The 2nd East-Asia Microscopy Conference

"New Microscopy from East-Asia"
--- Contribution to Future Science ---

24 – 27 November 2015   Himeji, JAPAN

ABSTRACTS

Japanese Society of Microscopy
Chinese Electron Microscopy Society
Korean Society of Microscopy
Microscopy Society of Taiwan
Preface

Microscopy is definitely one of key techniques and growing its important role in science and technology. Particularly, in East-Asia region, the rapid development in industries has been closely linking with the advancement of pure and applied sciences related to microscopy. Therefore, it is timely important to organize a forum for the exchange of scientific and technological information on the development and applications of advanced and emerging techniques of microscopy with regard to life and materials sciences. The four microscopy societies of Japan, China, Korea and Taiwan have decided to hold the East-Asia Microscopy Conference (EAMC) under the auspice of the Committee of Asia-Pacific Societies for Microscopy (CAPSM), a member of the International Federation of Societies for Microscopy (IFSM). The first meeting of the EAMC1 was held in Chongqing, China on 15 – 18 October 2013. Based on the successful results of the EAMC1, the 2nd East-Asia Microscopy Conference (EAMC2) is held in Himeji, Hyogo, Japan on 24 – 27 November 2015.

Following the tradition, the EAMC2 has a combination of lectures and posters. It covers most aspects of advanced development in the techniques of microscopy and their applications to life and materials sciences. Particular emphasis is placed on the four plenary lectures by the world leading experts from Japan, China, Korea and Taiwan, and the poster presentations by the selected young scientists. The sessions include as follows.

- Session P  Plenary Lectures
- Session A  Advanced Development in Instrumentation
- Session B1-1  Advanced Techniques (TEM/STEM)
- Session B1-2  In-Situ (TEM/STEM)
- Session B1-3  SEM (includes FIB/SEM)
- Session B1-4  X-ray Microscopy
- Session B2-1  Nano-materials
- Session B2-2  Structural Materials
- Session B2-3  Functional Materials
- Session C1  Histology and Cell Biology
- Session C2  Biology of Plants and Microorganisms
- Session C3  3-dimmensional Electron Microscopy
- Session C4  Super-resolved Fluorescence Microscopy
- Session C5  Molecular Labeling
- Session C6  Connectmics
- Poster Session

More than 139 lectures and 136 posters were submitted to the scientific sessions of EAMC2, and over 300 people attended the conference.

On behalf of the Organizing Committee of EAMC2, we would like to express our deep appreciation to the enormous efforts made by the Japanese Society of Microscopy (JSM), Chinese Electron Microscopy Society (CEMS), Korean Society of Microscopy (KSM) and Microscopy Society of Taiwan (MST). We also acknowledge gratefully the support for the exhibition of microscope manufacture companies such as JEOL, Hitachi, FEI, and so many others from the world. Finally, we would also express our thanks all of participants and cooperative organizations in Himeji. It would be difficult to make the EAMC2 fruitful without the active participation of those who concerned.

Kazuo Furuya
Chair of EAMC2
Syo Matsumura
Chair of Scientific Program (Materials Science)
Atsuo Miyazawa
Chair of Scientific Program (Life Science)
PLENARY LECTURE

P1 Structure-Guided Drug Development Based on Cryo-Electron Microscopy
Yoshinori Fujiyoshi. Graduate School of Pharmaceutical Sciences, Nagoya University / Cellular and Structural Physiology Institute, Nagoya University

P2 Atom Probe Tomography (APT) Combined with In-situ TEM : 3D Analysis for Electronic Memory Device Technology
J. H. Lee1,3, W. Y. Jeong1 and C. G. Park1,2. 1Department of Materials Science and Engineering, Pohang University of Science and Technology (POSTECH), 2National Institute for Nanomaterials Technology, POSTECH, 3Semiconductor Division, Samsung Electronics

P3 Neural Circuits for Pain Modulation in the Central Nervous System
Yun-Qing Li. Department of Anatomy, Histology and Embryology and KK Leung Brain Research Centre, School of Basic Medical Sciences, The Fourth Military Medical University

P4 Coherent Electron Tomography: Dynamics and Shape of Nanomaterials at Atomic Resolution
F-R. Chen1, L-G. Chen1, D. Van Dyck2, A. Kirkland3 and C. Kisielowski4. 1National Tsing-Hua University, 2University of Antwerp, EMAT, Department of Physics, 3Department of Materials Science, Oxford University, 4The Molecular Foundry and Joint Center for Artificial Photosynthesis, Lawrence Berkeley National Laboratory

ORAL SESSION

A: Advanced Development in Instrumentation

A1 Development of an Aberration Corrected 1.2-MV Holography Electron Microscope
Hiroyuki Shinada1, Toshiaki Tanigaki2, Tetsuya Akashi2, Yoshiro Takahashi2, Tadao Furutsu1, Tomokazu Shimakura1, Takeshi Kawasaki1, Keigo Kasuya1, Nobuyuki Osakabe1 and Akira Tonomura1,2. 1Research & Development Group, Hitachi, Ltd., 2RIKEN Center for Emergent Matter Science (CEMS)

A2 Installation of Bio-High Voltage Electron Microscope at Korea Basic Science Institute

A3 Near-Atomic Resolution Single Particle Analysis with the Volta Phase Plate
Radostin Danev, Maryam Khoshouei and Wolfgang Baumeister. Max Planck Institute of Biochemistry

A4 Correlative Light and Electron Microscopy in Cell Biology
Céline Loussert Fonta, Caroline Kizilyaparak, Jean Daraspe, Willy Blanchard and Bruno M. Humbel. Electron Microscopy Facility, University of Lausanne
B1-1: Advanced Techniques (TEM/STEM)

• B11-O-01 Atomic-Scale STEM Characterization of Grain Boundaries in Oxides
  Yuichi Ikuhara1,2,3, Ryo Ishikawa1, Tsubasa Nakagawa1, Eita Tochigi1, Tetsuya Tohei1 and Naoya Shibata1.
  1Institute of Engineering Innovation, School of Engineering, The University of Tokyo, 2Nanostructures Research Laboratory, Japan Fine Ceramics Center, 3Advanced Institute for Materials Research, Tohoku University.

• B11-O-02 Mapping Valance and Coordination by Monochromated STEM EELS
  He Tian.
  State Key Laboratory of Silicon Materials and School of Materials Science & Engineering, Zhejiang University.

• B11-O-03 Quantification of Oxygen Vacancies in Nanostructured Oxides by TEM Techniques: Electron Energy Loss Spectroscopy and Negative Cs Imaging
  Daniel G. Stroppa1,2.
  1International Iberian Nanotechnology Laboratory, 2Ernst Ruska Centre, Forschungszentrum Jülich.

• B11-O-04 Atomic-Resolution STEM-EDS Investigation of Grain Boundary Solute Segregation Behavior in Yttria-Stabilized Zirconia
  Bin Feng1, Tatsuya Yokoi1, Akihito Kumamoto1, Masato Yoshiya2, Yuichi Ikuhara1,4 and Naoya Shibata1.
  1Institute of Engineering Innovation, The University of Tokyo, 2Department of Adaptive Machine System, Osaka University, 3Nanostructure Research Laboratory, Japan Fine Ceramics Center, 4WPI Advanced Institute for Materials Research, Tohoku University.

• B11-O-05 Role of Defect as a Diffusion Barrier for Carriers in InGaN/GaN Quantum Wells
  Mi-Hyang Sheen1, Sung-Dae Kim1, Jong-Hwan Lee1, Hyun-Ju Kim1, Jong-In Shim2 and Young-Woon Kim1.
  1Research institute of Advanced Materials, Department of Materials Science and Engineering, Seoul National University, 2Department of Electronics and Communication Engineering, Hanyang University.

• B11-O-06 Depth-Resolution Imaging of Crystalline Nano Clusters Using Aberration-Corrected TEM
  Jun Yamasaki1, Akihiko Hirata2, Yoshihiko Hirotsu2, Kaori Hirahara2 and Nobuo Tanaka2.
  1Research Center for Ultra-High Voltage Electron Microscopy, Osaka University, 2Advanced Institute for Materials Research, Tohoku University, 3Institute of Scientific and Industrial Research, Osaka University, 4Department of Mechanical Engineering, Osaka University, 5EcoTopia Science Institute, Nagoya University.

• B11-O-07 Electron Tomography Observation of Dislocation Morphology near Surfaces of Mo (001) Thin Foils
  Satoshi Hata1, Makoto Shimizu1, Ken-ichi Ikeda1 and Hideharu Nakashima1.
  1Kyushu University, 2Hokkaido University.

• B11-O-08 Rapid 3D Reconstruction in the EDS Tomography by Using Iterative Series Reduction (ISER) Method
  Yoshitaka Aoyama, Hideo Nishioka and Yukihito Kondo.
  JEOL Ltd.

• B11-O-09 In-situ High Resolution TEM on Sub-10nm Materials
  Litao Sun.
  SEU-FEI Nano-Pico Center, Joint Research Institute of Southeast University and Monash University, Collaborative Innovation Center for Micro/Nano Fabrication, Device and System, Southeast University.

• B11-O-10 In situ Atomic Scale Mechanical Microscopy
  Xiaodong Han1 and Ze Zhang1,2.
  1Beijing Key Laboratory and Institute of Microstructure and Property of Advanced Materials, Beijing University of Technology, 2Department of Materials Science & Engineering, Zhejiang University.
B11-O-11  Atomic-Scale Tracking Cation Diffusion in Lithium Manganese Oxide
Peng Gao1, Ryo Ishikawa1, Eita Tochigi1, Akihito Kumamoto1, Naoya Shibata1 and Yuichi Ikuhara1,2. 1Institute of Engineering Innovation, The University of Tokyo, 2Nanostructures Research Laboratory, Japan Fine Ceramics Center

B11-O-12  Development of Hollow Cone Dark Field Environmental Electron Microscopy and Their Biological Application

B11-O-13  A New Atomic Scale EMCD Measurement Scheme by STEM-EELS under 3-beam Diffraction Condition
Shunsuke Muto1, Jan Rusz2, Jakob Spiegelberg2 and Kazuyoshi Tatsumi1. 1Electron Nanoscopy Section, Advanced Measurement Technology Center, Institute for Materials and Systems for Sustainability, Nagoya University, 2Department of Physics and Astronomy, Uppsala University

B11-O-14  Coherences of Spin-Polarized and Pulsed Electron Beam Extracted from a Semiconductor Photocathode in TEM
Makoto Kuwahara1,2, Kensuke Sameshima1, Kota Aoki1, Hidefumi Asano2, Toru Ujihara1, Koh Saitoh1,2 and Nobuo Tanaka1. 1EcoTopia Science Institute, Nagoya University, 2Graduate School of Engineering, Nagoya University

B11-O-15  Simultaneous Realization of Foucault Imaging and Small Angle Electron Diffraction by Conventional TEM
Hiroshi Nakajima1, Atsushi Kotani1, Yui Ishii1, Ken Harada1,2 and Shigeo Mori1. 1Department of Materials Science, Osaka Prefecture University, 2Research and Development Group, Hitachi Ltd.

B11-O-16  The Design of a Compact Cs Corrector for Desktop Electron Microscope
Wei-Yu Chang and Fu-Rong Chen. Department of Engineering and System Science, National Tsing Hua University

B11-O-17  Development and Deployment of a New Drift Compensation Software for STEM Image Acquisition
Hiromitsu Furukawa, Miyoko Shimizu and Hidetaka Fukushima. SYSTEM IN FRONTIER INC.

B12-O-01  In-Situ TEM Observation of Electrochemical Process
Yoshifumi Oshima. School of Materials Science, Japan Advanced Institute of Science and Technology

B12-O-02  Observation of Dominant Diffusion Path of Copper in the Electrically Biased Interconnects Using in-situ TEM
Young-Hwa Oh, Seung-Yong Lee, Tae-Young Ahn, Miyoung Kim and Young-Woon Kim. Seoul National University

B12-O-03  In Situ TEM Study of Nanostructural and Transport Property Changes in Phase-Change Memory
Ruwen Shao1, Kun Zheng1,2 and Xiaodong Han1,2. 1Institute of Microstructure and Properties of Advanced Materials, Beijing University of Technology, 2Beijing Key Laboratory of Microstructure and Property of Advanced Material, Beijing University of Technology, 3Materials Engineering, The University of Queensland

B12-O-04  Controlling Experimental Conditions in Advanced in-situ S/TEM Experiments
Joerg R. Jinschek1, Eric Van Cappellen1 and Alex Bright1. 1FEI Company, Eindhoven, 2FEI Company Hillsboro, 3FEI Company, Tokyo

B12-O-05  Towards Dynamic Electron Holographic Analysis of Solid State Electrochemical Devices at Operating Condition
Kentaro Soma1, Stan Konings1, Genki Kobayashi1 and Seiji Takeda1. 1Institute of Scientific and Industrial Research, Osaka University, 2FEI Company, 3Institute for Molecular Science
B12-O-06 Phase Change Behavior of Ge-Sb-Te Based Chalcogenide Investigated by In-situ Electrical Probing Transmission Electron Microscopy

Jin-Soo Oh, Byeong-Seon An, Tae-Hoon Kim and Cheol-Woong Yang. School of Advanced Material Science & Engineering, Sungkyunkwan University..................i21

B12-O-07 Self-Relaxed Conductive Filament in ReRAM Analyzed by In-situ TEM and Atom Probe Tomography

B. G. Chae1, K. J. Baek1, J. H. Song1, H. S. Hwang1, S. H. Oh1, J. B. Seol1 and C. G. Park1,2, 1Department of Materials Science and Engineering, POSTECH, 2National Institute for Nanomaterials Technology..............................i22

B12-O-08 Microstructural Investigation of Multi-Level Resistive Switching Behavior in Multi-Layered Pt/TaOx Using In-situ TEM

Seong-II Kim, Seung-Pyo Hong and Young-Woon Kim. Department of Materials Science and Engineering, Seoul National University .................................................................................................i22

B12-O-09 Lorentz TEM Observation of Magnetic Bubbles in Manganites

A. Kotani1, H. Nakajima1, K. Harada1,2, Y. Ishii1 and S. Mori1. 1Department of Materials Science, Osaka Prefecture University, 2Hitachi Ltd............................................i23

B12-O-10 Water Enhanced Electron Beam Nano-Lithography of Metal Oxides

Yue Lu1, Wen-Qiang Ding1, Zhen-Hua Zhang1, Tsu-Wei Huang1, Shih-Yi Liu1, Man-Ling Sui and Fu-Rong Chen2. 1Institute of Microstructure and Properties of Advanced Materials, Beijing University of Technology, 2Department of Engineering and System Science, National Tsing Hua University ...........................................i23

B12-O-11 Development of Self-Designed Liquid Holder and Wet-Cell Chips for TEM Applies to Analysis the Precipitation of Calcium Carbonate

Shih-Chi Lin, T. W. Huang and Fu-Rong Chen. Department of Engineering and System Science, National Tsing Hua University.........................................................................................................i24

B12-O-12 In-Situ Observation of Photo-Catalytic Reactions for Platinum Loaded Titanium Dioxide in Liquid Environmental TEM

Kai-Lin Peng, T. W. Huang and Fu-Rong Chen. Engineering and System Science Department/National Tsing Hua University.........................................................................................................i24

B12-O-13 In-situ TEM Observation of Biological Specimen in Liquid Cells

Goshu Tamura1,2, See Wee Chee1, Duane Loh1, Utkur Mirsaidov2,3 and Paul Matsudaira1,2, 1Mechanobiology Institute (MBI), National University of Singapore (NUS), 2Centre for Bio-Imaging Sciences (CBIS), Department of Biological Sciences, Faculty of Science, National University of Singapore (NUS), 3Department of Physics, Faculty of Science, National University of Singapore (NUS).................................................................................................i25

B12-O-14 Size-Controllable Fabrication and Dynamic Evolution of Faceted Nanopores in Magnesium

Jianbo Wang, He Zheng, Shujing Wu, Fan Cao, Shuangfeng Jia, Huaping Sheng and Lei Li. School of Physics and Technology, Center for Electron Microscopy, MOE Key Laboratory of Artificial Micro- and Nano-structures, and Institute for Advanced Studies, Wuhan University.................................................................................................i25

B12-O-15 In Situ Observation of Pt Silicide Formation at Pt/SiOx Interface Under Electron Irradiation

T. Nagase1,2, R. Yamashita2 and J. -G. Lee1, 1Research Center for Ultra-High-Voltage Electron Microscopy, Osaka University, 2Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University, 3Powder & Ceramics Division, Korea Institute of Materials Science ..................................................i26

B12-O-16 Importance of Spatial and Time Resolution of Camera for In-situ Experiments in TEM

Koji Inoke. Gatan Inc.................................................................i26

B12-O-17 Microsecond Time-Scale In Situ Observations of Electron-Irradiation-Induced Crystallization in an Amorphous Antimony Nanoparticle by Ultra-High Voltage Electron Microscopy

H. Yasuda. Research Center for Ultra-High Voltage Electron Microscopy, Osaka University.................................................................................................i27
B12-O-18  Insight into the Deformation Behavior of Spinodal Nanostructured δ-Ferrite in a 2205 Duplex Stainless Steel
Jer-Ren Yang1, Yi-Chieh Hsieh1, Ling Zhang2, Takahito Ohmura1 and Takuya Suzuki2. 1Department of Materials Science and Engineering, National Taiwan University, 2College of Materials Science and Engineering, Chongqing University, 3National Institute for Materials Science .................................................................i27

B12-O-19  Real-Time Atomistic Observation of the Mechanical Deformations in Au Nanostructures
He Zheng1, Jianbo Wang1, Shuangfeng Jia1, Huaping Sheng1 and Scott X Mao2. 1School of Physics and Technology, Center for Electron Microscopy, MOE Key Laboratory of Artificial Micro- and Nano-structures, and Institute for Advanced Studies, Wuhan University, 2Department of Mechanical Engineering & Materials Science, University of Pittsburgh .................................................................i28

B12-O-20  In-situ Observation and Chemical Analyses Under High Gas Pressure Conditions Using Aberration Corrected 300 kV Microscope with Gas-Cell Type Specimen Holder
Ichiro Ohnishi, Eiji Okunishi, Yu Jimbo, Takeo Sasaki, Hidetaka Sawada, Toshihiro Suzuki and Yukihito Kondo. JEOL Ltd. .................................................................................................................................i28

B12-O-21  Development of High Pressure Gas Environmental Cell and its Application to Hydrogen Reaction
H. Nagakura1, T. Wakasugi1, K. Ohkubo1, T. Tanida1, T. Endo1, S. Isobe2, Y. Wang2, N. Hashimoto1 and S. Ohnuki1. 1Graduate School of Engineering, Hokkaido University, 2Creative Research Institution, Hokkaido University .................................................................................................................................i29

B12-O-22  Development of in situ TEM Techniques for Characterization of Energy-Related Nanomaterials
Toshie Yaguchi1, Keiji Tamura1, Takashi Kubo1, Yasuhira Nagakubo1, Hiroaki Matsumoto1, Takahiro Shimizu2 and Takeo Kamino3. 1Hitachi High-Technologies Corporation, 2Japan Automobile Research Institute, 3Fuel Cell Nanomaterials Research Center, University of Yamanashi ......i29

B12-O-23  Reduction of Hematite by Ceramics in TEM
N. Ishikawa1, T. Kimura1, M. Takeguchi1, T. Aizawa2 and T. Inami2. 1National Institute for Materials Science (NIMS), 2Faculty of Engineering, Ibaraki University .................................................................................................................................i30

B12-O-24  In-situ Observation of Temperature Dependent Nanomorphology-Performance Relations in Emitting Layer of OLEDs by TEM
Young-Tae Kim1, Young-Hoon Kim1, Jae-Bok Seo1, Tae-Woo Lee1 and Chan-Gyung Park1,2. 1Department of Material Science and Engineering, Pohang University of Science and Technology (POSTECH), 2National Institute for Nanomaterials Technology (NINT), POSTECH .................................................................................................................................i30

B12-O-25  Development of MEMS Based Heater for In Situ TEM
Meng-Ju Tsai, Fan-Gang Tseng and Fu-Rong Chen. Department of Engineering and System Science, National Tsing Hua University .................................................................................................i31

B1-3: SEM (includes FIB/SEM)

B13-O-01  High Spatial/Energy Resolution Cathodoluminescence Spectroscopy: Powerful Tool for Precise Characterization of Nanostructures
Xuewen Fu, Zhimin Liao and Dapeng Yu. Department of Physics, Laboratory for Nanostructures and Low-dimensional Physics, Peking University .................................................................................................................................i31

B13-O-02  Electron Channeling Contrast Imaging: A Powerful Technique to Quantitative Microstructure Characterization in the SEM
Ivan Gutierrez-Urrutia. Research Center for Strategic Materials, National Institute for Materials Science ..............i32
B13-O-03  A High Sensitivity and High Responsivity Pin Diode Detector Design for a Backscattering Electron Detection of SEM

Yi-Hsiang Chien¹, Yun-Ju Chuang², Chih-Hao Lee¹ and Fu-Rong Chen¹. ¹Department of Engineering and System Science, National Tsing Hua University, ²Department of Biomedical Engineering, Ming Chuan University......i32

B13-O-04  Fabrication of High Energy Resolution Silicon Drift Detector for Energy Dispersive X-ray Spectrometer

Yu-Chao Ma¹, Chiao-Chun Hsu¹, Fan-Gang Tseng¹, Chih-Hao Lee¹, Yun-Ju Chuang² and Fu-Rong Chen¹. ¹Department of Engineering and System Science, National Tsing Hua University, ²Department of Biomedical Engineering, Ming Chuan University.............................................................i33

B13-O-05  Low Voltage EDS for Sub-10nm Spatial Resolution Elemental Characterization in FE-SEM

Simon Burgess and Xiaobing Li. Oxford Instruments Nanoanalysis.........................................................i33

B13-O-06  Evolution of Texture in 6016 Aluminum Alloy During Processing

Zhihong Jia¹, Jinyue Xie¹, Zhang Wen¹, Qing Liu¹ and PiZhi Zhao¹. ¹College of Materials Science and Engineering, Chongqing University, ²Department of Fabrication Process and Technology for Aluminum Alloys, Suzhou Research Institute for Nonferrous Metals...........................................................................i34

B13-O-07  Dual-Phase Steel Structure Visualized by Fast, Slow and Extremely Slow Electrons

Sarka Mikmekova and Katsumi Yamada. Steel Research Laboratory, JFE Steel Corporation............................i34

B13-O-08  In-situ Observation of Microstructure Changes at Higher Temperature with Forward Scatter Electron Images Formed by EBSD Pattern Signal

Tatsuya Fukino and Seiichi Suzuki. TSL Solutions K. K.................................................................................i35

B13-O-09  Multi-Dimensional Quantification of Dislocation Substructure by SEM Electron Channeling Contrast Imaging Method

Shigeto Yamasaki, Masatoshi Mitsuhara, Satoshi Hata and Hideharu Nakashima. Faculty of Engineering Sciences, Kyushu University..................................................................................i35

B13-O-10  Low Energy Secondary Electron Imaging for Various Semiconductors Using Fountain Detector

Takashi Sekiguchi¹,², Hideo Iwai¹, Toshihide Agemura¹ and Takashi Kimura¹. ¹National Institute for Materials Science (NIMS), ²Graduate School of Pure and Applied Sciences, University of Tsukuba..........................................................i36


Kaoru Sato¹, Masayasu Nagoshi² and Tomohiro Aoyama³. ¹JFE Steel, Chiba, ²JFE Steel, Kawasaki, ³JFE Steel, Fukuyama..........................................................i36

B14-O-01  In-situ and 3-Dimensional Nano-Transmission X-ray Microscopy at NSRRC

Yen-Fang Song and Chun-Chieh Wang. National Synchrotron Radiation Research Center...........................i37

B14-O-02  X-ray Imaging at Taiwan Photon Source

Mau-Tsu Tang. National Synchrotron Radiation Research Center....................................................................i37

B14-O-03  Development of In-situ Sample Cells for Scanning Transmission X-ray Microscopy at UVSOR

Takuii Ohigashi¹, Masanari Nagasaka¹, Toshio Horigome¹, Nobuhiro Kosugi¹, Scott M. Rosendaal² and Adam P. Hitchcock². ¹UVSOR Synchrotron, Institute for Molecular Science, ²Canadian Light Source, ³McMaster University.........................................................................................i38

B14-O-04  X-Ray Microscopy and Microtomography at SPring-8

Akihisa Takeuchi and Kentaro Uesugi. Japan Synchrotron Radiation Research Institute (JASRI) / SPring-8........i38
B14-O-05 Correlative Imaging Analysis of Tardigrada (Water Bears) Under the Active and Dehydrated States By X-ray Micro-Computed Tomography, Electron Microscopy and Confocal Microscopy
Kohei Hatta1, Kyoko Fukuda1, Ayano Nakasone1, Kisa Kakiguchi2, Shigenobu Yonemura2, Kenta Kuwabara1, Kentaro Uesugi1, Akihisa Takeuchi1, Yoshio Suzuki2, Kaoru Nozue1, Kyoko Shibata1, Sakushi Morikawa1, Shin-ichi Okamoto2 and Mari Okubo1. 1Graduate School of Life Science/Department of Science University of Hyogo, 2RikenCLST, JASRI

B2-1: Nano-materials

•B21-O-01 In-situ Electron Microscopy on Nanomechanics of Nanocarbon and Related Materials
Kaori Hirahara. Center for Atomic and Molecular Technologies and Department of Mechanical Engineering, Osaka University

B21-O-02 In situ TEM Observation of Cu-Doped Graphene
Emi Kano1,2, Ayako Hashimoto1,2,3,4 and Masaki Takeguchi1,2,3. 1Graduate School of Pure and Applied Sciences, University of Tsukuba, 2Surface Physics and Structure Unit, National Institute for Materials Science, 3Transmission Electron Microscopy Station, National Institute for Materials Science, 4Global Research Center for Environment and Energy based on Nanomaterials Science, National Institute for Materials Science

B21-O-03 The Identification of Grain Boundaries in Two-Dimensional Graphene Using Moire Pattern Fringe
Jung Hwa Kim1, Kwanpyo Kim2 and Zonghoon Lee1,2. 1School of Materials Science and Engineering, 2Department of Physics, Ulsan National Institute of Science and Technology (UNIST)

B21-O-04 Phase Map of a Single MoS2 Sheet Retrieved by Aberration Corrected Transport of Intensity Equation
Xiaobin Zhang and Yoshifumi Oshima. School of Materials Science, Japan Advanced Institute of Science and Technology

B21-O-05 Atomic Motion in Monolayer Molybdenum Disulfide Probed by In-situ ADF-STEM
Jinhua Hong1, Yuhao Pan2, Zhixin Hu2, Danhui Lv1, Wei Ji2, Chuanhong Jin1, Jun Yuan1,4 and Ze Zhang1. 1Center of Electron Microscopy, State Key Laboratory of Silicon Materials, School of Materials Science and Engineering, Zhejiang University, 2Beijing Key Laboratory of Optoelectronic Functional Materials & Micro-Nano Devices, Department of Physics, Renmin University of China, 3Department of Physics, University of York

B21-O-06 Structure-Property Analysis of Semiconductor Nanostructures Using Aberration-Corrected STEM
Luying Li. Center for Nanoscale Characterization and Devices, Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology

B21-O-07 Non-Simultaneous Growth and Compositional Discontinuity of Electron Blocking Layer of Core-Shell Type Nano-Rod GaN LED Analyzed by TEM and APT
Woo-Young Jung1, Chang-Min Kwak1, Won-Ho Kim2, Yong-Han Jeon2, Deok-Won Seo2, Eun-Hyung Lee1 and Chan-Gyung Park1,2. 1Department of Material Science and Engineering, Pohang University of Science and Technology (POSTECH), 2National Institute for Nanomaterials Technology (NINT), Pohang University of Science and Technology (POSTECH), 3Advanced Materials & Components Laboratory, R&D Center, LG Innotek

B21-O-08 Synthesis and Characterization of Epitaxial Au/Co Core-Shell Nanoparticles
Kazuhisa Sato1, Yuta Matsushima1 and Toyohiko J. Konno1. 1Institute for Materials Research, Tohoku University, 2Department of Materials Science, Tohoku University

•B21-O-09 Determination of Three-Dimensional Coordinates of Individual Atoms in Nano-Materials by Electron Tomography
Chien-Chun Chen. Department of Physics, National Sun Yat-sen University
B21-O-10 The New High-Resolution Electron Tomography for Nano-Crystal
Liu-Gu Chen1, Angus I. Kirkland2, Dirk Van Dyck3 and Fu-Rong Chen1. 1Department of Engineering and System Science, National Tsing Hua University, 2Department of Materials, University of Oxford, 3Department of Physics, University of Antwerp ......................................................... i44

B21-O-11 Quantitative and Qualitative Study of Halogen and Sodium Doped Silicon by Atom Probe Tomography
N. Mayama1, S. Ishimura1, N. Arai1, T. Sasaki1, Y. Hori2 and H. Uchida2. TEM Analysis Technology Laboratory, Physical Analysis Technology Center, Toshiba Nanoanalysis Corporation, 3Surface Material Analysis Technology Laboratory, Physical Analysis Technology Center, Toshiba Nanoanalysis Corporation ......................................................... i44

B21-O-12 Structure Unit Behavior in Pr-Doped ZnO [0001] Symmetric Tilt Grain Boundaries
Ji-young Roh1, Yukio Sato2 and Yuichi Ikuhara1,3,4. 1The University of Tokyo, 2Kyushu University, 3Japan Fine Ceramics Center, 4Tohoku University ....................................................................................................................................... i45

B21-O-13 Metal Silicide Epilayers Self-Organized at Grain Boundaries in Silicon
Y. Ohno1, K. Inoue1, K. Kutsukake1, M. Deura1, T. Ohsawa1, I. Yonenaga1, H. Yoshida1, S. Takeda1, R. Taniguchi1, H. Otoo1, S. R. Nishitani1, N. Ebisawa1, Y. Shimizu1, H. Takamizawa1, K. Inoue1 and Y. Nagai1. 1Institute for Materials Research, Tohoku University, 2Institute of Scientific and Industrial Research, Osaka University, 3Department of Information, Kwansei Gakuin University, 4The Oarai Center, Institute for Materials Research, Tohoku University ........................................................................................................................................ i45

B21-O-14 Ultra-Large Elasticity and Liquid-Like Behavior of Nano-Materials
Xiaodong Han1 and Ze Zhang1,2. 1Beijing Key Laboratory and Institute of Microstructure and Property of Advanced Materials, Beijing University of Technology, 2Department of Materials Science & Engineering, Zhejiang University ........................................................................................................................................................................................................ i46

B21-O-15 Strain in Si/Ge Heterojunction Nanowires
Cheng-Yen Wen1, Chia-Hao Yu1, Tzu-Hsien Shen1, Takashi Nemoto2, Yoshifumi Fujiyoshi2, Mitsutaka Haruta2 and Hiroki Kurata2. 1Department of Materials Science and Engineering, National Taiwan University, 2Institute for Chemical Research, Kyoto University ........................................................................................................................................................................................................ i46

B2-2: Structural Materials

●B22-O-01 Microstructure and Mechanical Properties of AZ61Mg Alloy Multi-Directionally Forged Using Die Under Decreasing Temperature Conditions
H. Miura and M. Kobayashi. Department of Mechanical Engineering, Toyohashi University of Technology .......... i47

●B22-O-02 Characterization of Precipitates in Magnesium Alloys Using Atomic Resolution HAADF-STEM and EDS
Jian-Feng Nie1,2 and Houwen Chen2. 1Department of Materials Science and Engineering, Monash University, 2School of Materials Science and Engineering, Chongqing University ................................................................. i47

B22-O-03 Investigation of the Carbides Evolution Under Extended Heat Treatment in Cr-Mo Steels
Seung-Pyo Hong1, Seong-II Kim1, Ming-ze Li, Soon-Taek Hong1 and Young-Woon Kim1. 1Seoul National University, Department of Materials Science and Engineering, POSCO, Technical Research Laboratories ........................................................................................................................................................................................................ i48

B22-O-04 The Discovery of o-Fe in Common Steels by TEM and XRD
Dehai Ping1, Masato Ohnuma1 and Takahito Ohmura1. 1National Institute for Materials Science, 2Faculty of Engineering, Hokkaido University ................................................................. i48

B22-O-05 Have a Good TRIP: Atom Probe Investigations on Ultrafine Austenite in Strong Steels
Guan-Ju Cheng1, Steve Woei Ooi2, Simon P. Ringer1 and Hung-Wei Yen1. 1Department of Materials Science & Engineering, National Taiwan University, 2Department of Materials & Metallurgy, the University of Cambridge, 3The Australian Centre for Microscopy & Microanalysis, the University of Sydney ........................................................................................................................................................................................................ i49
B22-O-06 Microstructural Evolution of 304SS upon Shot Peening and Heat Treatment
Yinsheng He1, Han-sang Lee2, Cheol-Woong Yang3, Je-Hyun Lee4 and Keesam Shin5.  
1School of Nano and Advanced Materials Engineering, Changwon National University,  
2Advanced Materials Group, Korea Electric Power Research Institute,  
3School of Advanced Materials Science & Engineering, Sungkyunkwan University

B22-O-07 Microstructural Evolution of Some Metals and Alloys upon Shot Peening
Keesam Shin and Yinsheng He.  
School of Nano and Advanced Materials Engineering, Changwon National University

B22-O-08 Influence of Heating Rate on Microstructure and Recrystallization Behavior of Al-Zn-Mg-Cu Alloy After Rolling
Zhiqing Zhang and Qunying Yang.  
College of Materials Science and Engineering, Chongqing University

B22-O-09 Analysis of Stable Precipitates in Beta-Titanium Alloys Aged at Medium Temperature for Long-Time Periods
Eiichi Sukedai1, Elisabeth Aeby-Gautier2 and Moukrane Dehmas3.  
1Okayama University of Science (Formerly), and Institut Jean Lamour, Universite de Lorraine (Visiting Researcher),  
2Institut Jean Lamour, Universite de Lorraine

B22-O-10 Transmission Electron Microscopy Characterization of the Microstructures in a Rapidly Solidified Mg-Sn Alloy
Yurong Ma, Li Ye, Dongshan Zhao and Jianbo Wang.  
Center for Electron Microscopy, School of Physics and Technology, Wuhan University

B22-O-11 Atomic Scale STEM Analysis of Structure and Dopant Effects on α-Alumina Grain Boundary
Tetsuya Tohei1, Masahiro Sakai1, Naoya Shibata1 and Yuichi Ikuhara2.  
1Institute of Engineering Innovation, The University of Tokyo, 2Nanostructures Research Laboratory, Japan Fine Ceramics Center

B22-O-12 In Situ Atomic Scale Observation of Grain Rotation Mediated by Grain Boundary Dislocations
Lihua Wang1, Ze Zhang1,2, En Ma3, Mingwei Chen1 and Xiaodong Han3.  
1Beijing Key Laboratory and Institute of Microstructure and Property of Advanced Materials, Beijing University of Technology,  
2Department of Materials Science & Engineering, Zhejiang University, 3Department of Materials Science, John Hopkins University

B2-3: Functional Materials

B23-O-01 Peculiar Domains by Local Out-of-Plane Strain in Chemically Modified Bismuth Ferrite Thin Films
Si-Young Choi, Sung-Dae Kim and Jungho Ryu.  
Korea Institute of Materials Science

B23-O-02 Atomic Level One-Dimensional Structural Modulations at the Negatively Charged Domain Walls in BiFeO3 Films
W. Y. Wang, Y. L. Tang, Y. L. Zhu and X. L. Ma.  
Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

B23-O-03 Observation of the Crystal Structure and the Domains in the Layered Bismuth Titanate Bi4Ti3O12
D. Urushihara1, M. Komabuchi1, N. Ishizawa1, M. Iwata2, K. Fukuda1 and T. Asaka1.  
1Department of Materials Science and Engineering, Nagoya Institute of Technology, 2Department of Engineering Physics, Electronics and Mechanics, Nagoya Institute of Technology

Lin Gu and Xin-An Yang.  
Institute of Physics, Chinese Academy of Sciences/Beijing National Laboratory for Condensed, Matter Physics

B23-O-05 Thermal Dynamics of Magnetic Domain in Co2Z-Type Hexaferrite: TEM Studies by In-situ Heating and Lorentz Microscopy
Sung-Dae Kim1, Youngmok Rhyim1, Gi-Yeop Kim1,2 and Si-Young Choi1.  
1Advanced Characterization and Analysis Group, Korea Institute of Materials Science (KIMS), 2School of Materials Science and Engineering, Pusan National University
Effect of the Desorption and Recombination Process on Anisotropy Enhancement in HDDR Processed Nd-Fe-B Magnet

Tae-Hoon Kim¹, Hee-Ryoung Cha², Jung-Goo Lee², Haew-Woong Kwon¹ and Cheol-Woong Yang¹. ¹School of Advanced Materials Science Engineering, Sungkyunkwan University, ²Powder & Ceramics Division, Korea Institute of Materials Science, ³Department of Materials Science and Engineering, Pukyong National University

Multivariate Statistical Analysis of EMCD Spectra Measured at the Fe/MgO Interface

Jakob Spiegelberg¹, Thomas Thersleff² and Jan Rusz³. ¹Department of Physics and Astronomy, Uppsala University, ²Department of Engineering Sciences, Uppsala University

Microstructures in Improper Ferroelectric Compounds Revealed by Electron Microscopy

S. Mori¹, H. Tsukasaki¹, Y. Ishii¹ and K. Kurushima². ¹Osaka Prefecture University, ²Toray Research Center

Ordered and Domain Structure in Hexagonal-Based Potassium Tungsten Bronze Nanosheets

Shuangfeng Jia, Jianbo Wang, He Zheng, Lili Kong and Wei Han. School of Physics and Technology, Center for Electron Microscopy, MOE Key Laboratory of Artificial Micro- and Nano-structures, and Institute for Advanced Studies, Wuhan University

Misfit Accommodation Mechanism of the \{111\} Diamond/Cubic Boron Nitride Interface

C. L. Chen¹, Z. C. Wang¹, T. Kato¹, N. Shibata¹, T. Taniguchi¹ and Y. Ikuhara²-⁴. ¹Advanced Institute for Materials Research, Tohoku University, ²Nanostructures Research Laboratory, Japan Fine Ceramics Center, ³Institute of Engineering Innovation, The University of Tokyo, ⁴National Institute for Materials Science

Identification of Σ-Twinning in HVPE-AlN Single Crystals

J. P. Zhang¹, J. J. Zhao¹, X. J. Su¹, U. Jahn², Y. Ji³, M. S. Sun¹, Y. X. Qiu¹, X. H. Liu¹, J. Huang¹, J. C. Zhang¹⁴ and K. Xu¹⁴. ¹Suzhou Institute of Nano-Tech and Nano-bionics, Chinese Academy of Sciences, ²Paul-Drude Institute for Solid-State Electronics, ³Beijing University of Technology, ⁴Suzhou Nanowin Science and Technology Co., Ltd

Visualization of Potential Map in a Thin-Film Solar Cell by High Sensitivity Phase-Shifting Electron Holography

Kazuo Yamamoto¹, Takuya Matsui², Hajime Shibata¹, Ryuji Yoshida¹, Takeharu Kato¹, Koji Matsubara², Shigeru Niki² and Tsukasa Hirayama¹. ¹Nanostructures Research Laboratory, Japan Fine Ceramics Center, ²National Institute of Advanced Industrial Science and Technology, Research Center for Photovoltaics

Shape-Controlled Synthesis of Trisoctahedral Gold Nanocrystals with Exposed High-Index Facets for H₂O₂ Sensing Application

Yu-Cheng Liu and Young Ku. Department of Chemical Engineering, National Taiwan University of Science and Technology

Direct Observation the Vacant Sites in the GeSbTe Metastable Polycrystalline Phase

Bin Zhang¹, Zhenju Shen¹, Yongjin Chen¹, Jixue Li¹, Wei Zhang¹, Evan Ma¹, Ze Zhang¹ and Xiaodong Han¹. ¹Institute of Microstructure and Property of Advanced Materials, Beijing University of Technology, ²Center of Electron Microscopy and State Key Laboratory of Silicon Materials, Department of Materials Science and Engineering, Zhejiang University, ³Center for Advancing Materials Performance from the Nanoscale, State Key Laboratory for Mechanical Behavior of Materials, Xi’an Jiaotong University

van der Waals Epitaxial Growth of Highly-Textured ZnO Thin Film on Surface-Modified Silicon Substrates by Chemical Bath Deposition

Chia-Hao Yu¹, Kuan-Hung Chen¹, Zhang-Chen Luo¹, Shao-Sian Li¹, Yih-Ren Chang¹, Chien-Ting Wu¹, Chun-Wei Chen and Cheng-Yen Wen¹. ¹Department of Material Science and Engineering, National Taiwan University, ²National Nano Device Laboratories, National Applied Research Laboratories
B23-O-16 Correlation of Thermoelectric Properties to Microstructure of an Annealed Sb-Doped Mg$_2$Si$_{0.5}$Sn$_{0.5}$ Solid Solution with TEM
Minghui Song, Ji-Wei Liu, Masaki Takeguchi, Naohito Tsujii and Yukihiro Isoda. 1Electron Microscopy Station, National Institute for Materials Science (NIMS), 2School of Materials Science and Engineering, Changzhou University, 3Quantum Beam Unit, NIMS, 4Battery Materials Unit, NIMS.

B23-O-17 Controllably Triggering Metal-Insulator Transition of VO$_2$
Z. H. Zhang, H. Guo, W. Q. Ding, B. Zhang, Y. Lu, X. X. Ke, F. R. Chen and M. L. Sui. 1Institute of Microstructure and Property of Advanced Materials, Beijing University of Technology, 2Department of Materials Science and NanoEngineering, Rice University, 3Department of Engineering and System Science, National Tsing Hua University.

B23-O-18 Effectiveness of Multi-Scale Observations for Polycrystalline Superconducting Materials
Yusuke Shimada, Satoshi Hata, Akiyoshi Matsumoto, Hiroaki Kumakura, Akiyasu Yamamoto, Hideharu Nakashima and Toyohiko J. Konno. 1Institute for Materials Research, Tohoku University, 2Department of Engineering Sciences for Electronics and Materials, Kyushu University, 3Superconducting Materials Science, National Institute for Materials Science, 4Department of Applied Physics, Tokyo University of Agriculture and Technology.

C1: Histology and Cell Biology

● C1-O-01 Control of Mitochondrial Dynamics in Neuronal Development
Woong Sun, So Yoen Choi, Hyo Min Cho and Bongki Cho. Department of Anatomy Korea University College of Medicine.

● C1-O-02 Carcinogenesis by Stem Cell Misplacement: A New Cancer Theory
Rui-An Wang. Department of Pathology, the Fourth Military Medical University.

● C1-O-03 Dynamics of Thrombus Formation in Mouse Testicular Surface Vein Visualized by Newly Devised “Vascular Mapping” Method for Live-CLEM Imaging in vivo
Akira Sawaguchi and Satoshi Nishimura. 1Department of Anatomy, Ultrastructural Cell Biology, Faculty of Medicine, University of Miyazaki, 2Department of Cardiovascular Medicine, The University of Tokyo, 3Translational Systems Biology and Medicine Initiative, The University of Tokyo, 4Center for Molecular Medicine, Jichi Medical University.

● C1-O-04 Testis-Specific Knockdown of Dnmt1 Induced Mislocalization of rRNA Genes in the Nuclei of Mouse Spermatocytes
Daisuke Endo and Takehiko Koji. Department of Histology and Cell Biology, Nagasaki University Graduate School of Biomedical Science.

● C1-O-05 Central Connectivity and Distribution of Transient Receptor Potential Melastatin 8 (TRPM8)-Expressing Axons in the Brain Stem and Dental Pulp
Yong Chul Bae. Department of Anatomy and Neurobiology, School of Dentistry, Kyungpook National University.

C2: Biology of Plants and Microorganisms

● C2-O-01 Ultrastructure of the Epiphytic Sooty Mold Capnodium and Surface-Colonized Walnut Leaves
Ki Woo Kim. School of Ecology and Environmental System, Kyungpook National University.

● C2-O-02 Dimorphic Secretory Vesicles Produced from the Golgi Stacks of Mucilage Secreting Root Cap Cells
Byung-Ho Kang, Cui Yong, Cameron Goldbeck and L. Andrew Staehelin. 1School of Life Science, Center for Organelle Biogenesis and Function, State Key Laboratory for Agrobiotechnology, The Chinese University of Hong Kong, 2Department of Mathematics, University of California, Santa Barbara, 3Molecular Cellular and Developmental Biology, University of Colorado at Boulder.
C2-O-03 Importance of Rapid Diagnostic Electron Microscopy in Emerging Infectious Diseases

H.L. Hing¹, Y. Muranaka², A. Kurth³, H. Gelderbloms⁴, A.Z. Sahalan¹, M.A. Kaswandi⁵ and A. Hyatt⁴.
¹Department of Biomedical Sciences, Faculty of Allied Health Sciences, Universiti, Kebangsaan Malaysia, ²Laboratory for Ultrastructure Research, Research Equipment Center, Hamamatsu University School of Medicine, ³Consultant Laboratory for Diagnostic Electron Microscopy in Infectious Diseases, Robert Koch Institute, ⁴Australian Animal Health Laboratory .................................................................i65

C2-O-04 Gliding Machinery of Mycoplasma mobile, Pathogenic Bacterium

Makoto Miyata¹,². ¹Graduate School of Science, Osaka City University, ²The OCU Advanced Research Institute for Natural Science and Technology (OCARINA), Osaka City University .................................................................i66

C2-O-05 Non-Destructive Observation of Aerenchyma Development in the Primary Root of Rice Using X-ray Micro-CT

Ichirou Karahara¹, Yusuke Matsuzawa¹, Tadafumi Bando¹, Daisuke Tamaoki¹,², Jun Abe³, Kentaro Uesugi³, Daisuke Yamauchi³ and Yoshinobu Mineyuki³. ¹Department of Biology, Graduate School of Science and Engineering, University of Toyama, ²Department of Life Science, Graduate School of Life Science, University of Hyogo, ³School of Agriculture, Tokai University, ⁴Japan Synchrotron Radiation Research Institute .................................................................i66

C3: 3-dimensional Electron Microscopy

C3-O-01 Three Dimensional Reconstruction of the Nervous System; Some Strategies and Applications on Neuroscience Researches

Hyun-wook Kim¹, Kea Joo Lee² and Im Joo Rhyu². ¹Department of Anatomy, Korea University College of Medicine, ²Research Division, Korea Brain Research Institute .................................................................i67

C3-O-02 Structure of 30-nm Chromatin Fiber Revealed by Cryo-Electron Microscopy

Ping Zhu. Institute of Biophysics, Chinese Academy of Sciences.................................................................i67

C3-O-03 Single Particle 3D Reconstruction of Eh V-ATPase by Zernike Phase Contrast Cryo-Electron Microscopy Equipped with a Direct Detector

Kazuyoshi Murata¹, Takeshi Murata², Hiroshi Ueno² and Ryota Iino³. ¹National Institute for Physiological Sciences, ²Department Science, Chiba University, ³School of Engineering, The University of Tokyo, ⁴Okazaki Institute for Integrative Bioscience and Institute for Molecular Science .................................................................i68

C3-O-04 Functional Structures of Ion Channels in Lipid Environment

Hideki Shigematsu¹,², Fred Sigworth² and Mikako Shirozhu². ¹RIKEN Center for Life Science Technologies, ²Yale University School of Medicine .................................................................i68

C3-O-05 Electron Cryo-Tomography of Thermoplasm acidophilum with Volta Phase Plate

Yoshiyuki Fukuda, Florian Beck, Radostin Danev, Istvan Nagy and Wolfgang Baumeister. Department of Molecular Structural Biology, Max-Planck Institute of Biochemistry .................................................................i69

C4: Super-resolved Fluorescence Microscopy

C4-O-01 Super-Resolution Imaging Based on Nonlinearities of Plasmonic Scattering

Shi-Wei Chu¹,², Satoshi Kawata¹ and Katsumasa Fujita¹. ¹Department of Physics, National Taiwan University, ²Molecular Imaging Center, National Taiwan University, .................................................................i69

C4-O-02 Cellular Imaging from the Diffraction-Limited to the Super-Resolution

Daehun Park and Sunghoe Chang. Department of Physiology and Biomedical Sciences, Seoul National University College of Medicine .................................................................i70

C4-O-03 Super-Resolution Study of The Chromatin Structure and Processes

Q. Peter Su, Meiqin Chen and Yujie Sun. BIOPIC, School of Life Sciences, Peking University .................................................................i70
C5: Molecular Labeling

- C5-O-01 Live Cell Superresolution Imaging with Unique Photoactivatable Fluorescent Proteins
  Xi Zhang, Mingshu Zhan and Pingyong Xu. Institute of Biophysics, Chinese Academy of Sciences

- C5-O-02 Targeted Imaging and Theranostics with Peptides and Novel Protein Scaffolds, Repebody and Monobody
  Misun Yun1, Seung Hwan Park1, Yeongjin Hong1 and Jung-Joon Min1,2. 1Department of Nuclear Medicine, Chonnam National University Medical School, 2Department of Microbiology, Chonnam National University Medical School

- C5-O-03 Nanoparticles for in vitro and in vivo Optical Imaging
  Peilin Chen. Research Center for Applied Sciences, Academia Sinica

- C5-O-04 Genetically-Ecoded Tools to Optically Control and Image Ca²⁺ Dynamics
  Takeharu Nagai. The Institute of Scientific and Industrial Research, Osaka University

C6: Connectomics

- C6-O-01 Three-Dimensional Reconstruction of Neural Tissue from Serial Sections Collected by ATUM
  Hirohide Iwasaki1,2 and Shigeo Okabe1,2. 1The University of Tokyo, 2CREST, JST

- C6-O-02 Mapping Synapses by Conjugate Light-Electron Array Tomography
  Forrest Collman1, Joann Buchanan1, Kristen D. Phend2, Kristina D. Micheva1, Richard J. Weinberg2 and Stephen J. Smith1. 1Allen Institute for Brain Science, 2Department of Cell Biology and Physiology, University of North Carolina

- C6-O-03 Quantifying Adult Brain Ultrastructure Using Focussed Ion Beam Scanning Electron Microscopy
  Graham Knott. Bio Electron Microscopy Facility, Life Science Faculty, EPFL

- C6-O-04 An Excitatory and Inhibitory Synapse Density on Various Nonpyramidal Cells in the Rat Cerebral Cortex
  Y Kubota1,2, A Sekigawa1,2, S Hatada1 and Y Kawaguchi1,2. 1Div Cerebral Circuitry, National Institute for Physiological Sciences, 2The Graduate University for Advanced Studies (SOKENDAI)

POSTER SESSION

PB1-1: Advanced Techniques (TEM/STEM)

B11-P-01 Magnetocrystalline Anisotropy of Hexagonal Co by Relative Intensities of Electron Magnetic Circular Dichroic Signals
  Tomohiro Kudo1, Kazuyoshi Tatsumi2, Shunsuke Muto2, Klaus Leifer3 and Jan Rusz4. 1Graduate School of engineering, Nagoya University, 2Institute for Materials and Systems for Sustainability, Nagoya University, 3Department of Engineering Science, Uppsala University, 4Department of Physics and Astronomy, Uppsala University

B11-P-02 High-Resolution EELS Study of Organic Crystals
  Hiroki Kurata, Yoshifumi Fujiiyoshi, Yuriko Tomisaki, Takashi Nemoto and Mitsutaka Haruta. Institute for Chemical Research, Kyoto University
B11-P-03 Interactions of TEM Electron Beam with Liquid and Nanoparticles in the Liquid

Ying-Jhan Hong¹, Lin-Ai Tai², Hung-Jen Chen², Chung-Shi Yang², Pin Chang² and Tri-Rung Yew².
¹Department of Materials Science and Engineering, National Tsing-Hua University,
²Bio Materials Analysis Technology

B11-P-04 Limit of Detection for Dopant in Si Using Large Solid Angle Silicon Drift Detector

Kei-ichi Fukunaga¹, Noriaki Endo¹, Minoru Suzuki², Kyoichiro Asayama¹ and Yukihito Kondo¹.
¹JEOL Ltd.,
²Thermo Fisher Scientific Japan

B11-P-05 Complete Elemental Analysis of Silicate Microparticles Released from Fukushima Nuclear Reactors Using Microcalorimeter EDS in TEM

Toshihiro Kogure¹, Toru Haru¹, Masanori Mitome² and Noriko Yamaguchi¹.
¹Graduate School of Sciences, The University of Tokyo,
²National Institute for Material Science

B11-P-06 Three-Dimensional Analysis of Exhaust Gas Catalyst Using Energy Dispersive X-ray Tomography

Shin Inamoto, Akiyo Yoshida, Naoto Kaneko and Yuji Otsuka.
Morphological Research Laboratory, Toray Research Center, Inc.

B11-P-07 Phase-Contrast Characteristics of Annular Bright-Field Imaging in STEM

Naoto Takanashi, Takehito Seki and Eiji Abe.
Department of Materials Engineering, The University of Tokyo

B11-P-08 Simulation of Phase Imperfection Restoration in Electron Holography in Noisy Case

Wei Li¹ and Takayoshi Tanji².
¹EcoTopia Science Institute, Nagoya University,
²Global Research Center for Environment and Energy Based on Nanomaterials Science

B11-P-09 Application of STEM Low Angle Annular Dark Field Diffraction Contrast to Imaging of Severely Deformed Alloys

Althaf Basha Dudekula¹, Julian M. Rosalie¹, Hidetoshi Somekawa¹, Takashi Miyawaki¹², Alok Singh¹ and Koichi Tsuchiya¹².
¹Structural Materials Unit, National Institute for Materials Science,
²Graduate School of Pure and Applied Sciences, University of Tsukuba

B11-P-10 Effects of Secondary γ' Precipitates During Creep in a Single Crystal Ni-Based Superalloy

Sisi Xiang¹, Hua Wei¹, Guoming Han¹, Haibo Long¹, Shengcheng Mao¹, Ze Zhang¹ and Xiaodong Han¹.
¹Institute of Microstructure and Property of Advanced Materials, Beijing University of Technology,
²Superalloys Division, Institute of Metal Research, CAS,
³State Key Laboratory of Silicon Materials and Department of Materials Science and Engineering, Zhejiang University

B11-P-11 The Effect of Aging on the Phase Transformation of AA7050 Aluminum Alloys

Tsai-Fu Chung¹, Bo-Ming Huang¹, Jer-Ren Yang¹ and T. Ohmura².
¹Department of Materials Science and Engineering, National Taiwan University,
²National Institute for Materials Science

B11-P-12 Development of New Generation Multi-Purpose 200 kV Field Emission Electron Microscope

JEOL Ltd.

B11-P-13 Thermally Actuated Tensile Deformation Device for TEM

Shi-duo Sun¹, Xiao-dong Wang¹, Sheng-cheng Mao¹, Xiao-dong Han¹ and Ze Zhang¹².
¹Institute of Microstructure and Property of Advanced Materials, Beijing University of Technology,
²State Key Laboratory of Silicon Materials and Department of Materials Science and Engineering, Zhejiang University

B11-P-14 ISER, a New, Compressed Sensing Based Reconstruction Algorithm for Reducing Image Acquisition Time

Katsumi Kamo¹, Noritaka Horii¹, Hiromitsu Furukawa¹ and Hiroyuki Kudo².
¹Engineering Department,
²SYSTEM IN FRONTIER INC.


B11-P-15 Limit Less Panorama: An Automated Super Large TEM Panoramic Image Recording System
Nobuya Mamizu¹, Hitetaka Fukushima¹, Hideo Nishioka¹ and Hiromitsu Furukawa¹. ¹SYSTEM IN
FRONTIER INC., ²JEOL Ltd. ..........................................................................................................................i85

PB1-2: In-Situ (TEM/STEM)

B12-P-01 Operand TEM Observation of Lithium Ion Nano-Battery
Soyeon Lee¹, Yoshifumi Oshima¹ and Kunio Takayanagi². ¹Department Electronic Chemistry, Tokyo Institute
of Technology, ²School of Materials Science, Japan Advanced Institute of Science and Technology, ³Department
Physics, Tokyo Institute of Technology ............................................................................................................i85

B12-P-02 Electron Holography Analysis with 3D Computer Simulation for Observing Potential Profile Around Electrode/Solid-Electrolyte Interfaces
Yuka Aizawa¹, Takeshi Sato¹, Kazuo Yamamoto¹, Ryuji Yoshida¹, Hidekazu Murata¹, Yasutoshi Iriyama¹ and
Tsukasa Hirayama¹. ¹Japan Fine Ceramics Center, ²Meijo University, ³Nagoya University .......................................i86

B12-P-03 In-situ Transmission Electron Microscopy Studies of All-Solid-State Rechargeable Lithium Ion Batteries
Dan Lei, Kazutaka Mitsuishi, Tsuyoshi Ohnishi, Ken Watanabe, Takahisa Okho, Masaki Takeguchi and
Kazunori Takada. National Institute for Materials Science ............................................................................i86

B12-P-04 Fabrication of in-situ TEM Biasing and Heating Holder: New Opportunities of Battery Characterization
Mu-Tung Chang, Shen-Chuan Lo, Ming-Wei Lai, Cheng-Yu Hsieh and Ren-Fong Cai. Department of
Electron Microscopy Development and Application, Material and Chemical Research Laboratories, Industrial
Technology Research Institute (ITRI) ................................................................................................................i87

B12-P-05 Large Plasticity of Single Crystalline Nano-Sized Mo
Yan Lu¹, Lihua Wang¹, Ze Zhang¹,² and Xiaodong Han¹. ¹Institute of Microstructure and Properties of
Advanced Materials, Beijing University of Technology, ²Department of Materials Science, Zhejiang University .......i87

B12-P-06 The Study of Liquid Like Behaviors in Silver Nanocrystal
Deli Kong¹, Lihua Wang¹, Ze Zhang¹,² and Xiaodong Han¹. ¹Institute of Microstructure and Properties of
Advanced Materials, Beijing University of Technology, ²Department of Materials Science, State Key Laboratory
of Silicon Materials, Zhejiang University ........................................................................................................i87

B12-P-07 In situ Investigate the Plastic Deformation Behavior of Small-Size Cobalt
Lirong Xiao¹, Xuechao Sha¹, Qingsong Deng¹, Lihua Wang¹, Xiaodong Han¹ and Ze Zhang². ¹Institute of
Microstructure and Property of Advanced Materials, Beijing University of Technology, ²Center of Electron
Microscopy and State Key Laboratory of Silicon Materials, Department of Materials Science and Engineering,
Zhejiang University ........................................................................................................................................i88

B12-P-08 In situ Observation of Dislocation Accumulation and Small Angle Grain Boundary Formation
Xuechao Sha¹, Lihua Wang¹, Xiaodong Han¹ and Ze Zhang². ¹Institute of Microstructure and Properties of
Advanced Materials, Beijing University of Technology, ²Department of Materials Science, Zhejiang University .......i89

B12-P-09 Characterization of Zirconium Hydrides in Zircaloy-4 Cladding with Respect to Cooling Rate
Youngmok Rhym¹, Sung-Dae Kim¹, Ju-Seong Kim¹ and Jonghun Yoon¹. ¹Korea Institute of Material Science
(KIMS), ²Korea Atomic Energy Research Institute, ³Hanyang University ............................................................i89

B12-P-10 In-situ Heating TEM for Aluminum-Induced Solid Phase Epitaxial (AI-SPE) Growth of Si₀.₅Ge₀.₅
Chuan-Jung Lin¹, Chien-Chung Hsu¹, Yu-Chun Huang¹, Sheng-Min Yu¹,², Sung-Yen Wei¹, Wen-Ching Sun¹,
Tzer-Shen Lin¹ and Fu-Rong Chen¹. ¹Department of Engineering and System Science, National Tsing Hua
University, ²Material and Chemical Research Laboratories, Industrial Technology Research Institute ...............i90
B12-P-11 In-situ Observation of Au Thin Film Dewetting on SiO₂ Glass Substrate During Quantum Beam Irradiation

R. X. Yu¹, T. Shibayama², Y. H. Lei, S. Yatsu, J. Ishioka and S. Watanabe. ¹Graduate Student, Hokkaido University, ²Hokkaido University.................................................................i90

B12-P-12 In situ Observation of Electrocatalysts in Multiple Gas Atmospheres on a Cold FEG-TEM

Hiroaki Matsumoto, Manabu Shirai, Isao Nagaoki and Toshie Yuguchi. Hitachi High-Technologies Corporation...i91

B12-P-13 An In-Situ Environmental Cell-Holder of Conventional Transmission Electron Microscope and Its Applications

Yongming Wang¹, Takenobu Wakasugi², Hiroki Nagakura³, Shigeito Isobe⁴, Naoyuki Hashimoto⁵ and Somei Ohnuki⁶. ¹Creative Research Institution, Hokkaido University, ²Graduate School of Engineering, Hokkaido University ........................................................................i91

B12-P-14 Direct Observation of Concentration-Dependent Growth and Dissolution of Silver Nanoparticles Using In-situ Liquid Transmission Electron Microscopy

Tae-Young Ahn, Ming-Zhe Li, Hyun-Ju Kim, Seung-Pyo Hong, Seong-II Kim and Young-Woon Kim. Department of Materials Science and Engineering, Seoul National University .................................................................i92

B12-P-15 Environmental Cell TEM Observation of ZnO Nanocrystal Decomposition


PB1-3: SEM (includes FIB/SEM)

B13-P-01 Temperature Characterization of Self-Heating in GaN-Based Transistors by Cathodeluminescence Spectroscopy

Li Wang¹, Yamin Zhang², Shiwei Feng², Yuan Ji³ and Xiaodong Han¹. ¹Institute of Microstructure and Property of Advanced Materials, Beijing University of Technology, ²College of Electronic Information & Control Engineering, Beijing University of Technology .........................................................i93

B13-P-02 New High Resolution FE-SEM Capable of High Speed Analysis and Electron-Energy-Selective Imaging

Yasuyuki Okano, Kaori Nakajima, Naoki Kikuchi, Mitsuo Suga, Takao Miyado, Takeyuki Kobayashi, Takahiro Matsumoto, Naoki Sekine, Katsuhiko Nagomi, Masato Ikeda, Hideo Kojima and Takeshi Nokuo. JEOL Ltd. ...............i93

B13-P-03 Fabrication and Characterization of Silicon Field Emission Tips for Miniature Field Emission Electron Microscope

W. R. Lin¹, Y. J. Chuang², C. H. Lee², F. G. Tseng¹ and F. R. Chen². ¹Department of Engineering and System Science, National Tsing Hua University, ²Department of Biomedical Engineering, Ming Chuan University ..............................................i94

B13-P-04 The Study of Bainitic Transformation in Cu-Al-Mn Alloy by Using Advanced SEM Techniques

S. Motomura¹, T. Haru², T. Omori², R. Kainuma² and M. Nishida¹. ¹Department of Applied Science for Electronics and Materials, Kyushu University, ²Advanced Key Technologies Division, National Institute for Materials Science, ³Department of Metallurgy, Materials Science and Materials Processing, Tohoku University ........i94

B13-P-05 In-situ Scanning Electron Microscopy Observation of Electric Field Induced Domain Switching Behavior in Ferroelectric Materials

Kyu-Jin Jo¹, Hyun-Woo Cha¹, Joon-Hwan Lee², Mi-Yang Kim² and Cheol-Woong Yang³. ¹School of Advanced Materials Science and Engineering, Sungkyunkwan University, ²Advanced Material & Device Laboratory, Corporate R&D Institute, Samsung Electro-Mechanics .................................................................i95

B13-P-06 Effective Surface Treatment of Non-Conductive Materials for Orientation Analysis by Transmission EBSD

Yuta Yamamoto¹ and Shunsuke Muto².¹ HVEM Laboratory, EcoTopia Science Institute, Nagoya University, ²Advanced Measurement Technology Center, EcoTopia Science Institute, Nagoya University .................................................................i95

B13-P-07 Evaluation of Cross-Sections of Low Melting Point Metals Prepared by an FIB Equipped with a Cooling Stage

Hideki Matsushima, Yuichiro Ohori, Noriaki Mizuno, Yusuke Kagaya, Akira Takishita, Hideo Nishioka and Toshiaki Suzuki. IB Business Unit, JEOL Ltd. .................................................................i96
B13-P-08 Effectiveness of Cooling Temperature Control on Preparation of a Specimen Cross Section
Shogo Kataoka¹, Munehiro Kozuka¹, Tsuyoshi Wakasa¹, Yuhei Nakajima¹, Kouji Todoroki¹, Toru Kasai¹, Tsutomu Negishi², Mitsuhide Matsushita³, Hideo Nisioka³ and Toshiaki Suzuki¹. ¹IB Business Unit, JEOL Ltd., ²SM Business Unit, JEOL Ltd. .................................................. i96

B13-P-09 Analysis of Lithium Compounds Using Li K-Edge Reflection EELS
Noboru Taguchi, Mitsunori Kitta, Hikari Sakaebe and Tomoki Akita. Research Institute of Electrochemical Energy, National Institute of Advanced Industrial Science and Technology (AIST).......................................................... i97

PB2-1: Nano-materials

B21-P-01 STEM Study of Bimetallic Pd-Ru Nanoparticles
Tomokazu Yamamoto¹,², Kouhei Kusada¹,², Katsutoshi Sato³,², Satoru Yoshioka¹,², Hirokazu Kobayashi¹,², Katsutoshi Nagao²,², Hiroshi Kitagawa² and Syo Matsumura¹. ¹Department of Applied Quantum Physics and Nuclear Engineering, Kyusyu University, ²JST-CREST, ³Department of Chemistry, Kyoto University, ⁴Department of Applied Chemistry, Oita University .......................................................... i97

B21-P-02 STEM Observations of Au/SrTiO₃ Catalysts
Tomoki Akita, Yasushi Maeda and Masanori Kohyama. Research Institute of Electrochemical Energy, National Institute of Advanced Industrial Science and Technology (AIST).......................................................... i98

B21-P-03 Dielectric Properties of Multishell Nanoparticles Studied by HR-EELS
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Janghyun Jo¹, Youngbin Tchoe², Gyu-Chul Yi² and Miyoung Kim¹. ¹Department of Materials Science and Engineering, and Research Institute of Advanced Materials, Seoul National University, ²Department of Physics and Astronomy, and Institute of Applied Physics, Seoul National University .................................................. i99

B21-P-06 Flux Dependence of Ge Surface Nanostructure Formed by Ion Beam Irradiation
Tomoya Oishi¹, Takashi Miyaji¹ and Noriko Nitta¹. ¹School of Environmental Science and Technology, Kochi University of Technology, ²Center for Nanotechnology, Research Institute, Kochi University of Technology ..........i100

B21-P-07 Elucidating Structure and Thermal Reaction of Low-Dimensionial Bi Growth on Monolayer Epitaxial Graphene
Shu Hsuan Su¹, H. -H. Chen¹ and J. C. A. Huang¹. ¹Department of Physics, National Cheng Kung University, ²Taiwan Consortium of Emergent Crystalline Materials, Ministry of Science and Technology ........................................i100

B21-P-08 Flux Dependence of Ge Surface Nanostructure Formed by Ion Beam Irradiation
Tomoya Oishi¹, Takashi Miyaji¹ and Noriko Nitta¹. ¹School of Environmental Science and Technology, Kochi University of Technology, ²Center for Nanotechnology, Research Institute, Kochi University of Technology ..........i100

B21-P-09 The Crystal Micro-Structure Evolution of In-situ Annealed Phase Change Material TiSbTe Film
Yongjin Chen¹, Qingqing Ding², Bin Zhang¹, Xiaodong Han¹ and Ze Zhang¹,². ¹Institute of Microstructure and Property of Advanced Materials, Beijing University of Technology, ²Center of Electron Microscopy and State Key Laboratory of Silicon Materials, Department of Materials Science and Engineering, Zhejiang University ..........i101
Microstructural Evolution of 25Cr Duplex Stainless Steel upon Ultrasonic Shot Peening Treatment
Houyu Ma1, Yinsheng He1, Chao Fang1, Han-sang Lee1, Jung-il Song1, Je-hyun Lee1 and Keesam Shin1. 1School of Nano & Advanced Materials Engineering, Changwon National University, 2Advanced Materials Group, Korea Electric Power Research Institute, 3Department of Mechanical Engineering, Changwon National University

Microstructural Evolution of TP347 Stainless Steel upon Shot Peening and Subsequent Aging
Chao Fang1, Yinsheng He1, Houyu Ma1, Jine-Sung Jung1, Cheol-Woong Yang1, Je-Hyun Lee1 and Keesam Shin1. 1School of Nano and Advanced Materials Engineering, Changwon National University, 2Advanced Materials Group, Korea Electric Power Research Institute, 3School of Advanced Materials Science & Engineering, Sungkyunkwan University

J.-B. Seol1, M. J. Yao2, P. Dey2, D. Raabe2 and C.-G. Park1. 1National Institute for Nanomaterials Technology (NINT), POSTECH, 2Max-Planck-Institut für Eisenforschung

Combination of EBSD and EDS Characterization of the Crack Initiation and Propagation on Stainless Steel Cladding
Ren-Fong Cai1, Cheng-Chang Liu1, Mu-Tung Chang1, Ming-Wei Lai1, Shen-Chuan Lo1 and Tzu-Ping Cheng2. 1Department of Electron Microscopy Development and Application, 2Department of Advanced Electrochemistry and Corrosion Prevention, Material and Chemical Research Laboratories, Industrial Technology Research Institute (ITRI)

Study on Microstructure and Mechanical Properties of Boron Added Carbon Steel Joint by Laser-Arc Hybrid Welding
Seungwoo Son, Kangsik Kim, Hyo-Ki Hong and Zonghoon Lee. School of Materials Science and Engineering, Ulsan National Institute of Science and Technology (UNIST)

Effect of Shot Peening on the Microstructural Evolution of a Super304H Austenitic Stainless Steel
Kyeongae Nam1, Yinsheng He1, Cheol-Woong Yang1, Je-Hyun Lee1 and Keesam Shin1. 1School of Nano and Advanced Materials Engineering, Changwon National University, 2School of Advanced Materials Science & Engineering, Sungkyunkwan University

Observation of Recrystallization Behavior of Shot-Peened Pure Nickel Using ECCI Combined with EBSD

Ni/YSZ Interface in a Conventional Solid Oxide Fuel Cell
Shu-Sheng Liu1,2, Syo Matsumura2,3 and Michihisa Koyama1,2,4. 1INAMORI Frontier Research Center, Kyushu University, 2CREST, Japan Science and Technology Agency, 3The Ultramicroscopy Research Center, Kyushu University, 4International Institute for Carbon-Neutral Energy Research, Kyushu University

Structural Analysis of Au Doped Titanium Disilicide Using Cs-Corrected Scanning Transmission Electron Microscopy
Koichi Higashimine1, Mayumi Ito1, Shoko Kobayashi1, Yoshifumi Oshima1, Ana Estandarte2, Ian Robinson2 and Shinya Maenosono1. 1Japan Advanced Institute of Science and Technology, 2University College of London

3DAP Analysis of Clusters in Al-Mg-Si-Li Alloys
Masaya Kozuka and Yasuhiro Aruga. Materials Research Laboratory, KOBE STEEL, LTD
B22-P-09  The Misorientation Change in Lenticular Martensite by Electron Backscattered Diffraction and Convergent Beam Kikuchi Line Diffraction Pattern

Yu-Ling Chang, Yu-Ting Tsai, Po-Yu Chen and Jer-Ren Yang. Department of Materials Science and Engineering, National Taiwan University

B22-P-10  The Investigations on the Moiré Patterns Between Ferrite and Cementite Precipitate in Si-Containing Steels

Yu-Ting Tsai and Jer-Ren Yang. Department of Materials Science and Engineering, National Taiwan University

B22-P-11  Structure Refinements of the LPSO-Mg Alloys Based on STEM Imaging Combined with CBED

Kenya Yamashita1, Koji Inoue2, Kosuke Nagai2, Kenji Tsuda3 and Eiji Abe4. 1Department of Materials Science and Engineering, The University of Tokyo, 2Institute for Materials Research, Tohoku University, 3Institute of Multidisciplinary Research for Advanced Materials, Tohoku University

B22-P-12  A Novel Long-Period Structure Formed in a High-Pressure Synthesized Mg-Zn-Yb Alloy

N. Fujita1, K. Yamashita1, M. Matsushita2, M. Yamasaki3,4, Y. Kawamura3,4 and E. Abe1. 1Department of Materials Science & Engineering, The University of Tokyo, 2Department of Mechanical Engineering, Ehime University, 3Magnesium Research Center, Kumamoto University, 4Department of Materials Science & Engineering, Kumamoto University

B22-P-13  Microstructure Analysis for WC-12wt%Co Cemented Carbide by HAADF/ABF-STEM

Yoshimitsu Hayashi, Tomoharu Tokunaga, Katsuhiko Sasaki and Takahisa Yamamoto. Nagoya University, Department of Quantum Engineering

B22-P-14  Observation of Li2P2S5Crystalline Glass by Transmission Electron Microscopy

Hirofumi Tsukasaki, Shigeo Mori, Yusuke Suginaka, Yui Ishii, Takaya Matsumaya, Akitoshi Hayashi and Masahiro Tatsumisago. Graduate School of Engineering, Osaka Prefecture University

B22-P-15  Crystallization Behavior of Al-Ni-Y Amorphous Alloys

M. Y. Na1, S. H. Park1, K. C. Kim1, H. J. Chang2, W. T. Kim3 and D. H. Kim4. 1Department of Materials and Science Engineering, Yonsei University, 2Advanced Analysis Center, Korea Institute of Science and Technology (KIST), 3Department of Optical Engineering, Cheongju University

B22-P-16  Atomically Resolved TiN/MgO Interface by HAADF-STEM

Lin Lung Wei, Tzu Chun Yen and Li Chang. Department of Materials Science and Engineering, National Chiao Tung University

B22-P-17  Evolution of the MC Carbide in Nickel-Base Single Crystal Superalloy Exposing at 950 ºC

Hai-bo Long1, Qing Li1, Si-si Xiang1, Sheng-cheng Mao1, Hua Wei1, Ze Zhang2, and Xiao-dong Han. 1Institute of Microstructure and Property of Advanced Materials, 2Superalloys Division, Institute of Metal Research, 3State Key Laboratory of Silicon Materials and Department of Materials Science and Engineering, Zhejiang University

B22-P-18  Microstructure Evolution of CoCrFeNiCu High Entropy Composite Alloy

J. Y. Kim1,2, E. S. Park1 and H. J. Chang1. 1Advanced Analysis Center, Korea Institute of Science and Technology, 2RIAM, Department of Materials Science and Engineering, College of Engineering, Seoul National University

PB2-3: Functional Materials

B23-P-01  High-Resolution Lorentz Electron Microscopy Using Monochromator and Cs Corrector

Takuro Nagai1, Koji Inoke2, Masaki Takeguchi2 and Koji Kimoto2. 1National Institute for Materials Science (NIMS), 2FEI Company Japan Ltd.
B23-P-02  Strain Analysis from Nd-Fe-B Sintered Magnet Using Artificial Moiré Fringes
Yasukazu Murakami1, Taisuke Sasaki2, Tadakatsu Ohkubo3 and Kazuhiro Hono4. 1Department of Applied Quantum Physics and Nuclear Engineering, Kyushu University, 2Elements Strategy Initiative Center for Magnetic Materials (ESICMM), National Institute for Materials Science, 3JST, CREST ..............................................................i112

B23-P-03  Lorentz Electron Microscopy Study on an X-Type Hexaferrite
Yusuke Kimata, Momoko Okabe, Toru Asaka and Koichiro Fukuda.  Department of Materials Science and Engineering, Nagoya Institute of Technology.................................................................................................................i113

B23-P-04  High Glass Forming Ability Fe-Based Soft Magnetic Amorphous Alloys
C. N. Kuo1, Y. H. Chen2, T. Y. Wei3, Y. L. Su4 and J. C. Huang5. 1Metal Industries Research & Development Centre, 2Department of Materials and Optoelectronic Science, National Sun Yat-Sen University........................................i113

B23-P-05  Magnetic Properties and Domain Observations of Annealed Fe-Si-B-C Amorphous Ribbons
Po-Yu Chen1, Ching-Pin Chang2, Ting-Yu Wang3, Ming-Wen Chu4 and Jer-Ren Yang5. 1Department of Materials Science and Engineering, National Taiwan University, 2Center for Condensed Matter Sciences, National Taiwan University............................................................................................................................................................i114

B23-P-06  Local Electronic Structure Analysis for Brownmillerite CaFeMnO2.5
Mitsutaka Haruta, Yoshiteru Hosaka, Noriya Ichikawa, Takashi Saito, Yuichi Shimakawa and Hiromi Kurata. Institute for Chemical Research, Kyoto University..........................................................................................i114

B23-P-07  Electron Energy Loss Spectroscopy Analysis of Metal-Doped MnO4 Particles
J. C. Park1, H. S. Kim2, J. S. Kim3 and O. S. Kwon4. 1Business Support Department, Gumi Electronics & Information Technology Research Institute, 2Center for Materials Analysis, Research Institute for Advanced Materials, 3R&D Center, E&D Co., Ltd. .........................................................................................................................i115

B23-P-08  Investigation on Atomic and Electronic Structures of LaAlO3/SrxCa1-xTiO3 Interfaces Using Cs-Corrected STEM and EELS
Woonbae Sohn, Taemin Kim, Sangmoon Yoon, Miffany Kim and Howon Jang. Seoul National University, Department of Materials Science and Engineering .........................................................................................................................................................................i115

B23-P-09  Electron Energy Loss Spectroscopy of Boron Doped Diamond Electrodes
Syo Matsumura1, Tomokazu Yamamoto2, Satoru Yoshioka3, Takeshi Watanabe4 and Yasuaki Einaga5. 1Department of Applied Quantum Physics and Nuclear engineering, Kyusyu University, 2Department of Chemistry, Keio University, 3JST-CREST .....................................................................................................................................................................i116

B23-P-10  Visualization of Two-Dimensional Potential Map in Organic Electroluminescent Materials with Phase-Shifting Electron Holography
Takeshi Sato1, Kazuo Yamamoto2, Miki Tsuchiya1, Katsuji Ito1, Ryosuke Kamiya3, Noriyuki Yoshimoto4 and Yoshifumi Taniguchi5. 1Hitachi High-Technologies Corporation, 2Japan Fine Ceramics Center, 3Department of Materials Science and Engineering, Iwate University .....................................................................................................................................................................i116

B23-P-11  Charged Walls in Hybrid Improper Ferroelectric (Ca,Sr)3Ti2O7 Revealed by Scanning/Transmission Electron Microscopy(S/TEM)
K. Kurushima1,3, S-W. Cheong2 and S. Mori3. 1Toray Research Center, 2Rutgers University, 3Osaka Prefecture University .....................................................................................................................................................................i117

B23-P-12  Preparation of Nanoporous GeOx by De-Alloying Al10Ge3Mn10 Amorphous Alloy
K. C. Kim1, S. H. Park1, M. Y. Na2, H. J. Chang2, W. T. Kim3 and D. H. Kim4. 1Center for Non-Crystalline Materials, Department of Materials Science and Engineering, Yonsei University, 2Advanced Analysis Center, Korea Institute of Science and Technology (KIST), 3Department of Optical Engineering, Cheongju University ..........i117
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Jae-Il Jung$^1$ and Doreen D. Edwards$^2$. $^1$School of Energy and Chemical Engineering, Ulsan National Institute of Science and Technology (UNIST), $^2$Inamori School of Engineering, Alfred University

B23-P-14 Composition and Microstructure Study by Using Additive Manufacturing Process for Implant Application

C. N. Kuo$^1$, M. H. Tsai$^1$, S. M. Chan$^2$, T. S. Lin$^1$ and A. Chiba$^2$. $^1$Metal Industries Research & Development Centre, $^2$ONANO Industrial Corporation, $^3$Institute for Materials Research, Tohoku University

B23-P-15 The Microscopic Observation and Shape Memory Performance of Fe-Mn-Si-Cr-Nb Shape Memory Alloys

Y. J. Chen$^1$, Y. T. Hsu$^2$, K. M. Lin$^1$ and H. C. Lin$^1$. $^1$Department of Materials Science and Engineering, National Taiwan University, $^2$Department of Materials Science and Engineering, Feng Chia University

B23-P-16 Multi-Layer Method Combined with Nano-Indentation, FIB and XTEM for Nano-Hardness Measurement

Ryoko Kurishiba, T. Endo, N. Miyakai, Y. Wang, H. Oka, Y. Sato, A. Sawa, N. Hashimoto and S. Ohnuki. Faculty of Engineering, Hokkaido University

B23-P-17 Microstructural Analysis of Lithiated Sn/Sn Interface in Gelatin-Coated Sn Particle

Kenta Hayusaka, Katsuhiro Sasaki, Tomoharu Tokunaga and Takahisa Yamamoto. Department of Quantum Engineering, Nagoya University

B23-P-18 Step-Terrace Structures Formed at LSAT (001) Substrate Surface

Naoki Nishikawa$^1$, Kazuki Ohashi$^1$, Katsuhiro Sasaki$^1$, Tomoharu Tokunaga$^1$, Shunsuke Kobayashi$^1$ and Takahisa Yamamoto$^{1,2}$. $^1$Department of Quantum Engineering, Nagoya University, $^2$Nanostructures Research Laboratory, Japan Fine Ceramic Center

B23-P-19 Magnesium Localization of Spheroidal Graphite Nodules in Cast Irons

Kanako Inoue$^1$, Hidehumi Maeda$^2$, Akira Sugiyama$^1$ and Hidehiro Yasuda$^1$. $^1$Osaka University, $^2$Ryukoku University, $^3$Osaka Sangyo University

B23-P-20 The STEM Study of Crystalized Iron Vanadate Glasses Containing Alkaline Earth Oxide

Yusuke Kobayashi$^1$, Satoru Yoshioka$^1$, Tomokazu Yamamoto$^1$, Shiro Kubuki$^2$ and Syo Matsumura$^1$. $^1$Faculty of Engineering, Kyushu University, $^2$Graduate School of Science and Engineering, Tokyo Metropolitan University

PC1: Molecular Biology

C1-P-01 AFM Direct Imaging of Intracellular Cytoskeleton at Molecular Resolution Using Unroofed Cells in Liquid Environment

Jiro Usukura$^1$, Eiji Usukura$^1$, Akihiro Narita$^1$, Akira Yagi$^1$ and Shuichi Ito$^2$. $^1$Nagoya University, Graduate School of Science, $^2$Olympus Corporation, Corporate R & D Center

C1-P-02 Analyses of Mitochondrial Changes in Dysmyelinated Axons

Huy Bang Nguyen$^1$, Zheng Huang$^1$, Truc Quynh Thai$^1$, Bao Wu$^1$, Sei Saitoh$^1$, Yurika Saitoh$^1$, Kazuhiro Ikenaka$^1$ and Nobuhiko Ohno$^1$. $^1$Department of Anatomy and Molecular Histology, Interdisciplinary Graduate School of Medicine and Engineering, University of Yamanashi, $^2$Division of Neurobiology and Bioinformatics, National Institute for Physiological Sciences

PC2: Cell Biology (Animal)

C2-P-01 Imaging Mass Spectrometry Analysis of Photosynthetic Products in Poplar

Miyuki Takeuchi$^1$, Mariko Norisada$^2$ and Akira Isoyai$^1$. $^1$Graduate School of Agricultural and Life Sciences, The University of Tokyo, $^2$Asian Natural Environmental Science Center, The University of Tokyo
C2-P-02  The ER Body in the Lateral Root Cap Is Involved in Mass Transport of (K/H)DEL Proteins to the Vacuole: Using Gigapixel TEM Images
Kiminori Toyooka¹, Kei Hashimoto¹, Naoko Narikawa¹, Mayumi Wakazaki¹, Mayuko Sato¹, Noriko Nagata¹ and Takashi Okamoto¹. ¹RIKEN Center for Sustainable Resource Science, Japan Women’s University, Tokyo Metropolitan University ...

C2-P-03  Three Dimensional Structure of Cytoskeleton in Axon
Ryusuke Kuwahara¹, Kana Yokoyama¹, Kazuhiro Aoyama², Kaoru Mitsuoka¹ and Nobuhiro Morone¹. ¹Research Center for Ultra-High Voltage Electron Microscopy, Osaka University, ²FEI Company Japan, ³Institute for Integrated Cell-Material Sciences iCeMS, Kyoto University, ⁴Facility of Electron Microscopy and Ultrastructural Pathology MRC Toxicology Unit, University of Leicester ...

C2-P-04  The Role of Hippocampal CA3 Neurons as a Homeostatic Volume Control
Sang Hoon Lee and Kea Joo Lee. Department of Structure & Function of Neural Network, Korea Brain Research Institute (KBRI) ...

C2-P-05  In vivo Two-Photon Imaging of Synapse Dynamics in Mouse Models of Autism
Shinji Tanaka¹², Masaaki Ishihiki¹², Toshikiko Kuriu¹, Katsuhiko Tabuchi¹, Toru Takumi² and Shigeo Okabe¹. ¹Department of Cellular Neurobiology, Graduate School of Medicine, the University of Tokyo, ²CREST, JST ...

C2-P-06  Roles of ACF7, a Large Linker Protein Interacting with Both Microtubules and F-Actin, in the Postsynapse Development
Yutaro Kashiwagi¹² and Shigeo Okabe¹. ¹Department of Cellular Neurobiology, Graduate School of Medicine, the University of Tokyo, ²CREST, JST ...

C2-P-07  Functions of Phototropins and Photosynthesis in the Light Induced Mitochondria Chloroplasts Co-Localization in Arabidopsis Thaliana
Md. Sayeedul Islam¹, Van Toan Nguyen¹, Yusuke Kato¹, Wataru Sakamoto² and Shingo Takagi². ¹Department of Biological Sciences, Graduate School of Science, Osaka University, ²Institute of Plant Science and Resources, Okayama University ...

PC3: Cell Biology (Plant and Microorganism)

C3-P-01  Cryo-TEM Applications with Zernike and Hole-Free Phase Plate
Naoki Hosogi, Hirofumi Iijima, Yuji Konyuba and Anindito Sen. JEOL Ltd. ...

C3-P-02  Discovery of a Life Intermediate Between Prokaryote and Eukaryote in the Deep Sea!?
Masashi Yamaguchi. Medical Mycology Research Center, Chiba University ...

C3-P-03  3-D Cell Geometrical Analysis of Epidermal and Cortical Cells in Hypocotyl-Root Axes In Arabidopsis Seeds Using X-ray Micro-CT
Aki Fukuda¹, Ichiro Karahara¹, Daisuke Yamauchi¹, Daisuke Tamaoki² and Kentaro Uesugi². ¹Graduate School of Life Science, University of Hyogo, ²Graduate School of Science and Engineering, University of Toyama, ³Japan Synchrotron Radiation Research Institute ...

C3-P-04  Gliding Machinery of Mycoplasma pneumoniae Observed by Quick-Freeze Deep-Etch Method
Wu Zhe Feng, Yuhei O Tahara, Eisaku Katayama and Makoto Miyata. Graduate School of Science, Osaka City University ...
C3-P-05  Spore Surface of *Schizosaccharomyces pombe* Visualized by Quick-Freeze and Deep-Etch (QFDE) Replica Electron Microscopy
Yuhei Tahara, Kana Fukunishi, Eisaku Katayama, Taro Nakamura, Chikashi Shimoda and Makoto Miyata. Department of Biology, Graduate School of Sciences, Osaka City University .................................................................i128

C3-P-06  Structome Analysis of Freeze-Substituted Virulent *Mycobacterium tuberculosis* Based on Direct Enumeration of the Serial Ultrathin Sections with TEM
Hiroyuki Yamada², Masashi Yamaguchi², Kinuyo Chikamatsu¹, Akio Aono¹, Yuriko Igarashi¹, Yi Lina¹, Keniyo Sakashita², Takashi Ohfuji², Akiko Takaki¹ and Satoshi Mitarai¹. ¹Department of Mycobacterium Reference and Research, the Research Institute of Tuberculosis, Japan Anti-Tuberculosis Association, ²Medical Mycology Research Center, Chiba University, ³Graduate School of Biomedical Science, Nagasaki University ........................................i129

C3-P-07  Cell Surface of *Mycoplasma mobile*, Gliding Bacterium, Observed by Quick-Freeze Deep-Etch Replica Electron Microscopy
Clothilde Bertin, Yuhei O-Tahara, Eisaku Katayama and Makoto Miyata. Department of Biology, Graduate School of Sciences, Osaka City University ........................................................................................................i129

C3-P-08  Structure and Function of P1 Adhesin of *Mycoplasma pneumoniae*
U Matsumoto¹, Yoshito Kawakita¹, Tsuyoshi Kenri¹, Shigetaro Mori¹, Tasuku Hamaguchi¹, Miki Kinoshita¹, Akihiro Kawamoto¹, Takayuki Kato¹, Keiichi Namba¹ and Makoto Miyata¹. ¹Department of Biology, Graduate School of Science, Osaka City University, ²Department of Bacteriology II, National Institute of Infectious Diseases, ³Graduate School of Frontier Biosciences, Osaka University ........................................................................i130

C3-P-09  Structural Analyses of Gli123 Protein, Essential for *Mycoplasma mobile* Gliding
Daiki Matsuike, Yuhei O Tahara, Tasuku Hamaguchi and Makoto Miyata. Graduate School of Science, Osaka City University ....................................................................................................................i130

C3-P-10  Studies on Intra- and Extracellular Calcium Translocation During the Gravitropic Response of Soybean Roots by X-ray Microanalysis
Manabu Hayatsu¹, Suechika Suzuki¹. ¹Department of Biological Sciences, Faculty of Science, Kanagawa University, ²Research Institute for Integrated Science, Kanagawa University .................................................................i131

C3-P-11  3D Analysis Reveals the Structural Transformation of the Endoplasmic Reticulum Involved in Hydrocarbon Secretion in a Green Alga, *Botryococcus braunii*
Reiko Suzuki¹, Ichiro Nishii² and Tetsuko Noguchi². ¹JST CREST, ²Department of Biological Sciences, Nara Women's University ......................................................................................................................i131

C3-P-12  “Minispindle” as a Tool for Analysis of Individual Microtubule Behavior in a Mitotic Spindle
Daisuke Tamaoki², Ichirou Karahara¹, Mitsuyasu Hasebe¹, and Takashi Murata¹. ¹Graduate School of Science and Engineering, University of Toyama, ²Okazaki Institute for Integrative Bioscience, ³Division of Evolutionary Biology, National Institute for Basic Biology, ⁴Department of Basic Biology, School of Life Science, SOKENDAI .........................................................................................................................i132

C3-P-13  Single Particle Analysis of *Thermus Thermophilus* V-ATPase by Cryo-Electron Microscopy
Kaoru Mitsuoka¹, Atsuko Nakanishi², Nao Takeuchi², Jun-ichi Kishikawa² and Ken Yokoyama². ¹Research Center for Ultra-High Voltage Electron Microscopy, Osaka University, ²Faculty of Life Sciences, Kyoto Sangyo University ...............................................................................................................................i132

C3-P-14  Cytoskeletal Structure and Components of *Spiroplasma eriocheiris*, Crab Pathogen
Peng Liu¹, Qingguo Meng¹, Wei Gu¹, Wen Wang¹, Yuhei O Tahara² and Makoto Miyata². ¹College of Life Sciences, Nanjing Normal University, ²Graduate School of Science, Department of Biology, Osaka City University ........................................................................................................i133
C3-P-15 Spatio-Temporal Differences Between RanGAP and Microtubule Bands During the Development of Preprophase Bands in Onion Root Tip Cells

Takatoshi Yabuchi1, Tomonori Nakai1, Daisuke Yamauchi1, Seiji Sonobe2 and Yoshinobu Mineyuki1. 1Graduate School of Life Science, University of Hyogo, Himeji, 2Graduate School of Life Science, University of Hyogo, Akou

PC4: Histology (Animal)

C4-P-01 Classification of Neurons in Major Ganglia of Pomacea canaliculata

Apichart Ngernsoungnern. School of Anatomy, Institute of Science, Suranaree University of Technology

C4-P-02 Types of Neurosecretory Cells in Pomacea canaliculata

Piyada Ngernsoungnern1 and Piyachat Songvijit2. 1School of Anatomy, Institute of Science, Suranaree University of Technology, 2School of Pharmacology, Institute of Science, Suranaree University of Technology

C4-P-03 Ultrastructural Analyses of the Rat Esophageal Stratified Epithelium Under Normal Conditions and in Chronic Reflux Esophagitis

Masato Koike1, Hiroki Mori2, Takahiro Gotow1, Koichiro Ichimura1, Daisuke Asaoka2, Masako Oguro3, Akihito Nagahara1, Yasuo Uchiyama1, and Koichiro Ichimura. 1Department of Cell Biology and Neuroscience, 2Department of Gastroenterology, 3Department of Anatomy and Life Structure, Juntendo University Graduate School of Medicine, Laboratory of Cell Biology, College of Nutrition, Koshien University

C4-P-04 Renoprotective Effect of Cladophora glomerata Extract on Experimental Type 2 Diabetic Rats

Naruwan Saowakon1, Chutima Srimaroeng2 and Atcharaporn Ontawong2,3. 1School of Anatomy, Institute of Science, Suranaree University of Technology, 2Department of Physiology, Faculty of Medicine, Chiang Mai University, 3Division of Physiology, School of Medical Sciences, University of Phayao

C4-P-05 Fusion of Plasma Membrane Between NG2-Expressing Progenitor Cells and Neurons in the Cerebral Cortex of Rats

Mitsuyo Maeda1, Asami Eguchi2, Yasuhisa Tamura1, Yuji Hasebe1, Mitsuo Suga1 and Yosky Kataoka1,2. 1Multi-Modal Microstructure Analysis Unit, RIKEN CLST-JEOL Collaboration Center, 2Cellular Function Imaging Team, RIKEN Center for Life Science Technologies

C4-P-06 Anti-Diabetic and Anti-Inflammatory Effects of Quercetin in Streptozocin-Induced Diabetic Rats

Yoon Jeong Lee. Department of Optometry & Vision Science, Kyungwoon University, Department of Life Sciences, Yeungnam University

C4-P-07 Analysis of Fine Three-Dimensional Structure of Pharyngeal Teeth of Saury (Cololabis saira: ‘SAMMA’), Flying Fish (Cypselurus pinnatibarbatus japonicus: ‘TOBIUO’), Medaka (Oryzias latipes), Zebrafish (Danio rerio), and Other Teleost Species by X-ray Micro-Computed Tomography

Saki Shiomoto1, Shota Nomura1, Kenta Kuwabara1, Kentaro Uesugi2, Akihisa Takeuchi2, Yoshio Suzuki3, Takanori Ikenaga1, Masataka Nikaido1 and Kohei Hatta1. 1Graduate School of Life Science/Department of Science, University of Hyogo, 2JASRI, 3Graduate School of Science and Engineering, Kagoshima University

C4-P-08 Biocompatible Super-Resolution Imaging of Fast Photoswitching Fluorescent Proteins by Polarization Demodulation/Excitation Angle Narrowing

Tetsuichi Wazawa, Yoshiyuki Arai, Hiroki Takauchi, Dharmendra Tiwari and Takeharu Nagai. The Institute of Scientific and Industrial Research, Osaka University

C4-P-09 Three-Dimensional Analysis of Microglia and Synapses with Large-Volume Optical Reconstruction

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C4-P-10 Three-Dimensional Ultrastructural Analysis of Secretory Granules in Histological Paraffin Sections of Endocrine Tumors Using Low-Vacuum SEM

Sumire Inaga1, Masako Kato2, Masako Nishimura2, Kaori Ichikawa1, Toshio Kamei1, Hironobu Nakane1, Kazuhiro Hayashi1 and Toshiyuki Kaidoh1. 1Department of Anatomy, Faculty of Medicine, Tottori University, 2Department of Microbiology and Pathology, Faculty of Medicine, Tottori University, 3Hitachi High-technologies Corporation

PC5: Histology (Plant and Microorganism)

C5-P-01 Analysis of Localization of Heartwood Substances in the Pith Region of a Hardwood, Robinia Pseudoacacia var. inermis by Fluorescence Microspectroscopy

Satoshi Nakaba1, Yusuke Yamagishi1,2, Yusou Sano1 and Ryo Funada1. 1Faculty of Agriculture, Tokyo University of Agriculture and Technology, 2Graduate School of Agriculture, Hokkaido University

C5-P-02 Distribution of Intercellular Spaces in Plant Seeds During Imbibition and Germination Observed Using X-ray Micro-CT

Daisuke Yamauchi1, Aki Fukuda1, Daisuke Tamaoki1,2, Kiminori Toyooka1, Mayuko Sato1, Kentaro Uesugi1, Makoto Hoshiro1, Ichiroh Karahara1 and Yoshinobu Mineyuki1. 1Department of Life Science, Graduate School of Life Science, University of Hyogo, 2Department of Biology, Graduate School of Science and Engineering, University of Toyama, RIKEN CSRS, Japan Synchrotron Radiation Research Institute

C5-P-03 An Expanded Color Palette of Nano-Lanterns, the Super-Brilliant Luminescent Proteins for Multicolor, Real-Time Bioluminescence Imaging

Akira Takai1, Masahiro Nakano2, Kenta Saito2, Remi Haruno2, Tomonobu M. Watanabe1,2, Tatsuya Ohyanagi1, Takashi Jin1, Yasushi Okada1 and Takeharu Nagai2,3. 1Quantitative Biology Center (QBIC), RIKEN, 2ISIR, Osaka University, 3PRESTO, JST

PC6: Methods, Techniques, and Others

C6-P-01 Rare-Earth Doped Y2O3 Nano-Phosphor Probes for Correlative Cathodoluminescence and Near-Infrared Optical Bio-Imaging

Hirohiko Nioka1, Shoichiro Fukushima1, Taichi Furukawa1, Masayoshi Ichimiya1, Masaaki Ashida1, Jun Miyake1 and Mamoru Hashimoto1. 1Graduate School of Engineering Science, Osaka University, 2Institute for NanoScience Design, Osaka University, 3School of Engineering, The University of Shiga Prefecture

C6-P-02 Cryo-STEM Tomography for Cell Structure Analysis

Kazuhiro Aoyama1,2, Ryusuke Kawahara3, Kana Yokoyma1 and Kaoru Mitsuoka2. 1Application Laboratory, FEI Company Japan Ltd, 2Research Center for Ultra-High Voltage Electron Microscopy, Osaka University

C6-P-03 Development of a Cryo-SEM System Enabling Direct Observation of the Cross-Sectional Surface of an Emulsion Adhesive in Frozen-Hydrated State

Yoshiko Ito1,2, Ayumi Ishihara1,2, Yuri Nishino1,2 and Atsuo Miyazawa1. 1Leica Microsystems K.K., 2Graduate School of Life Science, University of Hyogo, 3RSC-University of Hyogo Leading Program Center, RIKEN SPring-8 Center

C6-P-04 Tri-Modal Imaging Techniques Cathodoluminescence (CL) – Near Infrared (NIR) and Magnetic Resonance Imaging (MRI) with Lanthanides Doped Gd2O3

Doan Thi Kim Dung1, Shoichiro Fukushima1, Taichi Furukawa1, Hirohiko Nioka1, Masayoshi Ichimiya1, Masaaki Ashida1, Yuki Mori1, Yoshichika Yoshioka1, Mamoru Hashimoto1 and Jun Miyake1. 1Graduate School of Engineering Science, Osaka University, 2School of Engineering, The University of Shiga Prefecture, 3Immunology Frontier Research Center, Osaka University
C6-P-05  Image Enhancement of Electron Microscope Images with Gabor Wavelets-Based Filtering
Tomoyuki Masumoto, Gen Maeda and Norio Baba. Major of Informatics, Graduate School, Kogakuin University ................................................................. i142

C6-P-06  The Cold FEG STEM Brings the Modulation-Free Image Suitable for Protein Structure Analysis
Tomoharu Matsumota1, Takeshi Sunaoshi1, Jiro Usukura1 and Akihiro Narita1,2. 1Structural Biology Research Center, Graduate School of Science, Nagoya University, 2PREST, Japan Science and Technology Agency, 3Hitachi High-Technologies Corporation ........................................................................................................ i143

C6-P-07  Spectral Fingerprinting of Individual Cells Visualized by Cavity-Reflection-Enhanced Light-Absorption Microscopy
Yoshiyuki Arai1, Takayuki Yamamoto1, Takeo Minamikawa1, Tetsuro Takamatsu2 and Takeharu Nagai1. 1The Institute of Scientific and Industrial Research, Osaka University, 2Department of Pathology and Cell Regulation, Graduate School of Medical Science, Kyoto Prefectural University of Medicine ................................................................. i143

C6-P-08  Direct Label-Free Measurement of the Distribution of Small Molecular Weight Compound Inside Thick Biological Tissue Using Coherent Raman Microspectroscopy
Masahiko Kawagishi1, Yuki Obara2, Takayuki Suzuki2, Masumi Hayashi2,4, Kazuhiko Misawa2,4 and Sumio Terada1,4. 1Department of Neuroanatomy and Cellular Neurobiology, Tokyo Medical and Dental University (TMDU), 2Department of Applied Physics, Tokyo University of Agriculture and Technology (TUAT), 3Wired Co., Ltd., 4Interdisciplinary Research Unit in Photo-nano Science, Tokyo University of Agriculture and Technology (TUAT), 5Development of Advanced Measurement and Analysis Systems (SENTAN), Japan Science and Technology Agency (JST) ........................................................................................................ i144

C6-P-09  Image Enhancement of Electron Microscope Images with Gabor Wavelets-Based Filtering
Tomoyuki Masumoto, Gen Maeda and Norio Baba. Major of Informatics, Graduate School, Kogakuin University ................................................................. i144

C6-P-10  Evaluation of Non-Nuclear Alternative Uranium by Comparison with Continuous Ultra-Thin Sections of Biological Samples
Yoshinori Muranaka1, Kanako Inoue1 and Pyoyun Park2. 1The Research Center for Ultra-High Voltage Electron Microscopy (UHVEM), 2The Center for Supports to Research and Education Activities ........................................................................................................ i145

C6-P-11  Recent Progress of Development of Eos/PIONE for Three-Dimensional Electron Microscopy
Takuo Yasunaga1, Takaumi Tsukamoto1, Keita Yamaguchi2, Ayaka Iwasaki2 and Maiko Murakami1. 1Kyushu Institute of Technology, 2Nau Data Inc........................................................................................................ i145