (Monday)**

## **Room 1**

*Opening and Joint Plenary Session with SIMS XXII*

*Opening ceremony (10:00 – 10:20)*

**21a-1-1(21-1-P1)** (10:20-11:20) *-Plenary-*

**Primary projectiles for biomolecular secondary ion mass spectrometry**

Peter Williams

*(Arizona State University)*

**21a-1-2(21-1-P1)** (11:20-12:20) *-Plenary-*

**Photoexcited interface reactions — Photocatalysis and its applications**

Akira Fujishima

*(Tokyo University of Science)*

- Lunch -

## **Room 6**

*Plenary and Tutorial Lectures*

**21p-6-1** (14:00-14:50) *-Plenary-*

**Spintronics Nanodevices – From Interface to Advanced Computation**

Hideo Ohno

*(Tohoku University)*

**21p-6-2** (14:50-15:40) *-Plenary-*

**Exploring atomic forces on the picoscale**

Franz J Giessibl

*(University of Regensburg)*

- Break -

**21p-6-3** (15:50-16:50) *-Tutorial-*

**Optimization theory for scanning electron microscopy based on the information content of optical images**

Mitsugu Sato

*(Hitachi High-Technologies Corporation)*

*Catalysis*

**21p-6-4** (17:00-17:30) *-Invited-*

**Ultrathin silica and germania films and how this connects to catalysis!**

Hans-Joachim Freund

*(Fritz Haber Institute of the MPG)*

**21p-6-5** (17:30-18:00) -Invited-

**Polarons on TiO<sub>2</sub> and their affinity for water**

Geoff Thornton

(University College London)

**21p-6-6** (18:00-18:20)

**Characterization of surface modified Ga<sub>2</sub>O<sub>3</sub> photocatalyst for CO<sub>2</sub> reduction with H<sub>2</sub>O**

Masato Akatsuka, Muneaki Yamamoto, Kokoro Yoshioka, Ryota Ito, Tetsuro Tanabe and Tomoko Yoshida

(Graduate School of Engineering, Osaka City University)

## Room 2

*Scanning probe microscopy*

**21p-2-1** (17:00-17:30) -Invited-

**Single-molecule optical spectroscopy with STM**

Yousoo Kim

(RIKEN)

**21p-2-2** (17:30-17:50)

**Probe transient photo-excited carrier dynamics on GaAs surface by time-resolved scanning tunneling microscopy**

Xinyan Shan, Lihuan Sun, Anning Dong, Yang An and Xinghua Lu

(Institute of Physics, Chinese Academy of Sciences)

**21p-2-3** (17:50-18:10)

**Combined atomic force and scanning tunneling microscopy study to identify atomic species in Pt-induced nanowires on Ge(001) surface**

Eiichi Inami, Yoshiaki Sugimoto, Takuya Shinozaki, Oguzhan Gurlu and Ayhan Yurtsever

(Kochi University of Technology)

## Poster Session 1 (18:20-20:10)

- 21p-AP-01** *withdrawn*
- 21p-AP-02** **Real time observation of silver loaded gallium oxide photocatalyst with UV-Vis diffuse reflectance device**  
Daiki Kitajima, Muneaki Yamamoto, Tetsuo Tanabe and Tomoko Yoshida  
(*Osaka City University*)
- 21p-AP-03** **Development of efficient resonance ionization scheme using Ti:Sapphire laser for highly sensitive isobar-free mass spectrometry**  
Hideki Tomita, Volker Sonnenschein, Kotaro Kato, Tetsuo Iguchi, Shinya Yagi, Masanori Hattori, Kazuhiko Morii and Klaus Wendt  
(*Nagoya University*)
- 21p-AP-04** **X-ray intensity ratio of Pb L $\alpha$  to L $\beta$  in 3D-polarized geometry**  
Takahiro Yamamoto, Ryohei Tanaka and Jun Kawai  
(*Kyoto University*)
- 21p-AP-05** **Changes in defect structure of hydrogen reduced MgO by NEXAFS spectroscopy**  
Eiichi Kobayashi, Satoru Yoshioka, Koji K Okudaira, Kyoko K Bando, Osamu Takahashi and Toshihiro Okajima  
(*Kyushu Synchrotron Light Research Center*)
- 21p-AP-06** **Zeta-factor determination using metal thin films for STEM-SDD compositional analysis of iron-based alloy systems**  
Keiko Yamada, Taku Moronaga, Kazushi Hayashi, Chikara Ichihara and Toru Hara  
(*Kobe Steel, Ltd*)
- 21p-AP-07** **Bulk and surface band dispersion mapping of the Au(111) surface by acceptance-cone tunable PES system**  
Fumihiko Matsui, Hiroyuki Yamane, Takahiro Ueba, Toshio Horigome, Seiji Makita, Kiyohisa Tanaka, Satoshi Kera and Nobuhiro Kosugi  
(*Institute for Molecular Science, National Institutes of Natural Science*)
- 21p-AP-08**  $\rightarrow$ -25a-5-1
- 21p-AP-09** **EXAFS studies on active phase structure of Ni-P particles on SiO<sub>2</sub> for non-oxidative methane coupling reactions**  
Md Harun Al Rashid, Arnoldus Dipu, Yuta Nishikawa, Hitoshi Ogihara, Yuta Inami, Shunya Obuchi, Ichiro Yamanaka, Shin-ichi Nagamatsu and Kiyotaka Asakura  
(*Graduate School of Engineering, Hokkaido University, Japan*)
- 21p-AP-10** **CK-XANES analysis of non-benzenoid rings in aromatic compounds using the first principle calculations**  
Yasuji Muramatsu and Yuma Hirai  
(*University of Hyogo*)
- 21p-AP-11** **HAXPES study on the chemical states of reaction films formed by lubricant on metal surfaces**  
Yoshimu Iwanami, Teruo Suzuki, Kazuo Tagawa and Satoshi Yasuno  
(*JXTG Nippon Oil & Energy Corporation*)
- 21p-AP-12** *withdrawn*
- 21p-AP-13** *withdrawn*

- 21p-AP-14** **Chemical states analysis of diamond polished under ultraviolet-ray excitation**  
Masaru Takizawa, Kei Mitsuhara and Takeshi Tanaka  
(*Ritsumeikan University*)
- 21p-AP-15** **Depth-oriented chemical analysis for  $\beta$ -FeSi<sub>2</sub> nano-film on Si substrate**  
Aydar Irmikimov, Ken Hattori, Shunya Ichikawa and Hiroshi Daimon  
(*Division of Material Science, Nara Institute of Science and Technology*)
- 21p-AP-16** **Polarization-dependent X-ray absorption spectroscopy on rutile TiO<sub>2</sub> (110)**  
Daichi Yuyama, Kei Mitsuhara and Masaru Takizawa  
(*Ritsumeikan University*)
- 21p-AP-17** **Derivation of surface roughness correlation function using X-ray reflectivity**  
Yoshikazu Fujii  
(*Kobe University*)
- 21p-AP-18** **Red-Ox of single crystal Ir(100): an in-situ High Energy Surface X-Ray Diffraction study**  
Stefano Albertin, Uta Hejral, Lindsay R Merte, Olof Gutowski, Ann-Christin Dippel and Edvin Lundgren  
(*Lund University*)
- 21p-AP-19** **Observing the reaction intermediates at single crystal surface by in-situ Raman spectroscopy**  
Jin-Chao Dong, Min-Su and Jian-Feng Li  
(*Xiamen University*)
- 21p-AP-20** **A methodology to study the electric field distribution on sample surface in atom probe analysis**  
Sunwei Chen, Bunbunoshin Tomiyasu, and Masanori Owari,  
(*The University of Tokyo*)
- 21p-AP-21** **Instrumental development of the scanner for high-speed scanning tunneling microscopy**  
Hayato Yamashita, Nobuhiro Handa, Yuma Higashiura and Masayuki Abe  
(*Osaka University*)
- 21p-AP-22** **High-resolution NC-AFM imaging of rutile TiO<sub>2</sub> (110)-(1×2) surface**  
Daiki Katsube, Shoki Ojima, Eiichi Inami and Masayuki Abe  
(*Nagaoka University of Technology*)
- 21p-AP-23** **Method combining scanning tunneling microscopy and atom probe tomography for observing inside of materials**  
Takumi Umemura and Shu Kurokawa  
(*Kyoto University*)
- 21p-AP-24** *withdrawn*
- 21p-AP-25** **XANAM measurements on Ge surfaces for surface chemical imaging**  
Shushi Suzuki, Shingo Mukai, Wang Jae Chun, Masaharu Nomura, Syuntarou Fujimori, Mitsuhisa Ikeda, Katsunori Makihara, Seiichi Miyazaki and Kiyotaka Asakura  
(*Graduate School of Engineering, Nagoya University*)
- 21p-AP-26** **Local structures and electronic properties of single molecule magnets TbPc<sub>2</sub> on SrVO<sub>3</sub> (001)**  
Hirofumi Oka, Keiichi Katoh, Masahiro Yamashita and Tomoteru Fukumura  
(*Advanced Institute for Materials Research (AIMR), Tohoku University*)
- 21p-AP-27** **More accurate amplitude measuring method with Non-contact Atomic Force Microscopy**  
Keiichi Ueda and Masayuki Abe  
(*Tokyo Metropolitan Industrial Technology Research Institute*)

- 21p-AP-28 AFM observation of anionic and cationic liposomes in fluid and preparation procedure of liposome-absorbed substrate**  
Yuichi Muraji and Junichiro Sameshima  
*(Toray Research Center, Inc)*
- 21p-AP-29 Visible-Light-Driven Photocatalysis of Gd-Doped ZnO Nanoparticles Prepared by Tartaric Acid Precipitation Method**  
Anukorn Phuruangrat and Surisa Sa-nguanprang  
*(Prince of Songkla University)*
- 21p-AP-30 Synthesis, characterization and photocatalytic activities of visible-light driven Dy-doped ZnO photocatalyst by tartaric acid-assisted combustion method**  
Surisa Sa-nguanprang and Anukorn Phuruangrat  
*(Prince of Songkla University)*
- 21p-AP-31 MD Simulation of Defect Generation by Irradiation of Platinum Particles on Graphite**  
Toshiki Sonoda and Takahiro Yamamoto  
*(Tokyo University of Science)*
- 21p-AP-32 Preparation of the NaTaO<sub>3</sub> crystal from the KTaO<sub>3</sub> substrate via topotactic alkaline cation substitution as confirmed by transmission electron microscopy**  
Mitsunori Kitta and Hiroshi Onishi  
*(AIST)*
- 21p-AP-33 Characteristics of high-energy H<sub>2</sub>O beam generated by catalytic reaction**  
Ryuta Iba, Taro Saito, Kazumasa Takahashi, Abdul Manaf Hashim, Go Imada and Kanji Yasui  
*(Nagaoka University of Technology)*
- 21p-AP-34 Characterization of nitrogen doped semiconductor photocatalysts by soft X-ray spectroscopy**  
Tomoko Yoshida, Akiyo Ozawa, Yuma Kato, Tetsuo Tanabe and Muneaki Yamamoto  
*( Osaka City University)*
- 21p-AP-35 Metal–organic frameworks and their metal-hybrids for enhanced photocatalytic carbon dioxide reduction**  
Wei-Yin Sun  
*(Nanjing University)*
- 21p-AP-36 Analysis of catalytic surface situation during the catalytic reaction by using atom probe microscopy**  
Ryo Murakami, Chen Sunwei, Bunbunoshin Tomiyasu and Masanori Owari  
*(The University of Tokyo)*
- 21p-AP-37 Super-resolution x-ray coherent diffraction imaging by silica-shelled gold nanoparticles**  
Ning Jung Chen, Ying Chen, Jih Heng Yang, Huai Yu Chao, Chia Hui Yeh and Chien-Chun Chen  
*(National Tsing Hua University)*
- 21p-AP-38 Individual single nanocrystal motions observed using time-resolved diffracted x-ray blinking**  
Hiroki Omata, Masahiro Kuramochi, Hiroshi Sekiguchi and Yuji C Sasaki  
*(Graduate School of Frontier Sciences, University of Tokyo)*
- 21p-AP-39 Ab initio calculated optical properties of transition metals for surface plasmon resonance application**  
Muhammad Arifin, Abdul-Muizz Pradipto, Toru Akiyama, Tomonori Ito and Kohji Nakamura  
*(Mie University)*

- 21p-AP-40** **Surface relaxation sequence in Cu(410) by quantitative low energy electron diffraction**  
Rezwan Ahmed, Takamasa Makino, Jessiel S Gueriba, Seigi Mizuno, Wilson A Dino and Michio Okada  
(*Kyushu University*)
- 21p-AP-41** **Fabrication of nano-protrusion on Ir tips by field-induced water etching for Xe gas field ion source**  
Taira Esaki, Shigekazu Nagai, Tatsuo Iwata and Koichi Hata  
(*Mie University*)
- 21p-AP-42** **Desorption of hydrogen from the steps on the miscut Si(111) studied by SFG spectroscopy**  
Goro Mizutani, Yong Zhipeng, Khuat Thi Thu Hien and Harvey N Rutt  
(*Japan Advanced Institute of Science and Technology*)
- 21p-AP-43** **Study for generating voltage on pyroelectric element not by direct heat but by UV laser beam**  
Tomimasa Konishi and Toshiyuki Ishida  
(*BSR Co, LTD,*)
- 21p-AP-44** **Electron ray tracing in a cylindrical deflector analyzer for field emission spectroscopy**  
Hidekazu Murata, Takahiro Ikeda, Kanji Ito, Hirotaka Asai, Eiji Rokuta and Hiroshi Shimoyama  
(*Faculty of Science and Technology, Meijo University*) 10
- 21p-AP-45** **Collective dynamical behavior of nanoscale particles on solid surfaces**  
Takaaki Kawaguchi  
(*Toho University*)
- 21p-AP-46** **Artificial trap-mediated multilevel charge storage in native oxide/InSe van der Waals heterostructures**  
Yi-Ying Lu, Yu-Ting Peng, Golda Filipina Gianan, Yan-Ting Huang, He-Wen Chen, Chein-Cheng Kuo, Chia-Hao Chen, Raman Sankar and Fang-Cheng Chou  
(*National Sun Yat-sen University*)
- 21p-AP-47** **Atom probe analysis of polyethylene glycol**  
Masahiro Taniguchi and Osamu Nishikawa  
(*Kanazawa Institute of Technology*)
- 21p-AP-48** **Quantitative analysis of organic compounds with ion attachment ionization mass spectrometry**  
Haruka Tanaka, Yuji Mishima, Takahisa Tsugoshi and Makiko Fujii  
(*Yokohama National University*)
- 21p-AP-49** **Investigation of Yield Ratios of the Au- and Pd-Coated Nanopyramids on the Apexes of W tips with Different Curvature Radii**  
Hirotaka Asai, Takayuki Tanaka, Hidekazu Murata and Eiji Rokuta  
(*Faculty of Science and Technology, Meijo University*)
- 21p-AP-50** **Mass separation of water cluster ion beam using two rotating electric fields**  
Kazuki Hara, Hiroto Mita and Masashi Nojima  
(*Tokyo University of Science*)
- 21p-AP-51** **Surface structural analysis of CaF<sub>2</sub>(111) using low energy atom scattering spectroscopy**  
Hiroaki Fukuta and Kenji Umezawa  
(*College of Integrated Arts and Sciences (CIAS), Osaka Prefecture University*)
- 21p-AP-52** *withdrawn*

- 21p-AP-53 Analytical and biological characterization on the surface of titanium alloy coated with pure titanium film using sputter-deposition**  
Tsutomu Sonoda and Takao Saito  
(National Institute of Advanced Industrial Science and Technology (AIST))
- 21p-AP-54 Relation between accuracy and sample area (STM), or sample weight (XRF)**  
Jun Kawai, Ryohei Tanaka and Shu Kuorkawa  
(Kyoto University)
- 21p-AP-55 Quantitative analysis of crosslinked structure in vulcanized rubber by means of S K-edge NEXAFS**  
Kensuke Shirode and Shinya Yagi  
(Toyo Tire Corporation)
- 21p-AP-56 Analysis of the LWR origin in EUV resist using RSoXR**  
Takeo Watanabe and Tetsuo Harada  
(University of Hyogp)
- 21p-AP-57 Improvement in simple methods for producing gold nanoparticles**  
Ryota Okamoto, Hiroki Umeda and Shinsuke Kunimura  
(Tokyo University of Science)
- 21p-AP-58 Comparison of S-C bonds formation among hydrocarbon molecules by means of S K-edge NEXAFS with He-path**  
Hitoshi Kawai, Kensuke Shirode, Satoshi Ogawa, Eiji Ikenaga and Shinya Yagi  
(Graduate school of engineering, Nagoya Univeristy)
- 21p-AP-59** *withdrawn*
- 21p-AP-60 Application of surface enhanced raman spectroscopy (sers) to analysis of a UV absorber in sunscreens**  
Hiroki Katagiri and Shinsuke Kunimura  
(Tokyo University of Science)
- 21p-AP-61 Application of surface-enhanced Raman spectroscopy to analysis of iron compounds**  
Yusuke Kawabata and Shinsuke Kunimura  
(Tokyo University of Science)
- 21p-AP-62** *withdrawn*

**October 22, 2019 (Tuesday)**

**Room 1**

*Machine Learning ( Joint Session with SIMS XXII)*

**22a-1-1 (22-1-I1)** (09:00-09:30) *-Invited-*

**Can machine learning bring atom probe microscopy closer to analytical atomic-scale tomography?**

Baptiste Gault, Ye Wei, Shyam Katnagallu, Felipe Ferraz Morgado de Oliveira, Andrew Breen, Isabelle Mouton, Michael Herbig, Dierk Raabe and Leigh T Stephenson  
(*Max-Planck-Institut für Eisenforschung GmbH*)

**22a-1-2 (22-1-I2)** (09:30-09:55) *-Invited-*

**Importance of advanced metrology in semiconductor industry and value-added creation using AI**

Kazuya Okamoto  
(*Yamaguchi University*)

**22a-1-3 (22-1-O1)** (09:55-10:15)

**Topological data analysis of microscopic image data**

Masato Kotsugi  
(*Tokyo University of Science*)

**22a-1-4 (22-1-O2)** (10:15-10:35)

**A machine learning study of secondary electron yield**

Mehnaz, Bo Da, Keisuke Goto and Z. J. Ding  
(*USTC*)

- Break -

**22a-1-5 (22-1-I3)** (10:50-11:20) *-Invited-*

**Machine learning techniques for electron microscopic/spectroscopic image data analysis**

Shunsuke Muto  
(*Nagoya University*)

**22a-1-6 (22-1-I4)** (11:20-11:50) *-Invited-*

**To bag, or to boost? A question of balance**

Alex Henderson  
(*The University of Manchester*)

**22a-1-7 (22-1-O3)** (11:50-12:10)

**Exploring large scale ToF-SIMS data matrices using artificial neural networks: polymers and biointerfaces**

Paul Pigram, Robert Madona, Wil Gardner, Nicholas Welch, David Winkler and Benjamin Muir  
(*Centre for Materials and Surface Science, La Trobe University*)



**22a-1-8 (22-1-O4)** (12:10-12:30)

**TOF-SIMS Spectrum Interpretation by Machine Learning**

Satoka Aoyagi

*(Seikei University)*

- Lunch -

*Biological material ( Joint Session with SIMS XXII)*

**22p-1-1 (22-1-I5)** (14:00-14:30) *-Invited-*

**Hybrid Nano-coating For The Next-generation Drug-eluting Stents Technology**

Terumitsu Hasebe, Tomohiro Matsumoto, Shunto Maegawa, Kenta Bito, Yutaka Okamoto,  
Kenrtaro Takeda, Atsushi Hotta, and Yutaka Imai

*(Tokai University School of Medicine)*

**22p-1-2 (22-1-O5)** (14:30-14:50)

**Direct Imaging of the Cholesterol and Sphingolipid Abundance at the Site of Influenza Virus  
Assembly with High-Resolution SIMS**

Mary L Kraft, Ashley N Yeager, Peter K Weber and Joshua Zimmerberg

*(University of Illinois, Urbana-Champaign)*

**22p-1-3 (22-1-O6)** (14:50-15:10)

**Correlative surface microscopy for analysis of biological tissues after neural device  
implantation**

A G De Carvalho, J P Barnes, O Renault, D Mariolle, C Gaude, D Ratel and A Galtayries

*(CEA-Leti)*

**22p-1-4 (22-1-O7)** (15:10-15:30)

**Combined TOF-SIMS/SPM characterization of cable bacteria – living electrical nanowires for  
next generation bioelectronics?**

Raghavendran Thiruvallur Eachambadi, Henricus T S Boschker, Alexis Franquet, Valentina  
Spampinato, Silvia Hidalgo-Martinez, Filip J R Meysman and Jean V Manca

*(X-LAB, Hasselt University)*

- Break -

## Room 2

*Advanced material characterization*

**22a-2-1** (09:00-09:30) -Invited-

**High resolution bio-imaging with electron-beam excitation assisted (EXA) optical microscopy**  
Yoshimasa Kawata and Wataru Inami  
(*Shizuoka University*)

**22a-2-2** (09:30-09:50)

**Spin-resolved time-of-flight momentum microscopy in the Soft X-ray range**  
Dmitry Vasilyev, Katerina Medjanik, Sergey Babenkov, Martin Ellguth, Gerd Schönhense and Hans-Joachim Elmers  
(*Johannes Gutenberg-Universität Mainz*)

**22a-2-3** (09:50-10:10)

**Characterization of nanomaterials with secondary electron microscopy**  
Bo Da, Jiangwei Liu, Hideki Yoshikawa and Shigeo Tanuma  
(*National Institute for Materials Science*)

**22a-2-4** (10:10-10:30)

**Electrochemical imaging correlated to hydrogen evolution reaction on two-dimensional materials**  
Akichika Kumatani, Hiroto Ogawa, Hiroki Ida, Yasufumi Takahashi, Hitoshi Shiku, Yong P Chen and Tomokazu Matsue  
(*Tohoku University*)

**22a-2-5** (10:30-10:50)

**Raman spectroscopy and TEM of long linear carbon chain formed in CNT field emission cathode**  
Koji Asaka, Satoshi Toma, Tomonari Wakabayashi and Yahachi Saito  
(*Toyota Physical and Chemical Research Institute*)

- Break -

*Time-resolved measurements and imaging*

**22a-2-6** (11:10-11:40) -Invited-

**Surface Plasmon Vortex Focussing**  
Frank Meyer zu Heringdorf  
(*University of Duisburg-Essen*)

**22a-2-7** (11:40-12:10) -Invited-

**Structural Dynamics in the Si(111)-In atomic wire systems studied by femtosecond-RHEED: excitation, metastable states and relaxation**  
Christian Brand  
(*Duisburg-Essen University*)

**22a-2-8** (12:10-12:30)

**Coherent, circularly polarized attosecond light generation and its application on probing material dynamics**

Ming-Chang Chen

(National Tsing Hua University)

- Lunch -

*Electron and optical spectroscopy*

**22p-2-1** (14:00-14:30) -Invited-

**Auger and Secondary Electron Data Base**

Keisuke Goto, Yoshinori Harada and Hideki Yoshikawa

(National Institute for Materials Science)

**22p-2-2** (14:30-15:00) -Invited-

**Oxidation-induced generation kinetics of point defect on Si(001) surfaces observed in situ by UPS, XPS, and RHEED combined with AES**

Yuji Takakuwa

(Tohoku University)

**22p-2-3** (15:00-15:20)

**Theory of resonant auger electron diffraction for active site characterization**

Godeung Park, Peter Krüger and Fumihiko Matsui

(Graduate School of Science and Engineering, Chiba University)

**22p-2-4** (15:20-15:40)

*withdrawn*

- Break -

*Surface Science*

**22p-2-5** (16:00-16:30) -Invited-

**Quasicrystalline atomic layers: A real and momentum space characterization**

Stefan Förster, Sebastian Schenk, Eva Zollner and Wolf Widdra

(Martin-Luther Universität Halle-Wittenberg)

**22p-2-6** (16:30-17:00) -Invited-

**Atomic Scale Spin Analysis of Magnetic Molecules for Quantum Information Process**

Tadahiro Komeda

(Tohoku University)

**22p-2-7** (17:00-17:30) *-Invited-*

**Faceted macrostep-height dependence of the surface and the step velocities: reaction-limited (interface-limited) crystal growth**

Noriko Akutsu

*(Osaka Electro-Communication University)*

**22p-2-8** (17:30-17:50)

**On-surface synthesis of N-doped carbon quantum dots on Ag (111)**

Kewei Sun, Takahito Kaihara, Youhei Takeda, Satoshi Minakata and Shigeki Kawai

*(National Institute for Materials Science (NIMS))*

**22p-2-9** (17:50-18:10)

**Solitons of quasi-one dimensional In/Si(111)-4×1 atomic wires revisited**

Geunseop Lee, Hyungjoon Shim, Jung-Min Hyun and Hanchul Kim

*(Inha University)*

## Room 5

*3D atomic visualization and characterization of functionally active site*

**22p-5-1** (15:50-16:20) -Invited-

**Understanding metal/organic interfaces; TCNQ on coinage metal surfaces**

D Phil Woodruff

*(University of Warwick)*

**22p-5-2** (16:20-16:50) -Invited-

**Progress of atom probe tomography analysis on specific grain boundaries and interfaces in steel**

Jun Takahashi, Kazuto Kawakami, Yukiko Kobayashi, Jun Haga, Kyohhei Ishikawa and Naoyoshi Kubota

*(Nippon Steel Corporation)*

**22p-5-3** (16:50-17:10)

**Experimental investigation of the local atomic structure in decagonal quasicrystals by x-ray fluorescence holography**

J. R. Stellhorn, S. Hosokawa, K. Kimura, K. Hayashi, P. Gille, A. P. Tsai, M. Mihalkovic, N. Blanc, N. Boudet, G. Beutier and M. de Boissieu

*(DESY)*

**22p-5-4** (17:10-17:30)

**Elucidation of local structure deformation in  $k$ -(BEDT-TTF) $_2$ Cu[N(CN) $_2$ ]Br by X-ray fluorescence holography**

Artoni Kevin R Ang, Riho Marumi, Koji Kimura, Naohisa Happo, Kazuto Akagi, Takahiko Sasaki and Kouichi Hayashi

*(Nagoya Institute of Technology)*

**22p-5-5** (17:30-17:50)

**An in situ study of the Au(111) surface during cyclic voltammetry using High Energy Surface X-Ray Diffraction (HESXRD) and 2D Surface Optical Reflectance (SOR)**

Weronica Linpé, Sebastian Pfaff, Giuseppe Abbondanza, Leon Jacobse, Timo Fuchs, Gary Harlow and Edvin Lundgren

*(Lund University)*

## Poster Session 2 (18:10-20:10)

- 22p-AP-01 Optimal conditions for 4D annular dark field scanning confocal electron microscopy**  
Masaki Takeguchi, Takumi Hamaoka, Kazutaka Mitsuishi and Ayako Hashimoto  
(*National Institute for Materials Science*)
- 22p-AP-02 Atomic layer deposition system with plasma etching**  
Yu-Ting Peng, Yu-Lun Liu, Chin-Ying Chou and Chien-Chun Chen  
(*National Tsing Hua University, Taiwan*)
- 22p-AP-03 Transmission electron microscopy specimen preparation by focused ion beam system**  
Yu-Lun Liu, Yu-Ting Peng, Chin-Ying Chou and Chien-Chun Chen  
(*National Tsing Hua University*)
- 22p-AP-04 Novel quantum trajectory approaches to the simulation of electron backscatter diffraction**  
Long Cheng and Zejun Ding  
(*University of Science and Technology of China*)
- 22p-AP-05 Simulation of nanowire image in Fresnel mode of TEM with large defocus distance**  
Shi Te, Ding Zejun and Liu ShiKai  
(*University of Science and Technology of China*)
- 22p-AP-06 Three-dimensional image reconstruction of a high-entropy alloys tip**  
Chin-Ying Chou, Yu-Lun Liu, Yu-Ting Peng, Ta-Wei Wang and Chien-Chun Chen  
(*National Tsing Hua University*)
- 22p-AP-07 Low-kilovolt coherent electron microscopy**  
Chun-Yueh Lin, Wei-Tse Chang, Wei-Hao Hsu, Wun-Cin Huang and Ing-Shouh Hwang  
(*Academia Sinica*)
- 22p-AP-08 Non-charging conditions of insulating film under electron beam irradiation**  
Hideya Mizuno, Kento Kubo, Kentaro Kojima and Masatoshi Kotera  
(*Osaka Institute of Technology*)
- 22p-AP-09 Observation of charging image of insulating film under electron beam irradiation**  
Kento Kubo, Hideya Mizuno, Kentaro Kojima and Masatoshi Kotera  
(*Osaka Institute of Technology*)
- 22p-AP-10 Local Structure Analysis around anion in Oxynitride Perovskite by Inverse Photoelectron Holography**  
Yuta Yamamoto, Yasushi Hirose, Koji Kimura, Artoni Kevin Roquero Ang, Tomohiro Matsushita and Kouichi Hayashi  
(*Nagoya Institute of Technology*)
- 22p-AP-11 Thickness dependence of magnetization tilt angle in Co layers on W(110) studied with high brightness and highly spin-polarized LEEM**  
Masahiko Suzuki, Kohji Nakamura, Ernst Bauer, Tsuneo Yasue, Takanori Koshikawa, Yasushi Yamauchi and Daisuke Fujita  
(*National Institute for Materials Science (NIMS)*)
- 22p-AP-12 Improvement of a number of active tips and emission measurements from individual tips in volcano-structured Spindt-type field emitter arrays**  
Hidetoshi Shinya, Hidekazu Murata, Eiji Rokuta, Hiroshi Shimoyama, Masayoshi Nagao and Katsuhisa Murakami  
(*Faculty of Science and Technology, Meijo University*)

- 22p-AP-13 Study on acquisition of energy selective SEM image using Scanning Auger Microprobe**  
Noboru Taguchi, Kazushiro Yokouchi, Tatsuya Uchida, Akihiro Tanaka, Konomi Ikita, Yasushi Maeda, Tomoki Akita and Shingo Tanaka  
(National Institute of Advanced Industrial Science and Technology (AIST))
- 22p-AP-14 Simulation of secondary ions position on the detector for three-dimensional shave-off method**  
So-Hee Kang, Shinnosuke Kishi, Kohei Matsumura, Bunbunoshin Tomiyasu and Masanori Owari  
(Institute of Industrial Science, The University of Tokyo)
- 22p-AP-15** *withdrawn*
- 22p-AP-16 Novel phase retrieval technique for diffraction patterns of tiny biological specimens**  
Jih-Heng Yang, Huai-Yu Chao, Ying Chen, Ning-Jung Chen, Chia-Hui Yeh and Chien-Chun Chen  
(National Tsing Hua University)
- 22p-AP-17 Application of GPU computation in 3D reconstruction**  
Huai Yu Chao, Ying Chen, Jih Heng Yang, Ning Jung Chen, Chia Hui Yeh and Chien Chun Chen  
(National Tsing Hua University)
- 22p-AP-18** *withdrawn*
- 22p-AP-19 Enhanced photoluminescence of oxygen-deficient centers by ion beam synthesized Au nanoparticles in SiO<sub>2</sub>**  
Der-Sheng Chao, Chang-Lin Hsieh and Jenq-Horng Liang  
(National Tsing Hua University)
- 22p-AP-20 Computational study on cohesive energy of CNT bundles in the water**  
Nanami Yamazaki and Takahiro Yamamoto  
(Tokyo University of Science)
- 22p-AP-21 Simulation on thermoelectric properties of nitrogen-doped carbon nanotubes**  
Manaho Matsubara and Takahiro Yamamoto  
(Tokyo University of Science)
- 22p-AP-22** *withdrawn*
- 22p-AP-23 Computational study on temperature dependence of electrical resistance of nitrogen-substituted carbon nanotubes**  
Keisuke Ishizeki, Kenji Sasaoka and Takahiro Yamamoto  
(Tokyo University of Science)
- 22p-AP-24 Light emission from a suspended multiwall carbon nanotube by applying an electric current**  
Koji Asaka, Koshi Nishikawa and Yahachi Saito  
(Nagoya University)
- 22p-AP-25 First principles simulation on thermoelectric properties of chemically modified carbon nanotubes**  
Nayu Araki and Takahiro Yamamoto  
(Tokyo University of Science)
- 22p-AP-26 One Dimensional Organic-Inorganic Composite Growth for Electrochemical Energy Storage**  
Minghua Bai and Xiaoxia Liu  
(Northeastern University, China)
- 22p-AP-27 “soft” probe for electric measurement of 2D and fragile materials**  
Michiko Yoshtiake, Yusuke Nakaune and Kentaro Kinoshita  
(National Institute for Materials Science)

- 22p-AP-28 Growth control of lateral/vertical heterostructures of h-BN and graphene by their growth order**  
Ryoichi Makino, Kyohei Takata and Hiroki Hibino  
*(Kwansei Gakuin University)*
- 22p-AP-29 Characterization of Mono- and multilayer hexagonal Boron Nitride on Cu (111) substrate**  
Tsuyoshi Yamagami, Souichiro Yotsutani, Shiro Yamazaki, Kan Nakatsuji and Hiroyuki Hirayama  
*(Tokyo Institute of Technology)*
- 22p-AP-30 Synthesis and analysis of gallium oxide nanosheet photocatalyst using graphene oxide template**  
Kenta Sonoda, Muneaki Yamamoto, Tetsuo Tanabe and Tomoko Yoshida  
*(Graduate School of Engineering, Osaka City University)*
- 22p-AP-31 Structural change of Bi ultrathin films in the two-step growth on Si(111) $\sqrt{3} \times \sqrt{3}$ -B substrates**  
Kentaro Nagase, Shiro Yamazaki, Kan Nakatsuji and Hiroyuki Hirayama  
*(Tokyo Institute of Technology)*
- 22p-AP-32 Plan-view STEM and STM study of GaSe/Ge(111) moire structures**  
Takahiro Yonezawa, Tatsuya Murakami, Koichi Higashimine, Antoine Fleurence, Yoshifumi Oshima and Yukiko Yamada-Takamura  
*(Japan Advanced Institute of Science and Technology)*
- 22p-AP-33 Bias-dependent theoretical scanning tunneling microscope Images of the pristine 2H-MoTe<sub>2</sub> and intrinsic defects in 2H-MoTe<sub>2</sub>**  
 Eun-Won Park and Hanchul Kim  
*(Sookmyung Women's University)*
- 22p-AP-34 Study on Graphite/Graphene growth from amorphous carbon thin film as a solid source on typical metal substrates**  
Ruangwit Supissara and Fumihiko Maeda  
*(Fukuoka Institute of Technology)*
- 22p-AP-35 Testing van der Waals treated exchange-correlation functionals in DFT: Example case of h-BN and graphene on Ir(111)**  
 Fabian Schulz, Peter Liljeroth and Ari Paavo Seitsonen  
*(Ecole Normale Supérieure)*
- 22p-AP-36 Effects of grain boundaries on thermoelectric properties of polycrystalline bilayer graphene**  
Hikaru Horii, Kenji Sasaoka, Takahiro Yamamoto and Hidetoshi Fukuyama  
*(Tokyo University of Science)*
- 22p-AP-37 Computational study of thermal property changes in electron-irradiated graphene**  
Sou Tsuzuki, Yuya Miyashita, Hiroaki Kawata, Yoshihiko Hirai and Masaaki Yasuda  
*(Osaka Prefectural University)*
- 22p-AP-38 Chemical state analysis of oxidizing graphene on porous alumina**  
Kota Takaoka, Shiro Entani, Seiji Sakai, Kei Mitsuhashi and Masaru Takizawa  
*(Ritsumeikan University)*
- 22p-AP-39 Characterization and properties of new ultrathin aluminium oxide film growth on SiC(0001)**  
 Shotaro Oie, Anton Visikovskiy, Takashi Kajiwara, Takushi Iimori, Tetsuroh Shirasawa, Fumio Komori and Satoru Tanaka  
*(Kyushu University)*
- 22p-AP-40 Evidence of spin-polarized electronic state at edges of graphene oxide studied by field emission spin polarimetry**



Kazuya Kunoh, Shigekazu Nagai, Takahiro Kishi, Haku Uchikoshi, Tatsuo Iwata, Koichi Hata and Yahachi Saito  
(*Mie University*)

- 22p-AP-41 A plan-view TEM specimen preparation method for 2D atomic layer materials based on the focused-ion beam approach**  
Cheng-Yen Wen, I-Ta Wang and Lan-Hsuan Lee  
(*National Taiwan University*)
- 22p-AP-42 Characterization of subsurface damage of SiC substrate with several monolayers depth by the growth of epitaxial graphene**  
Daichi Dojima, Kazunori Koide and Tadaaki Kaneko  
(*Kwansei Gakuin University*)
- 22p-AP-43 Characterization of step edge chemical characteristics of 4H-SiC (0001) by observing epitaxial graphene site-selective growth mode change**  
Kazunori Koide, Daichi Dojima and Tadaaki Kaneko  
(*Kwansei Gakuin University*)
- 22p-AP-44 Formation of two-dimensional electron gas at thiol/ZnO interfaces**  
Kenichi Ozawa and Kazuhiko Mase  
(*Tokyo Institute of Technology*)
- 22p-AP-45 Energy distribution and spin polarization of field-emitted electrons from Cr on W(311) surface**  
Shigekazu Nagai, Kento Miyazaki, Katsunari Suzuki, Eiji Oyaizu, Tatsuo Iwata and Koichi Hata  
(*Mie University*)
- 22p-AP-46 Nonlinear vibrational spectroscopy of steroidal structure side chains of Polyimide surface**  
Nguyen Thi Trinh, Khuat Thi Thu Hien, Goro Mizutani, Yoshitaka Murakami and Takashi Okada  
(*Japan Advanced Institute of Science and Technology (JAIST)*) 32
- 22p-AP-47 Optical Second Harmonic Generation (SHG) Spectroscopy Analysis of the Electronic States of the Stepped Photo-catalyst Au/TiO<sub>2</sub>(320) interface**  
Liu Xiaopeng, Gong Peiyang, Haque Mohammad, Khuat Thi Thu Hien and Goro Mizutani  
(*material science of Japan Advanced Institute of Science and Technology*)
- 22p-AP-48 Liquid crystal alignment PI films with steroidal structures analyzed by SHG spectroscopy**  
Sheng Yu, Goro Mizutani, Shinya Asakura, Khuat Thi Thu Hien, Yoshitaka Murakami and Takashi Okada  
(*Japan Advanced Institute of Science and Technology*)
- 22p-AP-49 Liquid crystal-based optical sensor for clinical diagnosis of tuberculosis**  
Zongfu An, Chang-Hyun Jang and Kyusik Yun  
(*Gachon University*)

- 22p-AP-50 In-situ SHG measurements in the monolayer during the compression process with a phase transition in a Langmuir-Blodgett trough**  
Yoshihiro Miyauchi, Kaisei Nakamura, Yasushi Umemura, Akira Tsukamoto and Takanori Suzuki  
*(National Defense Academy)*
- 22p-AP-51 Hydration structure of water molecules on the silica surface and its humidity dependence revealed by heterodyne-detected vibrational sum-frequency generation spectroscopy**  
Taku Uchida, Shu-hei Urasima and Hiroharu Yui  
*(Tokyo University of Science)*
- 22p-AP-52 Dynamic behavior of cysteine and 4-MBA molecules on Au films studied by means of surface differential reflectance spectroscopy**  
Natsuki Ikeda, Kazuki Shimizu, Takahiro Murakami, Shinya Ohno and Masatoshi Tanaka  
*(Graduate School of Engineering Science, Yokohama National University)*
- 22p-AP-53 Fabrication and in-situ characterization of well-defined solid electrolyte/electrode interfaces in thin-film lithium batteries**  
Susumu Shiraki  
*(Nippon Institute of Technology)*
- 22p-AP-54 Controlled organic functionalization of Si(001) using alkyne-functionalized cyclooctines**  
 Christian Länger, Julian Heep, Paul Nikodemiak, Tamam Bohamud, Patrick Kirsten, Ulrich Höfer, Ulrich Koert and Michael Dürr  
*(Philipps-Universität Marburg)*
- 22p-AP-55 Interface engineering of HPMOFs and MOFs-based hybrid membranes**  
 Jiaxin Zhao, Liang Tian and Xia Zhang  
*(College of Science, Northeastern university)*
- 22p-AP-56 Impact of strain-field interference on the coexistence of electron and hole gases in SrTiO<sub>3</sub>/LaAlO<sub>3</sub>/SrTiO<sub>3</sub>**  
Ming-Wen Chu  
*(National Taiwan University)*
- 22p-AP-57 Deposition and characterization of Ti/C nano-composite films by magnetron sputtering with dual targets**  
Tsutomu Sonoda and Setsuo Nakao  
*(National Institute of Advanced Industrial Science and Technology (AIST))*
- 22p-AP-58 Computational study of focused electron beam induced deposition by stochastic model**  
Yusaku Nakamura, Yuya Miyashita, Hiroaki Kawata, Yoshihiko Hirai and Masaaki Yasuda  
*(Osaka Prefecture University)*
- 22p-AP-59** *withdrawn*

- 22p-AP-60 Highly efficient recovery of Cd and Sb effluent by novel adsorbents: a case study of municipal solid waste leachates**  
Jinfeng Tang, Minhua Su and Hongguo Zhang  
(Guangzhou University)
- 22p-AP-61 Facile synthesis of hierarchical hollow hydroxyapatite microspheres for U(VI) removal**  
Minhua Su, Yanhong Wu and Chen Diyun  
(Guangzhou University)
- 22p-AP-62 Lithium diffusion analysis of a new La–Li–Co–O electrolyte using the maximum entropy method**  
Tsuyoshi Takami, Yoshiyuki Morita, Masao Yonemura, Yoshihisa Ishikawa, Shingo Tanaka, Masahiro Mori, Toshiharu Fukunaga and Eiichiro Matsubara  
(Center for Advanced Science & Innovation, Kyoto University)
- 22p-AP-63 Photoexcited carrier behavior in ultrathin organic photovoltaics fabricated on TiO<sub>2</sub>**  
Kenichi Ozawa, Susumu Yamamoto, Tetsuya Miyazawa, Keita Yano, Kazuhiko Mase and Iwao Matsuda  
(Tokyo Institute of Technology)
- 22p-AP-64 Characterization of Ga<sub>2</sub>O<sub>3</sub> supported on Al<sub>2</sub>O<sub>3</sub> photocatalysts for CO<sub>2</sub> reduction with water**  
Ryota Ito, Masato Akatsuka, Akiyo Ozawa, Muneaki Yamamoto, Tetsuo Tanabe and Tomoko Yoshida  
(Applied Chemistry and Bioengineering Graduate School of Engineering, Osaka City University)
- 22p-AP-65 Photocatalytic CO<sub>2</sub> reduction activity of silver loaded Ga<sub>2</sub>O<sub>3</sub> (effects of excitation photon energy)**  
Kokoro Yoshioka, Muneaki Yamamoto, Daiki Kidajima, Tetsuo Tanabe and Tomoko Yoshida  
(Graduate School of Engineering, Osaka City University)
- 22p-AP-66 Scanning transmission microscopic observations for Pt and SnO<sub>2</sub> (hkl) interfaces**  
Yoshihiro Chida, Daisuke Kudo, Naoto Todoroki and Toshimasa Wadayama  
(Tohoku University)
- 22p-AP-67 Electrochemical stability of Pt/graphene/6H-SiC(0001): influence of H<sup>+</sup>-beam irradiation to graphene**  
Takafumi Kanauchi, Masashi Watanabe, Naoto Todoroki and Toshimasa Wadayama  
(Tohoku University)
- 22p-AP-68 Synthesis and Electrochemical Characterization of Birnessite MnO<sub>2</sub> Electrode for Calcium Ion Batteries**  
Akifumi Idei and Tomohiro Tojo  
(Shizuoka Institute of Science and Technology)
- 22p-AP-69 Steric interaction field spreading to dilute sulfuric acid near the negative observed by frequency modulation atomic force microscopy**  
Yuki Imamura, Toshiya Akatsu, Daiki Katsube, Akinori Kogure, Nobumitsu Hirai and Munehiro Kimura  
(Nagaoka University of Technology)
- 22p-AP-70 Study of gas-supersaturated water encapsulated in graphene liquid cells with transmission electron microscopy**  
Wei-Hao Hsu and Ing-Shouh Hwang  
(Academia Sinica)

- 22p-AP-71 Estimation for nuclear magnetic relaxation time of water inside carbon nanotube by molecular dynamics simulations**  
Kenji Sasaoka and Takahiro Yamamoto  
*(Tokyo University of Science)*
- 22p-AP-72 Molecular dynamics simulations of influence of water adsorption on electrical conductivity of graphene**  
Yusei Kioka, Yuki Maekawa, Kenji Sasaoka and Takahiro Yamamoto  
*(Tokyo University of Science)*
- 22p-AP-73** *withdrawn*
- 22p-AP-74** *withdrawn*
- 22p-AP-75 Analysis of oxide scales on heat-resistant metals using cathodoluminescence**  
Susumu Imashuku and Kazuaki Wagatsuma  
*(Tohoku University)*
- 22p-AP-76 Cross-sectional TEM observations of dislocations in ZnO thin films grown via catalytic reaction-assisted chemical vapor deposition**  
Taro Saito, Ryuta Iba, Ariyuki Kato and Kanji Yasui  
*(Nagaoka University of Technology)*
- 22p-AP-77 Development of field-emission low-energy electron diffraction apparatus**  
Seigi Mizuno, Ryo Tanaka and Takeshi Nakagawa  
*(Kyushu University)*
- 22p-AP-78 Modification of Analytical Electron Microscope to Enable Automatic ALCHEMI Method**  
Yoshihiro Anan, Masahiro Ohtsuka and Shunsuke Muto  
*(Center for Technology Innovation - Electronics, Hitachi, Ltd)*
- 22p-AP-79 Molecular dynamics study of structural changes in silica glass under electron irradiation**  
Keita Hibi and Kazuhiro Tada  
*(National Institute of Technology, Toyama College)*
- 22p-AP-80 Beam rocking Auger electron spectroscopy of Si(111) $\sqrt{3}\times\sqrt{3}$ -Ag surface**  
Yoshimi Horio, Hitoshi Nakahara, Junji Yuhara and Yuji Takakuwa  
*(Daido University)*
- 22p-AP-81 Development of high-energy-resolution two-dimensional electron analyzer**  
Hiroki Momono, Hiroyuki Matsuda, László Tóth and Hiroshi Daimon  
*(National Institute of Technology, Yonago college)*
- 22p-AP-82 Molecular dynamics study on shielding effect of graphene for protecting 2D materials under electron irradiation**  
Kazuhiro Tada, Kento Nakada and Keita Hibi  
*(National Insitiute of Technology, Toyama College)*
- 22p-AP-83 Difference in growth mode of Fe islands on clean and ammonia-saturated Si(111)7x7 surfaces**  
Liliany Noviyanty Pamas, Shohei Takemoto, Haoyu Yang, Shota Nishida, Ken Hattori and Hiroshi Daimon  
*(Nara Institute of Science and Technology)*
- 22p-AP-84 Electronic state analysis of Li metal**  
Ryo Ihara, Kei Mitsuhara and Masaru Takizawa  
*(Ritsumeikan University)*

- 22p-AP-85 Development of an environmental RHEED with rocking pattern measurement capability**  
Dong Jae Shin, Masahiro Yamamoto, Hitoshi Nakahara, Yahachi Saito, Yoshimi Horio and Satoshi Kashiwaya  
(*Nagoya University*)
- 22p-AP-86 Electronic state and structural changes of Cu nanoparticles on rutile TiO<sub>2</sub> (110) by O<sub>2</sub> exposure**  
Kazuma Ide, Toshitaka Aoki, Kei Mitsuhara and Masaru Takizawa  
(*Ritsumeikan University*)
- 22p-AP-87 Electronic state analysis of Li<sub>3+x</sub>V<sub>1-x</sub>Si<sub>x</sub>O<sub>4</sub>**  
Yusuke Hikida, Ryo Ihara, Kei Mitsuhara and Masaru Takizawa  
(*Ritsumeikan University*)
- 22p-AP-88 Electronic state analysis of Cu nanoparticles on SrTiO<sub>3</sub> (001)**  
Takeru Yagi, Kei Mitsuhara and Masaru Takizawa  
(*Ritsumeikan University*)
- 22p-AP-89 Optical second harmonic response of bent sacran fibers**  
Kana Hatano, Yanrong Li, Yue Zhao, Khuat Thi Thu Hien, Goro Mizutani, Kosuke Okeyoshi, Maiko Okajima and Tatsuo Kaneko  
(*Japan Advanced Institute of Science and Technology*)
- 22p-AP-90 Atomic scale three dimensional composition of AlGaN/AlGaIn multi quantum wells investigated by atom probe tomography**  
Takaharu Nagatomi, Akira Yoshikawa, Ziyi Zhang, Kazuhiro Nagase  
(*Asahi Kasei Corporation*)

**October 23, 2019 (Wednesday)**

**Room 1**

*LEEM & PEEM*

**23a-1-1** (09:00-09:30) *-Invited-*

**Significant Dzyaloshinskii–Moriya interaction at graphene–ferromagnet interfaces due to the Rashba effect**

Hongxin Yang, Gong Chen, Alexandre Cotta, Alpha N’Diaye, Sergey Nikolaev, Edmar Soares, Waldemar Macedo, Kai Liu, Andreas Schmid, Albert Fert and Mairbek Chshiev  
(*Lawrence Berkeley National Laboratory*)

**23a-1-2** (09:30-10:00) *-Invited-*

**Oscillating spin reorientation transition in Co layers on W(110)**

Masahiko Suzuki, Kohji Nakamura, Ernst Bauer, Tsuneo Yasue, Takanori Koshikawa, Yasushi Yamauchi and Daisuke Fujita  
(*Arizona State University*)

**23a-1-3** (10:00-10:30) *-Invited-*

**Visualizing strain relief by graphene nano-wrinkles on metals**

Ka Man Yu, King Lau Wilson Lay and Michael Altman  
(*Hong Kong University of Science and Technology*)

**23a-1-4** (10:30-10:50)

*withdrawn*

**23a-1-5** (10:30-10:50)

**Phase visualization of a multiphase steel by scanning electron microscopy at extremely low landing energy**

Tomohiro Aoyama, Šárka Mikmeková, Hiroki Hibino and Kaneharu Okuda  
(*Steel Research Laboratory, JFE Steel Corporation*)

*Student Award ceremony & Presentation* (11:10 – 12:00)

*Group photo* (12:00-12:30)

- Lunch -

*Keynote and Tutorial Lectures*

**23p-1-1** (14:10-14:50) *-Keynote-*

**Toward single-atom characterization in a thin specimen by an analytical electron microscope**

Masashi Watanabe and Ray F Egerton  
(*Lehigh University*)

**23p-1-2** (14:50-15:50) -Tutorial-

**Chirality and the emergence of molecular structure**

Karl-Heinz Ernst

(Empa)

- Break -

**23p-1-3** (16:10-17:10) -Tutorial-

**Cryo-EM changes structural biology**

Yoshinori Fujiyoshi

(Tokyo Medical and Dental University)

- Break -

*Characterizations of Water at Surface and Interface*

**23p-1-4** (17:30-18:00) -Invited-

**Water at the silica interface in rest and under flow**

Ellen HG Backus

(University of Vienna)

**23p-1-5** (18:00-18:30) -Invited-

**Characterization of phase of water confined in nanospace**

Yoshikazu Homma and Shohei Chiashi

(Tokyo University of Science)

**23p-1-6** (18:30-18:55) -Invited-

**Influence of interface water of clay minerals on ion adsorption**

Yuki Araki, Masahiko Okumura, Nobuyasu Ando, Kei Kobayashi and Hirofumi Yamada

(College of Science and Engineering, Ritsumeikan University)

**23p-1-7** (18:55-19:20) -Invited-

**Surface-selective vibrational spectroscopic measurements on solid materials under humidity-controlled atmosphere**

Shu-hei Urashima

(Research Institute for Science & Technology, Tokyo University of Science)

**23p-1-8** (19:20-19:40)

**Molecular Dynamics Analysis on the Water Behavior on OH-terminated SiO<sub>2</sub> surfaces**

Yasutaka Yamaguchi, Kotaro Oda, Hiroki Kusudo, Masayuki Kawakami and Daisaku Yano

(Osaka University)

## Room 4

*Ion beam*

**23a-4-1** (09:00-09:30) *-Invited-*

**Electronic stopping of protons and He ions in solids: transmission versus backscattering**  
Barbara Bruckner, Philipp Mika Wolf, Dietmar Roth, Daniel Primetzhofer and Peter Bauer  
(*Johannes Kepler University Linz*)

**23a-4-2** (09:30-09:50)

**Measurement of absolute thickness of nm oxide films by medium energy ion scattering spectrometry**  
Kyung Joong Kim, Ansoon Kim, Jihwan Kwon and Won Ja Min  
(*Korea Research Institute of Standards and Science (KRISS)*)

- Break -

*Spintronics*

**23a-4-3** (10:10-10:40) *-Invited-*

**Spin polarization of field-emitted electrons from Heusler alloy Co<sub>2</sub>MnGa(100) surface**  
Shigekazu Nagai, Hiromu Ikemizu and Koichi Hata  
(*Mie University*)

**23a-4-4** (10:40-11:00)

**Final state effects in ARPES of MoTe<sub>2</sub> and organic molecules**  
Peter Krüger, Ryota Ono and Alberto Marmodoro  
(*Graduate School of Engineering, Chiba University*)

- Lunch -

*Graphene & related 2D material*

**23p-4-1** (17:30-18:00) *-Invited-*

**Silicene and beyond: atomic level characterization of group IV 2D materials**  
Yukiko Yamada-Takamura  
(*Japan Advanced Institute of Science and Technology*)

**23p-4-2** (18:00-18:30) *-Invited-*

**Exploring transferred large scale single layers of hexagonal boron nitride**  
Thomas Greber  
(*University of Zurich*)

**23p-4-3** (18:30-18:50)

**Intercalation mechanisms of Graphene**  
Jens Falta, Jan Ingo Flege, Lars Buß, Axel Meyer, S Watcharinyanon, Leif I Johansson, C Xia and C Virojanadara  
(*Universty of Bremen*)



**23p-4-4** (18:50-19:10)

**Theoretical study on C adsorbate at graphene/Cu(111) or h-BN/Cu(111) interfaces**

Hiroyuki Kageshima, Shengnan Wang and Hiroki Hibino

*(Shimane University)*

**23p-4-5** (19:10-19:30)

**Rotation-angle controlled twisted bilayer graphene**

Satoru Tanaka, Hitoshi Imamura, Ryosuke Uotani, Takashi Kajiwara, Anton Visikovskiy, Takushi Iimori, Toshio Miyamachi, Kan Nakatsuji, Kazuhiko Mase and Fumio Komori

*(Kyushu University)*

**October 24, 2019 (Thursday)**

**Room 3**

*Memorial Session for Prof Charles S Fadley*

**24a-3-1** (09:00-09:10) *-Invited-*

**Prof Fadley's achievements and thanks from ALC**

Hiroshi Daimon

*(Toyota Physical and Chemical Research Institute )*

**24a-3-2** (09:10-09:20) *-Invited-*

**Charles S Fadley: The German Years**

Claus M Schneider

*(Research Center Juelich)*

**24a-3-3** (09:20-09:30) *-Invited-*

**My memories of professor Chuck S Fadley**

Bongjin Simon Mun

*(Gwangju Institute of Science and Technology)*

**24a-3-4** (09:30-10:00) *-Invited-*

**Towards an “all-in-one” photoemission experiment: Spin-resolved momentum microscopy**

Claus M Schneider and Christian Tusche

*(Research Center Juelich)*

**24a-3-5** (10 00-10:30) *-Invited-*

**Valence-selective atomic resolution holography and high-energy-resolution display-type analyzer**

Hiroshi Daimon

*(Toyota Physical and Chemical Research Institute)*

- Break -

*Memorial Session for Prof Peter Varga*

**24a-3-6** (10:45-11:10) *-Invited-*

**Highlights of the science and life of Peter Varga (1946 - 2018)**

Wolf-Dieter Schneider

*(Fritz-Haber-Institute of the Max-Planck-Society)*

**24a-3-7** (11:10-11:20) *-Invited-*

**A tribute to Peter Varga**

Friedrich Aumayr

*(TU Wien)*

**24a-3-8** (11:20-11:30) -Invited-

**In memoriam Peter Varga: His legacy in the world of surface science, viewed from his home town Vienna in Austria**

Ulrike Diebold

(TU Wien)

**24a-3-9** (11:30-12:00) -Invited-

**Sensing the spin of a spectroscopically dark Ce adatom with a scanning tunneling microscope**

Markus Ternes, Christopher P Lutz, Andreas J Heinrich and Wolf-Dieter Schneider

(Fritz-Haber-Institute of the Max-Planck-Society)

**24a-3-10**(12:00-12:30) -Invited-

**Probing and manipulating 2D materials by ions**

Friedrich Aumayr

(TU Wien)

## Room 2

*Transmission electron microscopy*

**24a-2-1** (09:00-09:30) -Invited-

**Advance electron microscopy for atomic-scale electromagnetic field imaging**

Naoya Shibata

(The University of Tokyo)

**24a-2-2** (09:30-10:00) -Invited-

**Application of transition-edge sensor type microcalorimeter x-ray detector for compositional analysis in scanning electron microscopy**

Toru Hara, Keiichi Tanaka, Kazuhisa Mitsuda, Keisuke Maehata, Yoshihiro Yamanaka, Mutsuo Hidaka and Kuniyasu Nakamura

(National Institute for Materials Science)

**24a-2-3** (10:00-10:30) -Invited-

**Development of low-voltage coherent electron imaging methods based on a single-atom electron source**

Ing-Shouh Hwang, Chun-Yueh Lin, Wei-Tse Chang, Wei-Hao Hsu, Wun-Cin Huang and Chien-Chun Chen

(Academia Sinica)

**24a-2-4** (10:30-10:50)

**Atomic Electron Tomography**

Chien-Chun Chen

(National Tsing Hua University)

## Room 2

*Fundamental Phenomena*

**24a-2-5** (11:10-10:40) -Invited-

**Probing and controlling molecular spins on surfaces**

Richard Berndt

(*Christian-Albrechts-Universität zu Kiel*)

**24a-2-6** (11:40-12:10) -Invited-

**Atomic level characterization of domain walls in 1D and 2D electronic orders**

Han Woong Yeom

(*IBS*)

**24a-2-7** (12:10-12:30)

**Valence-selective study of three-dimensional local structures in YbInCu<sub>4</sub> valence transition material**

Shinya Hosokawa, Naohisa Happo, Kouichi Hayashi, Koji Kimura, Jens Rüdiger Stöhlhorn, Hitoshi Sato and Koichi Hiraoka

(*Kumamoto University*)

**October 25, 2019 (Friday)**

**Room 2**

*Operando Measurements and Reaction Calculation*

**25a-2-1** (09:00-09:30) -Invited-

**Development of ambient pressure hard x-ray photoelectron spectroscopy at SPring-8**

Yasumasa Takagi

*(Japan Synchrotron Radiation Research Institute -JASRI-)*

**25a-2-2** (09:30-10:00) -Invited-

**CO oxidation of Pt<sub>3</sub>Ni(111) surface with ambient pressure XPS and STM**

Jeongjin Kim, Woong Hyeon Park, Myung Cheol Noh, Si Woo Lee, Won Hui Doh, Jean-Jacques Gallet, Fabrice Bournel, Hiroshi Kondoh, Kazuhiko Mase, Yousung Jung, Jeong Young Park and

Bongjin Simon Mun

*(Gwangju Institute of Science and Technology)*

**25a-2-3** (10:00-10:20)

**Analysis of the Reaction Mechanism at Electrode/Electrolyte Interface in Fluoride Shuttle Battery by Atomic Force Microscopy**

Taketoshi Minato, Hiroaki Konishi, Hiroshi Onishi, Takeshi Abe and Zempachi Ogumi

*(Kyoto University)*

**25a-2-4**(10:20-10:40)

**Quantum mechanical study on reaction mechanisms of gaseous pentane-2,4-dione and (Z)-4-hydroxypent-3-en-2-one on Ni surfaces and NiO surfaces**

Takae Takeuchi, Kana Nakamura, Abdulrahman H Basher, Tomoko Ito, Kazuhiro Karahashi and Satoshi Hamaguchi

*(Graduate School of Science, Nara Women's University)*

**Closing** (10:40 – 11:00)

## Room 5

*Characterization by X-ray*

**25a-5-1** (09:00-09:30) -Invited-

**Resonant Auger electron diffraction and resonant photoelectron spectroscopy**

Fumihiko Matsui, Seiji Makita, Hiroshi Ota, Tomohiro Matsushita and Matthias Muntwiler  
(*Institute for Molecular Science, National Institutes of Natural Science*)

**25a-5-2** (09:30-09:50)

**X-ray ptychography by nested Montel mirrors**

Ying Chen, Ning-Jung Chen, Jih-Heng Yang, Huai-Yu Chao and Chien-Chun Chen  
(*National Tsing Hua University*)

**25a-5-3** (09:50-10:10)

**Total reflection hard x-ray photoelectron spectroscopy (tr-haxpes): applications to strongly correlated electron systems**

Munetaka Taguchi, Teruhiko Saze, Satoshi Tanaka, Hideki Matsuoka, Masaki Nakano, Hiroki Wadati, Miho Kitamura, Koji Horiba, Yoshihiro Iwasa, Hiroshi Kumigashira and Masahiko Yoshiki  
(*Physical Analysis Technology Center, Toshiba Nanoanalysis Corporation*)