The 2nd East-Asia Microscopy Conference

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

24 – 27 November 2015   Himeji, JAPAN

PROGRAM BOOK

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-dmmensional 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.

Nobuo Tanaka
(President of the Japanese Society of Microscopy)

Ze Zhang
(President of the Chinese Electron Microscopy Society)

Do Hyang Kim
(President of the Korean Society of Microscopy)

Jer-Ren Yang
(President of Microscopy Society of Taiwan)

Kazuo Furuya (Chair of EAMC2)
Yoshinobu Mineyuki & Keesam Shin
(Chair of Scientific Program -- Materials Science)

Syo Matsumura
(Chair of Scientific Program -- Life Science)

Atsuo Miyazawa
(Chair of Scientific Program -- Materials Science)

Toru Hara (General Secretary)

Toshie Yaguchi (Treasurer)

Shinsuke Ogiwara & Akira Masunaga (Exhibition)
Conference Organizing Committees and Board Members

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Angus Kirkland (IFSM Secretary) Hing Hiang Lian (CAPSM Secretary)

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Ze Zhang (Zhejian Univ., CEMS) Do Hyang Kim (Yonsei Univ., KSM)
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Chair of EAMC2
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Co-Chairs of EAMC2
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Yasushi Okada (RIKEN QBIC., JSM) Xiaodong Han (Beijing Univ. Tech., CEMS)
Kazuhisa Sato (Tohoku Univ., JSM) Litaow Sun (Southeast Univ., CEMS)
Yasukazu Murakami (Kyushu Univ., JSM) Chi-Kung Sun (Nat. Taiwan Univ., MST)
Kazuto Arakawa (Shimane Univ., JSM) Shiang-Jiuun Chen (Nat. Taiwan Univ., MST)
Im Joo Rhyu (Korea University, KSM) Fu-Rong Chen (Nat. Tsing Hua Univ., MST)
Hee Seok Kweon (Korea Basic Science Inst., KSM) Jer-Ren Yang (Nat. Taiwan Univ., MST)
Jae-Pyoung Ahn (Korea Inst. of Sci. & Tech., KSM)

Exhibition Committee
Shinsuke Ogiwara (JEOL) Akira Masunaga (Hitach High-Tech.)
Akira Shono (JEOL)

IFSM Trade Group
Shinsuke Ogiwara (JEOL)

JSM Local Committee of EAMC2
Yoshinobu Mineyuki (CHAIR, Univ. Hyogo) Atsushi Yamamoto (Co-CHAIR, Univ. Hyogo)
Atsuo Miyazawa (Co-CHAIR, Univ. Hyogo)
Nobuhiro Morone (Kyoto Univ.) Akira Taniyama (Nippon Steel & Sumitomo Metal)
Kazuto Arakawa (Shimane Univ.) Kentaro Uesugi (JASRI)
Satoshi Ichikawa (Osaka Univ.) Sakuo Yamada (Kawasaki Med. Sch./ Kawasaki Univ. Med. Welfare)
Hiroyuki Nagano (Univ. Hyogo)

JSM Local Committee of EAMC, Supporting Staff
Junya Kirima (Univ. Hyogo) Jaehyun Kim (Univ. Hyogo)
Nozomi Yamaoka (Univ. Hyogo) Fangjia Luo (Univ. Hyogo)
Taiki Motomura (Univ. Hyogo) Ganasen Menega (Univ. Hyogo)
Kohei Nukina (Univ. Hyogo) Muadz Bin Ahmad Mazian (Univ. Hyogo)
Yuka Kawahara (Univ. Hyogo) Ryuji Yanase (Univ. Hyogo)
Chen Li (Univ. Hyogo)
General Information

Venue
The Himeji Chamber of Commerce and Industry (HCCI), Himeji, Hyogo, Japan
43 Shimodera, Himeji, Hyogo, Japan
Phone: +81(79)-222-6001
• Opening and Closing Ceremony, Plenary Lectures, Session A will be at Room A (Main Hall) at 1st Floor.
• Session B11 – B23 will be at Rooms B, C at 7th Floor and D at 6th Floor.
• Poster presentations will be in Exhibition Hall at 1st Floor and Lobby at 2nd Floor.

Registration Desk
The registration desk of the EAMC2 will be located in the entrance hall and will be opened during the following hours:
• Tuesday, November 24 17:00-19:00
• Wednesday, November 25 8:00-19:00
• Thursday, November 26 8:30-15:00
• Friday, November 27 8:30-13:30

Language
The official language is English. No translation will be provided during the sessions.

Name Badge
All participants are required to wear the official name badge at all times while in the venue. This badge will serve as your admission to all scientific sessions, exhibition and official functions included in your registration fee. Accompanying persons are also required to wear their name badges during all official functions that they attend.

Network and Internet Connections
For those who carry their own PCs to the EAMC2, wireless network connections are available in the areas of lecture rooms, exhibition, poster presentation, registration and lobbies in The Himeji Chamber of Commerce and Industry (HCCI). The SSID will be announced at the registration. The virus check is the own duty of the participants. The EAMC2 Organizing Committee cannot take any responsibility for the network security.

Meals and Refreshments
Coffee and tea will be available to all participants free of charge and will be served mid-morning and mid-afternoon each day. The participants can join in Luncheon seminars on November 25 and 26. A comprehensive restaurant guide in Himeji is included in the conference bag, for those wishing to enjoy Himeji’s fancy restaurants.

Cloak
The cloak for the participants is not opened on November 24 to 26 at the HCCI. It will open on November 27 at the second floor for oversea participants going home. One can kindly check-in first and leave your luggage at your hotel and come to the HCCI.
The Himeji Chamber of Commerce and Industry (HCCI)
Main Building, Floor Map
Instructions for Oral Presentations

Equipment

Oral presentations should be only presented by PC (PowerPoint etc.). All speakers are requested to use their own laptop PC: either Windows or Macintosh. The session rooms are equipped with a video projector. PCs must have a display output interface with a D-sub 15-pin plug. If necessary, bring an adaptor.

![D-sub 15-pin plug]

Speakers are recommended to bring their presentation data by a USB memory stick as a backup. The electrical supply is 100 volts AC. Speakers are responsible for transformers and plug adapters.

![A type (Two-leg plug)]

Preparation for oral presentation

Allotted time includes discussion period for each speaker is as follows.

<table>
<thead>
<tr>
<th>Session</th>
<th>Invited Speakers</th>
<th>Other Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>P Plenary Lecture</td>
<td>30min.</td>
<td>–</td>
</tr>
<tr>
<td>A Advanced Development in Instrumentation</td>
<td>25min.</td>
<td>–</td>
</tr>
<tr>
<td>B1-1 Advanced Techniques (TEM/STEM)</td>
<td>25min.</td>
<td>13min.</td>
</tr>
<tr>
<td>B1-2 In-Situ (TEM/STEM)</td>
<td>25min.</td>
<td>13min.</td>
</tr>
<tr>
<td>B1-3 SEM (includes FIB/SEM)</td>
<td>25min.</td>
<td>13min.</td>
</tr>
<tr>
<td>B1-4 X-ray Microscopy</td>
<td>30min.</td>
<td>20min.</td>
</tr>
<tr>
<td>B2-1 Nano-materials</td>
<td>25min.</td>
<td>13min.</td>
</tr>
<tr>
<td>B2-2 Structural Materials</td>
<td>25min.</td>
<td>13min.</td>
</tr>
<tr>
<td>B2-4 Structural Materials for Next Decades</td>
<td>25min.</td>
<td>13min.</td>
</tr>
<tr>
<td>C1 Histology and Cell Biology</td>
<td>24min.</td>
<td>–</td>
</tr>
<tr>
<td>C2 Biology of Plants and Microorganisms</td>
<td>25min.</td>
<td>–</td>
</tr>
<tr>
<td>C3 3-dimmensional Electron Microscopy</td>
<td>30min.</td>
<td>30min.</td>
</tr>
<tr>
<td>C4 Super-resolved Fluorescence Microscopy</td>
<td>30min.</td>
<td>–</td>
</tr>
<tr>
<td>C5 Molecular Labeling</td>
<td>30min.</td>
<td>–</td>
</tr>
<tr>
<td>C6 Connectmics</td>
<td>30min.</td>
<td>–</td>
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</tbody>
</table>

There will be discussion immediately after each presentation; a common discussion may take place when all papers scheduled for the session have been presented. All speakers are thus requested to remain for the entire session.

Oral presentations

All speakers MUST meet in the room at least 5 minutes prior to the beginning of the session. All speakers are encouraged to check your laptop with the equipment on the podium before the session starts.

Please be seated at next speakers’ seat. When it is time for your presentation, go to the podium immediately when the previous speaker has finished the presentation and answered questions. You are required to plug your laptop into a video projector. The session chair will introduce your presentation and ask you to start your presentation. A warning sign will indicate that 5 minutes remain.
Instructions for Poster Presentations

The poster presentations will be in Exhibition Hall at 1st Floor and Lobby at 2nd Floor.
• Exhibition Hall: Materials Science (B12, B13, B14, B21, B22, and B23)
• Lobby: Life Science (C1, C2, C3, C4, C5, and C6) and Materials Science (B11)

The Layout of the posters is shown in Exhibition Hall and Lobby.

All authors are responsible for displaying your materials before the beginning of Poster Session. You can be allowed to display at below time.

Set up: November 25 9:00 – 12:00
Removal: November 27 9:00 – 12:00

You are required to attend the sessions to answer questions in front of your poster during the period mentioned below.

Poster size

ISO A0 size (Height: 118.9cm, Width: 84.1cm.)

Size of the poster board is Height: 180cm, Width: 180cm as indicated in figure below. Please note that one poster board is for 2 presenters. Please don’t exceed 90cm w.

Location

The boards will be numbered (program number) and placed on the 1st and 2nd floor. Presenters should use adhesive tape to put up their posters. Tape will be prepared by the Conference Secretariat. The Secretariat will not be responsible for the loss of the poster after removal time.

Period

Poster presentation will be held on Wednesday, November 25.
Please make sure your program number is even number or odd number.
During this time all presenters are requested to stay in front of their own panels.

Group 1 : for the Presenter whose Program number is “Even”
Core time: 17:30-18:15 on November 25

Group 2: for the Presenter whose Program number is “Odd”
Core time: 18:15-19:00 on November 25
Schedule at a glance

Tuesday, November 24

17:00 – 19:00  Registration (The Himeji Chamber of Commerce and Industry (HCCI))
17:30 – 19:30  Reception (The Himeji Chamber of Commerce and Industry (HCCI))
18:00 – 20:00  EAMC2 Executive Meeting (KOKOEN Gardens)

Wednesday, November 25

<table>
<thead>
<tr>
<th>Room A (2nd Floor)</th>
<th>Room B (7th Floor)</th>
<th>Room C (7th Floor)</th>
<th>Room D (6th Floor)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2: Yang Hoon Huh</td>
<td>B14-O-04: Akihisa Takeuchi</td>
<td>C4-O-02: Sunghoe Chang</td>
<td></td>
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<tr>
<td>A3: Radostin Danev</td>
<td></td>
<td>C4-O-03: Yujie Sun</td>
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<tr>
<td>A4: Bruno M. Humbel</td>
<td></td>
<td>C4-O-04: Yasushi Okada</td>
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<tr>
<td>A5: Chikara Sato</td>
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<tr>
<td>B11-O-1: Yuichi Ikuhara</td>
<td>B21-O-01: Kaori Hirahara</td>
<td>C1-O-01: Woong Sun</td>
<td>B12-O-01: Yoshifumi Oshima</td>
</tr>
<tr>
<td>B11-O-9: Litao Sun</td>
<td></td>
<td>C1-O-02: Rui-An Wang</td>
<td>B12-O-18: Jer-Ren Yang</td>
</tr>
<tr>
<td>C6: Connectomics (15:30 – 17:30)</td>
<td></td>
<td>C1-O-03: Akira Sawaguchi</td>
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<tr>
<td>C6-O-01: Hirohide Iwasaki</td>
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<td>C1-O-04: Daisuke Endo</td>
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<tr>
<td>C6-O-02: Forrest Collman</td>
<td></td>
<td>C1-O-05: Yong Chul Bae</td>
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<tr>
<td>C6-O-03: Graham Knott</td>
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<tr>
<td>C6-O-04: Yoshiyuki Kubota</td>
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<tr>
<td>Poster Presentation (17:30 – 19:00)</td>
<td>Exhibition Hall (1st Floor): Materials Science</td>
<td>C2: Biology of Plants and Microorganisms (15:30 – 17:30)</td>
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<tr>
<td></td>
<td>Lobby (2nd Floor): Materials &amp; Life Science</td>
<td>C2-O-01: Ki Woo Kim</td>
<td></td>
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</tbody>
</table>
### Thursday, November 26

<table>
<thead>
<tr>
<th>Room A (2nd Floor)</th>
<th>Room B (7th Floor)</th>
<th>Room C (7th Floor)</th>
<th>Room D (6th Floor)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>P2: Plenary Lecture (9:00 -10:00) Room A</strong>&lt;br&gt;P2: Chan Gyung Park / Do Hyang Kim (KSM)</td>
<td><strong>B2-1: Nano-materials-II</strong>&lt;br&gt;(10:00 – 12:00)&lt;br&gt;B21-O-09: Chien-Chun Chen</td>
<td><strong>C3: 3-dimensional Electron Microscopy</strong>&lt;br&gt;(10:00 – 12:00)&lt;br&gt;C3-O-01: Im Joo Rhyu&lt;br&gt;C3-O-02: Ping Zhu&lt;br&gt;C3-O-03: Kazuyoshi Murata&lt;br&gt;C3-O-04: Hideki Shigematsu</td>
<td><strong>B1-2: In-Situ-II</strong>&lt;br&gt;(TEM/STEM)&lt;br&gt;(10:00 – 12:00)&lt;br&gt;B12-O-01: Yoshifumi Oshima&lt;br&gt;B12-O-18: Jer-Ren Yang</td>
</tr>
<tr>
<td><strong>B2-3: Functional Materials-I</strong>&lt;br&gt;(10:00 – 12:00)&lt;br&gt;B23-O-01: Si-Young Choi</td>
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<tr>
<td><strong>P3: Plenary Lecture (13:15 – 14:15) Room A</strong>&lt;br&gt;P3: Yun-Qing Li / Ze Zhang (CEMS)</td>
<td>Group Photo (14:15 – 14:30)</td>
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<tr>
<td>Excursion : (14:30 – 18:15)&lt;br&gt;EX1: SPring-8&lt;br&gt;EX2: Shoshazan Engyoji&lt;br&gt;EX3: Himeji Castle</td>
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<tr>
<td>Conference Dinner (18:30 – 20:30)&lt;br&gt;(The Himeji Chamber of Commerce and Industry)</td>
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### Friday, November 27

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<tr>
<th>Room A (2nd Floor)</th>
<th>Room B (7th Floor)</th>
<th>Room C (7th Floor)</th>
<th>Room D (6th Floor)</th>
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</thead>
<tbody>
<tr>
<td><strong>P4: Plenary Lecture (9:00 – 10:00) Room A</strong>&lt;br&gt;P4: Fu-Rong Chen / Jer-Ren Yang (MST)</td>
<td><strong>B1-3: SEM</strong>&lt;br&gt;(includes FIB/SEM)&lt;br&gt;(10:00 – 13:00)&lt;br&gt;B13-O-01: Dapeng Yu&lt;br&gt;B13-O-11: Kaoru Sato</td>
<td><strong>C5: Molecular Labeling</strong>&lt;br&gt;(10:00 – 12:00)&lt;br&gt;C5-O-01: Pingyong Xu&lt;br&gt;C5-O-02: Jung-Joon Min&lt;br&gt;C5-O-03: Peilin Chen&lt;br&gt;C5-O-04: Takeharu Nagai</td>
<td><strong>B2-3: Functional Materials-II</strong>&lt;br&gt;(10:00 – 13:00)&lt;br&gt;B23-O-08: Shigeo Mori</td>
</tr>
<tr>
<td><strong>B2-2: Structural Materials</strong>&lt;br&gt;(10:00 – 13:00)&lt;br&gt;B22-O-01: Hiromi Miura&lt;br&gt;B22-O-02: Jian-Feng Nie</td>
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<tr>
<td><strong>Closing Ceremony</strong>&lt;br&gt;(13:00 – 13:15) Room A</td>
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</tbody>
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### Scientific Program

**Tuesday, November 24**

**The Himeji Chamber of Commerce and Industry (HCCI)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>17:00-19:00</td>
<td>Registration</td>
</tr>
<tr>
<td>17:30-19:30</td>
<td>Reception</td>
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</table>

**KOKOEN Gardens**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>18:00-20:00</td>
<td>EAMC2 Executive Meeting</td>
</tr>
</tbody>
</table>

**Wednesday, November 25**

**Room A (Main Hall at 2nd Floor)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>9:00-9:15</td>
<td>OPENING CEREMONY</td>
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<tr>
<td>9:15-10:15</td>
<td>PLENARY LECTURE</td>
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<td></td>
<td><em>Chair: Nobuo Tanaka, Nagoya University</em></td>
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<td></td>
<td>Introduction by the President of JSM</td>
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<td></td>
<td>Nobuo Tanaka, Nagoya University</td>
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<td></td>
<td><em>P1</em></td>
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<tr>
<td></td>
<td>Structure-Guided Drug Development Based on Cryo-Electron Microscopy</td>
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<tr>
<td></td>
<td>Yoshinori Fujiyoshi. Graduate School of Pharmaceutical Sciences, Nagoya University / Cellular and Structural Physiology Institute, Nagoya University</td>
</tr>
<tr>
<td>10:15-12:20</td>
<td>A: Advanced Development in Instrumentation</td>
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<tr>
<td></td>
<td><em>Organizers/Chairs: Fu-Rong Chen, National Tsing Hua University, Syo Matsumura, Kyusyu University</em></td>
</tr>
<tr>
<td>10:15</td>
<td>●A1</td>
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<tr>
<td></td>
<td>Development of an Aberration Corrected 1.2-MV Holography Electron Microscope</td>
</tr>
<tr>
<td></td>
<td>Hiroyuki Shinada¹, Toshiaki Tanigaki², Tetsuya Akashi³, Yoshio Takahashi⁴, Tadao Furutsu⁵, Tomokazu Shimakura⁶, Takeshi Kawasaki⁷, Keigo Kasuya⁷, Nobuyuki Osakabe⁷ and Akira Tonomura⁸°⁹. ¹Research &amp; Development Group, Hitachi, Ltd., ²RIKEN Center for Emergent Matter Science (CEMS)</td>
</tr>
<tr>
<td>10:40</td>
<td>●A2</td>
</tr>
<tr>
<td></td>
<td>Installation of Bio-High Voltage Electron Microscope at Korea Basic Science Institute</td>
</tr>
</tbody>
</table>
11:05  ●A3
Near-Atomic Resolution Single Particle Analysis with the Volta Phase Plate
Radostin Danev, Maryam Khoshouei and Wolfgang Baumeister.  Max Planck Institute of Biochemistry

11:30  ●A4
Correlative Light and Electron Microscopy in Cell Biology
Céline Loussert Fonta, Caroline Kizilyaprak, Jean Daraspe, Willy Blanchard and Bruno M. Humbel.  Electron Microscopy Facility, University of Lausanne

11:55  ●A5
TEM and ASEM of Proteins and Cells in Ice and Water
Chikara Sato.  Biomedical RI, National Institute of Industrial Science and Technology (AIST)

12:30-13:30  LUNCHEON SEMINAR 1

Development of New Generation Transmission Electron Microscope / JEM-F200
Akira Yasuhara. JEOL Ltd.

Sponsored by JEOL Ltd.

13:30-17:40  B1-1: Advanced Techniques (TEM/STEM)
Organizers: Xiaodonghan Han, Beijing University of Technology, Naoya Shibata, The University of Tokyo

Chairs: Xiaodonghan Han, Beijing University of Technology, Jinping Zhang, Suzhou Institute of Nano-Tech & Nano-Bionics, CAS

13:30  ●B11-O-01
Atomic-Scale STEM Characterization of Grain Boundaries in Oxides
Yuichi Ikuhara1-3, 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

13:55  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

14:08  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

14:21  B11-O-04
Atomic-Resolution STEM-EDS Investigation of Grain Boundary Solute Segregation Behavior in Yttria-Stabilized Zirconia
Bin Feng1, Tatsuya Yoko1, Akihito Kumamoto1, Masato Yoshiya1, Yuichi Ikuhara1,2,3 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

14:34  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
Depth-Resolution Imaging of Crystalline Nano Clusters Using Aberration-Corrected TEM

Jun Yamasaki1, Akihiko Hirata2, Yoshihiko Hirotsu3, Kaori Hirahara4 and Nobuo Tanaka5.  
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

Electron Tomography Observation of Dislocation Morphology near Surfaces of Mo (001) Thin Foils

Satoshi Hata, Makoto Shimizu, Ken-ichi Ikeda and Hideharu Nakashima.  
1Kyushu University, 2Hokkaido University

Rapid 3D Reconstruction in the EDS Tomography by Using Iterative Series Reduction (ISER) Method

Yoshitaka Aoyama, Hideo Nishioka and Yukihito Kondo.  
JEOL Ltd.

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

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

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

Development of Hollow Cone Dark Field Environmental Electron Microscopy and Their Biological Application

Department of Engineering and System Science, National Tsing Hua University

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

Coherences of Spin-Polarized and Pulsed Electron Beam Extracted from a Semiconductor Photocathode in TEM

Makoto Kawahara1,2, Kensuke Sameshima1, Kota Aoki1, Hidefumi Asano1, Toru Ujihara1, Koh Saitoh1,2 and Nobuo Tanaka1.  
1EcoTopia Science Institute, Nagoya University, 2Graduate School of Engineering, Nagoya University

Simultaneous Realization of Foucault Imaging and Small Angle Electron Diffraction by Conventional TEM

Hiroshi Nakajima1, Atsuhiro Kotani1, Yui Ishii1, Ken Harada1,2 and Shigeo Mori1.  
1Department of Materials Science, Osaka Prefecture University, 2Research and Development Group, Hitachi Ltd.
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

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

Room B (701 at 7th Floor) ●=Invited

10:15-12:15  B1-4: X-ray Microscopy
Organizers/Chairs: Mau-Tsu Tang, National Synchrotron Radiation Research Center; Kentaro Uesugi, Japan Synchrotron Radiation Research Institute (JASRI)

10:15  ●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

10:45  B14-O-02
X-ray Imaging at Taiwan Photon Source
Mau-Tsu Tang. National Synchrotron Radiation Research Center

11:05  B14-O-03
Development of In-situ Sample Cells for Scanning Transmission X-ray Microscopy at UVSOR
Takuji Ohigashi1, Masanari Nagasaka1, Toshio Horigom1, Nobuhiro Kosugi2, Scott M. Rosendahl2 and Adam P. Hitchcock3. 1UVSOR Synchrotron, Institute for Molecular Science, 2Canadian Light Source, 3McMaster University

11:25  ●B14-O-04
X-Ray Microscopy and Microtomography at SPring-8
Akihisa Takeuchi and Kentaro Uesugi. Japan Synchrotron Radiation Research Institute (JASRI) / SPring-8

12:30-13:30  LUNCHEON SEMINAR 2

In-situ S/TEM: Technology and Applications
Alex Bright. FEI Company

Sponsored by FEI Company Japan Ltd.

13:30-15:30  B2-1: Nano-materials
Organizers: Kazuhisa Sato, Osaka University, Cheng-Yen Wen, National Taiwan University
Chair: Cheng-Yen Wen, National Taiwan University

13:30  ●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
In situ TEM Observation of Cu-Doped Graphene

Emi Kano1,2, Ayako Hashimoto1,2,3,4 and Masaki Takeguchi1,2. 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

The Identification of Grain Boundaries in Two-Dimensional Graphene Using Moire Pattern Fringe

Jung Hwa Kim1, Kwunpyo Kim1 and Zonghoon Lee1,2. 1School of Materials Science and Engineering, 2Department of Physics, Ulsan National Institute of Science and Technology (UNIST)

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

Atomic Motion in Monolayer Molybridenum Disulfide Probed by In-situ ADF-STEM

Jinhua Hong1, Yuhao Pan2, Zhi Xin Hu1, Danhui Lv1, Wei Ji1, Chuanhong Jin1, Jun Yuan1,2 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

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

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 Kim1, Yong-Han Jeon1, Deok-Won Seo1, 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

Synthesis and Characterization of Epitaxial Au/Co Core-Shell Nanoparticles

Kazuhisa Sato1, Yuta Matsushima2 and Toyohiko J. Konno1. 1Institute for Materials Research, Tohoku University, 2Department of Materials Science, Tohoku University

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

Mapping Synapses by Conjugate Light-Electron Array Tomography

Forrest Collman1, Joann Buchanan1, Kristen D. Phend2, Kristina D. Micheva3, Richard J. Weinberg2 and Stephen J. Smith1. 1Allen Institute for Brain Science, 2Department of Cell Biology and Physiology, University of North Carolina, 3Department of Molecular and Cellular Physiology, Stanford University
16:30  ●C6-O-03
Quantifying Adult Brain Ultrastructure Using Focussed Ion Beam Scanning Electron Microscopy
Graham Knott. Bio Electron Microscopy Facility, Life Science Faculty, EPFL

17:00  ●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)

Room C (702 at 7th Floor)

10:15-12:15  C4: Super-resolved Fluorescence Microscopy
Organizers/Chairs: Yasushi Okada, RIKEN, Shi-Wei Chu, National Taiwan University

10:15  ●C4-O-01
Super-Resolution Imaging Based on Nonlinearities of Plasmonic Scattering
Shi-Wei Chu1,2, Satoshi Kawata3 and Katsumasa Fujita1. 1Department of Physics, National Taiwan University, 2Molecular Imaging Center, National Taiwan University, 3Department of Applied Physics, Osaka University

10:45  ●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

11:15  ●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

11:45  ●C4-O-04
Ultrafast Superresolution Fluorescence Imaging with Spinning Disk Confocal Microscope Optics
Yasushi Okada. Quantitative Biology Center, RIKEN

12:30-13:30  LUNCHEON SEMINAR 3
Ultimate Imaging & Analysis by Unique HITACHI Technology - Ultra Low Voltage SEM, Low Voltage STEM/EELS
Hiroyuki Ito. Hitachi High-Technologies Corp.

Sponsored by Hitachi High-Technologies Corp.

13:30-15:30  C1: Histology and Cell Biology
Organizers/Chairs: Young Chul Bae, Kyungpook National University, Takehiko Koji, Nagasaki University

13:30  ●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

13:54  ●C1-O-02
Carcinogenesis by Stem Cell Misplacement: A New Cancer Theory
Rui-An Wang. Department of Pathology, the Fourth Military Medical University
14:18 ● 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 Sawaguchi1 and Satoshi Nishimura2,3,4. 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

14:42 ● 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

15:06 ● 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

15:30-17:30  C2: Biology of Plants and Microorganisms
Organizers/Chairs: Ichirou Karahara, University of Toyama, Ki Woo Kim, Kyungpook National University

15:30 ● C2-O-01
Ultrastructure of the Epiphytic Sooty Mold Capnodim and Surface-Colonized Walnut Leaves
Ki Woo Kim. School of Ecology and Environmental System, Kyungpook National University

15:55 ● C2-O-02
Dimorphic Secretory Vesicles Produced from the Golgi Stacks of Mucilage Secreting Root Cap Cells
Byung-Ho Kang1, Cui Yong1, Cameron Goldbeck2 and L. Andrew Staehelin3. 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

16:20 ● C2-O-03
Importance of Rapid Diagnostic Electron Microscopy in Emerging Infectious Diseases
H.L. Hing1, Y. Muranaka2, A. Kurth3, H. Gelderbloms3, A.Z. Sahalan1, M.A. Kaswandi1 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

16:45 ● 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

17:10 ● C2-O-05
Non-Destructive Observation of Aerenchyma Development in the Primary Root of Rice Using X-ray Micro-CT
Ichirou Karahara1, Yusuke Matsuzawa2, Tadafumi Bando1, Daisuke Tamaoki2, Jun Abe3, Kentaro Uesugi4, Daisuke Tamauchi2 and Yoshinobu Mineyuki2. 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
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<th>Time</th>
<th>Event</th>
<th>Organizers/Instructors</th>
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<tr>
<td>10:15-11:15</td>
<td>WORKSHOP 1</td>
<td>The Best of Microscopy: From Submission to Publication</td>
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<td><strong>Microscopy Editorial Committee and Oxford University Press.</strong></td>
<td>Suggested by Microscopy Editorial Committee and Oxford University Press.</td>
</tr>
<tr>
<td>11:15-12:15</td>
<td>WORKSHOP 2</td>
<td>Taking Imaging and Spectroscopy to New Era in Material Science Research</td>
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<td><strong>Koji Inoke, Gatan Inc.</strong></td>
<td>Suggested by Gatan Inc.</td>
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<td>12:30-13:30</td>
<td>LUNCHEON SEMINAR 4</td>
<td>Cryo Preparation – from High Pressure Freezing to Cryo Transfer into the Analysis System</td>
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<td><strong>Gisela Hoeflinger, Leica Microsystems K.K.</strong></td>
<td>Suggested by Leica Microsystems K.K.</td>
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<td>13:30-17:30</td>
<td>B1-2: In-Situ (TEM/STEM)</td>
<td>Organizers: Kazuto Arakawa, Shimane University, Young Woon Kim, Seoul National University</td>
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<td><strong>Chair: Kazuto Arakawa, Shimane University</strong></td>
<td>Suggested by Kazuto Arakawa, Shimane University, Young Woon Kim, Seoul National University</td>
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<td>13:30</td>
<td>●B12-O-01</td>
<td>In-Situ TEM Observation of Electrochemical Process</td>
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<td><strong>Yoshifumi Oshima.</strong> School of Materials Science, Japan Advanced Institute of Science and Technology</td>
<td>Suggested by Yoshifumi Oshima, School of Materials Science, Japan Advanced Institute of Science and Technology</td>
</tr>
<tr>
<td>13:55</td>
<td>B12-O-02</td>
<td>Observation of Dominant Diffusion Path of Copper in the Electrically Biased Interconnects Using in-situ TEM</td>
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<td><strong>Young-Hwa Oh, Seung-Yong Lee, Tae-Young Ahn, Miyoung Kim and Young-Woon Kim.</strong> Seoul National University</td>
<td>Suggested by Young-Hwa Oh, Seung-Yong Lee, Tae-Young Ahn, Miyoung Kim and Young-Woon Kim. Seoul National University</td>
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<td>14:08</td>
<td>B12-O-03</td>
<td>In Situ TEM Study of Nanostructural and Transport Property Changes in Phase-Change Memory</td>
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<td><strong>Ruiwen Shao1, Kun Zheng2, and Xiaodong Han1,2.</strong> Institute of Microstructure and Properties of Advanced Materials, Beijing University of Technology, Beijing Key Laboratory of Microstructure and Property of Advanced Material, Beijing University of Technology, Materials Engineering, The University of Queensland</td>
<td>Suggested by Ruiwen Shao1, Kun Zheng2, and Xiaodong Han1,2. Institute of Microstructure and Properties of Advanced Materials, Beijing University of Technology, Beijing Key Laboratory of Microstructure and Property of Advanced Material, Beijing University of Technology, Materials Engineering, The University of Queensland</td>
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<td>14:21</td>
<td>B12-O-04</td>
<td>Controlling Experimental Conditions in Advanced in-situ S/TEM Experiments</td>
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<td><strong>Joerg R. Jinschek1, Eric Van Cappellen1 and Alex Bright1.</strong> FEI Company, Eindhoven, FEI Company Hillsboro, FEI Company, Tokyo</td>
<td>Suggested by Joerg R. Jinschek1, Eric Van Cappellen1 and Alex Bright1. FEI Company, Eindhoven, FEI Company Hillsboro, FEI Company, Tokyo</td>
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<tr>
<td>14:34</td>
<td>B12-O-05</td>
<td>Towards Dynamic Electron Holographic Analysis of Solid State Electrochemical Devices at Operating Condition</td>
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<td><strong>Kentaro Soma1, Stan Konings2, Genki Kobayashi3 and Seiji Takeda3.</strong> Institute of Scientific and Industrial Research, Osaka University, FEI Company, Institute for Molecular Science</td>
<td>Suggested by Kentaro Soma1, Stan Konings2, Genki Kobayashi3 and Seiji Takeda3. Institute of Scientific and Industrial Research, Osaka University, FEI Company, Institute for Molecular Science</td>
</tr>
</tbody>
</table>
14:47 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

15:00 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

15:13 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

Chair: Young Woon Kim, Seoul National University

15:30 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.

15:43 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 and Fu-Rong Chen1,2. 1Institute of Microstructure and Properties of Advanced Materials, Beijing University of Technology, 2Department of Engineering and System Science, National Tsing Hua University

15:56 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

16:09 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

16:22 B12-O-13
In-situ TEM Observation of Biological Specimen in Liquid Cells
Goshu Tamura1,2, See Wee Chee1, Duane Loh2,3, Utkur Mirsaidov1,2 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)

16:35 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

16:48 B12-O-15
In Situ Observation of Pt Silicide Formation at Pt/SiOx Interface Under Electron Irradiation
T. Nagase1,2, R. Yamashita1 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
17:01 B12-O-16
Importance of Spatial and Time Resolution of Camera for In-situ Experiments in TEM
Koji Inoke. Gatan Inc.

17:14 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

Exhibition Hall at 1st Floor / Lobby at 2nd Floor

17:30-19:00 POSTER SESSION

The poster presentations will be in Exhibition Hall at 1st Floor and Lobby at 2nd Floor.
• Exhibition Hall: Materials Science (B12, B13, B14, B21, B22, and B23)
• Lobby: Life Science (C1, C2, C3, C4, C5, and C6) and Materials Science (B11)

The Layout of the posters is shown in Exhibition Hall and Lobby.

17:30-18:15: Group 1 - for the Presenter whose Program number is “Even”
18:15-19:00: Group 2 - for the Presenter whose Program number is “Odd”

*Please see page b55 – b68 for the details of poster presentations.

Thursday, November 26

Room A (Main Hall at 2nd Floor) •=Invited

9:00-10:00 PLENARY LECTURE
Chair: Do Hyang Kim, Yonsei University

Introduction by the President of KSM
Do Hyang Kim. Yonsei 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

10:00-12:00 B2-1: Nano-materials
Organizers: Kazuhisa Sato, Osaka University, Cheng-Yen Wen, National Taiwan University
Chair: Kazuhisa Sato, Osaka University

10:00 ●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
10:25  B21-O-10
The New High-Resolution Electron Tomography for Nano-Crystal
Liu-Gu Chen¹, Angus I. Kirkland², Dirk Van Dyck¹ 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

10:38  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. Hori¹ and H. Uchida¹. ¹TEM Analysis Technology Laboratory, Physical Analysis Technology Center, Toshiba Nanoanalysis Corporation, ²Surface Material Analysis Technology Laboratory, Physical Analysis Technology Center, Toshiba Nanoanalysis Corporation

10:51  B21-O-12
Structure Unit Behavior in Pr-Doped ZnO [0001] Symmetric Tilt Grain Boundaries
Ji-young Roh¹, Yukio Sato² and Yuichi Ikuhara¹34. ¹The University of Tokyo, ²Kyushu University, ³Japan Fine Ceramics Center, ⁴Tohoku University

11:04  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. Otubo¹, 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

11:17  B21-O-14
Ultra-Large Elasticity and Liquid-Like Behavior of Nano-Materials
Xiaodong Han¹ and Ze Zhang¹². ¹Beijing Key Laboratory and Institute of Microstructure and Property of Advanced Materials, Beijing University of Technology, ²Department of Materials Science & Engineering, Zhejiang University

11:30  B21-O-15
Strain in Si/Ge Heterojunction Nanowires
Cheng-Yen Wen¹, Chia-Hao Yu¹, Tzu-Hsien Shen¹, Takashi Nemoto¹, Yoshifumi Fujiyoshi², Mitsutaka Haruta² and Hiroki Kurata². ¹Department of Materials Science and Engineering, National Taiwan University, ²Institute for Chemical Research, Kyoto University

12:15-13:15  LUNCHEON SEMINAR 5
High Precision 3D Structural Analysis Using a Novel FIB-SEM
Takeshi Ishikawa, Hitachi High-Technologies Corp.

Sponsored by Hitachi High-Technologies Corp.

13:15-14:15  PLENARY LECTURE
Chair: Ze Zhang, Beijing University of Technology, Zhejiang University

Introduction by the President of CEMS
Ze Zhang, Beijing University of Technology, Zhejiang University

●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
### Room B (701 at 7th Floor)

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<th>Time</th>
<th>Session</th>
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<tr>
<td>10:00-10:25</td>
<td>B23-O-01</td>
<td>Peculiar Domains by Local Out-of-Plane Strain in Chemically Modified Bismuth Ferrite Thin Films</td>
<td>Si-Young Choi, Sung-Dae Kim and Jungho Ryu. Korea Institute of Materials Science</td>
</tr>
<tr>
<td>10:25-10:51</td>
<td>B23-O-02</td>
<td>Atomic Level One-Dimensional Structural Modulations at the Negatively Charged Domain Walls in BiFeO3 Films</td>
<td>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</td>
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<tr>
<td>10:51-11:04</td>
<td>B23-O-03</td>
<td>Observation of the Crystal Structure and the Domains in the Layered Bismuth Titanate Bi₂Ti₃O₁₂</td>
<td>D. Urushihara¹, M. Komabuchi², N. Ishizawa¹, M. Iwata¹, 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</td>
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<td>10:51-11:17</td>
<td>B23-O-05</td>
<td>Thermal Dynamics of Magnetic Domain in Co₂Z-Type Hexaferrite: TEM Studies by In-situ Heating and Lorentz Microscopy</td>
<td>Sung-Dae Kim¹, Youngmok Rhyim¹, Gi-Yeop Kim¹² and Si-Young Choi¹. ¹Advanced Characterization and Analysis Group, Korea Institute of Materials Science (KIMS), ²School of Materials Science and Engineering, Pusan National University</td>
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<td>11:17-11:30</td>
<td>B23-O-06</td>
<td>Effect of the Desorption and Recombination Process on Anisotropy Enhancement in HDDR Processed Nd-Fe-B Magnet</td>
<td>Tae-Hoon Kim¹, Hee-Ryoung Cha¹, Jung-Goo Lee¹, Hae-Woong Kwon¹ and Cheol-Woong Yang¹. ¹School of Advanced Materials Science Engineering, Sungkyunkwan University, ²Powder &amp; Ceramics Division, Korea Institute of Materials Science, ³Department of Materials Science and Engineering, Pukyong National University</td>
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<td>11:30-12:15</td>
<td>B23-O-07</td>
<td>Multivariate Statistical Analysis of EMCD Spectra Measured at the Fe/MgO Interface</td>
<td>Jakob Spiegelberg¹, Thomas Thersleff and Jan Ruzič. ¹Department of Physics and Astronomy, Uppsala University, ²Department of Engineering Sciences, Uppsala University</td>
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### 12:15-13:15 LUNCHEON SEMINAR 6

High Speed EDS and EBSD-TKD Analysis

*Takeshi Hanada. Bruker AXS*

Sponsored by Bruker AXS
Room C (702 at 7th Floor)

10:00-12:00  C3: 3-dimensional Electron Microscopy
Organizers/Chairs: Kaoru Mitsuoka, Osaka University, Changcheng Yin, Peking University

10:00  ●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 Ryhu3. 1Department of Anatomy, Korea University College of Medicine, 2Research Division, Korea Brain Research Institute

10:24  ●C3-O-02
Structure of 30-nm Chromatin Fiber Revealed by Cryo-Electron Microscopy
Ping Zhu. Institute of Biophysics, Chinese Academy of Sciences

10:48  ●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

11:12  ●C3-O-04
Functional Structures of Ion Channels in Lipid Environment
Hideki Shigematsu1,2, Fred Sigworth2 and Mikako Shirouzu1. 1RIKEN Center for Life Science Technologies, 2Yale University School of Medicine

11:36  C3-O-05
Electron Cryo-Tomography of Thermoplasma 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

12:15-13:15  LUNCHEON SEMINAR 7

Broad Argon Beam Tools for Preparing Near Perfect Samples for SEM and TEM Analysis
Koichi Takauchi and Hiroshi Fujitani. Gatan Inc.

Sponsored by Gatan Inc.

Room D (605 at 6th Floor)

10:00-12:00  B1-2: In-Situ (TEM/STEM)
Organizers: Kazuto Arakawa, Shimane University, Young Woon Kim, Seoul National University
Chair: Yoshifumi Oshima, Japan Advanced Institute of Science and Technology

10:00  ●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 Suzuki3. 1Department of Materials Science and Engineering, National Taiwan University, 2College of Materials Science and Engineering, Chongqing University, 3National Institute for Materials Science
10:25  B12-O-19
Real-Time Atomistic Observation of the Mechanical Deformations in Au Nanostructures
He Zheng, Jianbo Wang, Shuangfeng Jia, Huaping Sheng and Scott X Mao. 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

10:38  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.

10:51  B12-O-21
Development of High Pressure Gas Environmental Cell and its Application to Hydrogen Reaction
H. Nagakura, T. Wakasugi, K. Ohkubo, T. Tanioka, T. Endo, S. Isobe1,2, Y. Wang1,2, N. Hashimoto1 and S. Ohnuki1. 1Graduate School of Engineering, Hokkaido University, 2Creative Research Institution, Hokkaido University

11:04  B12-O-22
Development of in situ TEM Techniques for Characterization of Energy-Related Nanomaterials
Toshie Yaguchi, Keiji Tamura, Takashi Kubo, Yasuhira Nagakubo, Hiroaki Matsumoto, Takahiro Shimizu and Takeo Kamino1,2. 1Hitachi High-Technologies Corporation, 2Japan Automobile Research Institute, 3Fuel Cell Nanomaterials Research Center, University of Yamanashi

11:17  B12-O-23
Reduction of Hematite by Ceramics in TEM
N. Ishikawa, T. Kimura, M. Takeguchi, T. Aizawa and T. Inami. 1National Institute for Materials Science (NIMS), 2Faculty of Engineering, Ibaraki University

11:30  B12-O-24
In-situ Observation of Temperature Dependent Nanomorphology-Performance Relations in Emitting Layer of OLEDs by TEM
Young-Tae Kim, Young-Hoon Kim, Jae-Bok Seol, Tae-Woo Lee 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

11:43  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

12:15-13:15  LUNCHEON SEMINAR 8
Introduction of JSM-7100F,7800F/3View2XP System
Yuuki Yamaguchi. JEOL Ltd.

Sponsored by JEOL Ltd.

The Himeji Chamber of Commerce and Industry (HCCI)

14:15-14:30  Group Photo

18:30-20:30  Conference Dinner
## Excursion

14:30-18:15  EX1: SPring-8  
  EX2: Shoshazan Engyoji  
  EX3: Himeji Castle

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### Friday, November 27

#### Room A (Main Hall at 2nd Floor)  ●=Invited

**9:00-10:00  PLENARY LECTURE**  
*Chair: Jer-Ren Yang, National Taiwan University*

- Introduction by the President of MST  
  *Jer-Ren Yang, National Taiwan 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

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**10:00-13:00  B1-3: SEM (includes FIB/SEM)**  
*Organizers: Masaru Itakura, Kyushu University, Zhihong Jia, Chongqing University*

- **10:00  ●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

- **10:25  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

- **10:38  B13-O-03**  
  Fabrication of High Energy Resolution Silicon Drift Detector for Energy Dispersive X-ray Spectrometer  
  *Yi-Hsiang Chien1, Yun-Ju Chuang2, Chih-Hao Lee3 and Fu-Rong Chen4.*  
  1Department of Engineering and System Science, National Tsing Hua University, 2Department of Biomedical Engineering, Ming Chuan University

- **10:51  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 Tseng2, Chih-Hao Lee3, Yun-Ju Chuang2 and Fu-Rong Chen4.*  
  1Department of Engineering and System Science, National Tsing Hua University, 2Department of Biomedical Engineering, Ming Chuan University
11:04  B13-O-05
Low Voltage EDS for Sub-10nm Spatial Resolution Elemental Characterization in FE-SEM
Simon Burgess and Xiaobing Li. Oxford Instruments Nanoanalysis

11:17  B13-O-06
Evolution of Texture in 6016 Aluminum Alloy During Processing
Zhikong 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

Chair: Zhikong Jia, Chongqing University

11:40  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

11:53  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

12:06  B13-O-09
Multi-Dimensional Quantification of Dislocation Substructure by SEM Electron Channeling Contrast Imaging Method
Shigeto Yamasaki, Masatoshi Mitsuura, Satoshi Hata and Hideharu Nakashima. Faculty of Engineering Sciences, Kyushu University

12:19  B13-O-10
Low Energy Secondary Electron Imaging for Various Semiconductors Using Fountain Detector
Takashi Sekiguchi1,2, Hideo Iwai1, Toshihide Agemura2 and Takashi Kimura2. 1National Institute for Materials Science (NIMS), 2Graduate School of Pure and Applied Sciences, University of Tsukuba

12:32  ●B13-O-11
The Impact of Modern Scanning Electron Microscopy on Materials Science
Kaoru Sato1, Masayasu Nagoshi2 and Tomohiro Aoyama2. 1JFE Steel, Chiba, 2JFE Steel, Kawasaki, 3JFE Steel, Fukuyama

13:00-13:15  CLOSING CEREMONY

Room B (701 at 7th Floor)
Investigation of the Carbides Evolution Under Extended Heat Treatment in Cr-Mo Steels
Seung-Pyo Hong¹, Seong-Il Kim¹, Ming-zhe Li¹, Soon-Taik Hong¹ and Young-Woon Kim¹. ¹Seoul National University, Department of Materials Science and Engineering, ²POSCO, Technical Research Laboratories

The Discovery of ω-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

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

Microstructural Evolution of 304SS upon Shot Peening and Heat Treatment
Yinsheng He¹, Han-sang Lee², Cheol-Woong Yang³, 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

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

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

Analysis of Stable Precipitates in Beta-Titanium Alloys Aged at Medium Temperature for Long-Time Periods
Eiichi Sukedai¹, Elisabeth Aebi-Gautier¹ and Moukrane Dehmas². ¹Okayama University of Science (Formerly), and Institut Jean Lamour, Universite de Lorraine (Visiting Researcher), ²Institut Jean Lamour, Universite de Lorraine

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

Atomic Scale STEM Analysis of Structure and Dopant Effects on α-Alumina Grain Boundary
Tetsuya Tohei¹, Masahiro Sakai¹, Naoya Shibata¹ and Yuichi Ikuhara¹². ¹Institute of Engineering Innovation, The University of Tokyo, ²Nanostructures Research Laboratory, Japan Fine Ceramics Center

In Situ Atomic Scale Observation of Grain Rotation Mediated by Grain Boundary Dislocations
Lihua Wang¹, Ze Zhang¹², En Ma¹, Mingwei Chen¹ and Xiaodong Han¹. 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
Room C (702 at 7th Floor)

10:00-12:00  C5: Molecular Labeling
Organizers/Chairs: Peilin Chen, Research Center for Applied Sciences, Academia Sinica, Takeharu Nagai, Osaka University

10:00  ●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

10:30  ●C5-O-02
Targeted Imaging and Theranostics with Peptides and Novel Protein Scaffolds, Repebody and Monobody
Misun Yun, Seung Hwan Park, Yeongjin Hong and Jung-Joon Min. 1Department of Nuclear Medicine, Chonnam National University Medical School, 2Department of Microbiology, Chonnam National University Medical School

11:00  ●C5-O-03
Nanoparticles for in vitro and in vivo Optical Imaging
Peilin Chen. Research Center for Applied Sciences, Academia Sinica

11:30  ●C5-O-04
Genetically-Encoded Tools to Optically Control and Image Ca²⁺ Dynamics
Takeharu Nagai. The Institute of Scientific and Industrial Research, Osaka University

Room D (605 at 6th Floor)

10:00-13:00  B2-3: Functional Materials
Organizers: Kenji Tsuda, Tohoku University, Cheol-Woong Yang, Sungkyunkwan University
Chairs: Shigeo Mori, Osaka Prefecture University, Kenji Tsuda, Tohoku University

10:00  ●B23-O-08
Microstructures in Improper Ferroelectric Compounds Revealed by Electron Microscopy
S. Mori, H. Tsukasaki, Y. Ishii and K. Kurushima. 1Osaka Prefecture University, 2Toray Research Center

10:25  B23-O-09
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

10:38  B23-O-10
Misfit Accommodation Mechanism of the {111} Diamond/Cubic Boron Nitride Interface
C. L. Chen, Z. C. Wang, T. Kato, N. Shibata, T. Taniguchi and Y. Ikuhara. 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

10:51  B23-O-11
Identification of Σ-Twinning in HVPE-AlN Single Crystals
J. P. Zhang, J. J. Zhao, X. J. Su, U. Jahn, Y. Ji, M. S. Sun, Y. X. Qiu, X. H. Liu, J. Huang, J. C. Zhang and K. Xu. 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
11:04  B23-O-12
Visualization of Potential Map in a Thin-Film Solar Cell by High Sensitivity Phase-Shifting Electron Holography
Kazuo Yamamoto¹, Takuya Matsui², Hajime Shibata², 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

11:17  B23-O-13
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

11:30  B23-O-14
Direct Observation the Vacant Sites in the GeSbTe Metastable Polycrystalline Phase
Bin Zhang¹, Zhenju Shen², Yongjin Chen¹, Jixue Li², Wei Zhang³, Evan Ma¹, Ze Zhang¹,² 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

11:43  B23-O-15
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 Chen¹ and Cheng-Yen Wen¹. ¹Department of Material Science and Engineering, National Taiwan University, ²National Nano Device Laboratories, National Applied Research Laboratories

11:56  B23-O-16
Correlation of Thermoelectric Properties to Microstructure of an Annealed Sb-Doped Mg₃Si₀.₅Sn₀.₅ Solid Solution with TEM
Minghui Song¹, Ji-Wei Liu¹, Masaki Takeguchi¹, Naohito Tsujii³ and Yukihiro Isoda⁴. 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

12:09  B23-O-17
Controllably Triggering Metal-Insulator Transition of VO₂
Z. H. Zhang¹, H. Guo², W. Q. Ding¹, B. Zhang¹, Y. Lu², X. X. Ke², F. R. Chen³ and M. L. Sui³. 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

12:22  B23-O-18
Effectiveness of Multi-Scale Observations for Polycrystalline Superconducting Materials
Yusuke Shimada¹, Satoshi Hata², Akiyoshi Matsamoto¹, Hiroaki Kumakura³, Akiyasu Yamamoto¹, Hideharu Nakashima² and Toyohiko J. Konno¹. 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
Luncheon Seminar

Wednesday, November 25, 12:30-13:30

Room A (Main Hall at 2nd Floor)
Luncheon 1 : JEOL Ltd.
**Development of New Generation Transmission Electron Microscope / JEM-F200**
*Speaker: Akira Yasuhara*
We developed a new generation field-emission transmission electron microscope, JEM-F200 (nickname “F2”). JEM-F200 has designed to realize the targets, which are high resolution, high efficiency, high stability and high user accessibility. JEM-F200 has the higher mechanical and electrical stabilities, since JEM-F200 was designed based on our knowledge about developing the Cs corrected electron microscopes. And newly designed hardware and software user interfaces support strongly the users’ operation. Besides, “improved Cold FEG” and “Dual SDD system” perform the high resolution imaging and highly efficient analysis. We believe this new microscope marvelously helps the studies and researches in material and biological fields.

Room B (701 at 7th Floor)
Luncheon 2 : FEI Company Japan Ltd.
**In-situ S/TEM: Technology and Applications**
*Speaker: Alex Bright*
TEM and STEM imaging and analysis typically use static pre-prepared thin specimens at room temperature and under high vacuum. However some fields of research benefit from *in-situ* analysis, which is the ability to perform experiments inside the microscope while imaging or to place the sample in a gas environment. In-situ S/TEM technology has advanced significantly in recent years and it is now practical, for example, to take high quality lattice images of specimens above 1000°C in a gas environment, to capture EDX maps at 700°C, to perform indentation experiments while imaging and measuring mechanical properties and to flow current through a sample while viewing the microstructural changes that result. We will discuss the key technologies and some of the limitations of *in-situ* S/TEM and show the current status with recent research results.

Room C (702 at 7th Floor)
Luncheon 3 : Hitachi High-Technologies Corp.
**Ultimate Imaging & Analysis by Unique HITACHI Technology - Ultra Low Voltage SEM, Low Voltage STEM/EELS**
*Speaker: Hiroyuki Ito*
Latest FE-SEM technology developed and introduced by Hitachi High-Tech to meet the cutting edge demands for nano-material analysis by high resolution observation with ultra low accelerating voltage utilizing deceleration function, STEM function, lattice observation, electron beam diffraction, and unique low voltage Electron Energy Loss Spectroscopy (EELS).
Room D (605 at 6th Floor)

Luncheon 4 : Leica Microsystems K.K.
Cryo Preparation – from High Pressure Freezing to Cryo Transfer into the Analysis System

Speaker: Gisela Hoeflinger

Cryo-SEM techniques are a key technology for high resolution visualization of biological samples in their native state. High pressure freezing enables researchers to create a time snapshot of cellular processes by ultrafast freezing with minimum artefact. To observe structures such as cell organelles, membranes, emulsions or surface interfaces of liquids, freeze fracture is the only way to do that. Freeze fracture and freeze etching techniques require ultrathin heavy metal and carbon films deposited under vacuum on the fractured surface. Sample mounting onto the sample holder is performed under LN2, the sample is then retracted into the pre-cooled transfer shuttle and transferred under high-vacuum condition and actively cooled between different preparation and analysis devices.

This lunch workshop will guide you through the whole process, from the sample preparation steps to the transfer into the analysis system. A complete portfolio of instruments will be presented from freezing the sample in the Leica EM ICE, cryo manipulation and transfer with the EM VCM and EM VCT500, freeze fracture and cryo coating with and Leica EM BAF900.

Thursday, November 26, 12:15-13:15

Room A (Main Hall at 2nd Floor)

Luncheon 5 : Hitachi High-Technologies Corp.
High Precision 3D Structural Analysis Using a Novel FIB-SEM

Speaker: Takeshi Ishikawa

A FIB-SEM with unique column layout is proposed for 3D structural analysis having contents of Orthogonal column layout, High-resolution, high-contrast imaging, Cut & See, Real-time 3D analysis, and Atom probe sample preparation. High precision 3D applications to various materials will be also presented.

Room B (701 at 7th Floor)

Luncheon 6 : Bruker AXS
High Speed EDS and EBSD-TKD Analysis

Speaker: Takeshi Hanada

Bruker QUANTAX FlatQUAD has a Maximum Efficiency in X-ray Detection and QUANTAX EBSD is available with unequalled support for Transmission Kikuchi Diffraction (TKD) analysis through the OPTIMUS™ TKD detector head and the TKD toolkit.

Room C (702 at 7th Floor)

Luncheon 7 : Gatan Inc.
Broad Argon Beam Tools for Preparing Near Perfect Samples for SEM and TEM Analysis

Speakers: Koichi Takauchi, Hiroshi Fujitani

Broad Argon Ion Beam Tools provide a way to improve the analytical and imaging results for both TEM and SEM applications compared to Focused Ion Beam (FIB), mechanical or electrochemical polishing. Although Broad Ion Beams tools are suitable for both SEM and TEM Prep., the key parameters are different.

In the case of TEM, most often lamella are produced by FIB. For this application, there is both structural damage from the kinetic energy of the Ga beam as well as chemical damage from the implantation and reaction of the sample with the Ga. For Plasma FIB’s there is structural damage from the energy of the high energy ions. Thus the primary specification is for a very low energy, with high current in a Broad Argon Ion Beam tool to reduce or eliminates this damage. Typically the energy is less than 300eV. The position of the beam on the lamella is critical and the amount of material is quite small. Lastly it is important to eliminate curtaining or preferential milling along grain boundaries to insure high resolution imaging and atomic level EELS.

For SEM applications, the important result is again no damage remaining on the surface but areas as large as possible for imaging or EBSD analysis. In some cases these areas are greater than 10mm in diameter. Again planarity is important but this must be maintained while removing a significant larger volume of material. Additionally, it is now possible to do 3D analysis with a Broad Argon Beam Tool automatically. Preliminary results from a tool will be presented as well.
Luncheon 8 : JEOL Ltd.
Introduction of JSM-7100F,7800F/3View2XP System
Speaker: Yuuki Yamaguchi

Biological tissues have highly complexed structure. Therefore it needs three dimensional observation with high resolution of electron microscopy in order to observe the structure in detail. SEM three dimensional reconstruction method can achieve such observation. In this seminar, we would like to introduce the application method by using the JSM-7100F, 7800F/3View2XP system. The JSM-7100F and 7800F are JEOL’s FE-SEMs which incorporate in lens schottky electron gun. It is designed to create a smaller electron probe with higher probe current at lower accelerating voltage in comparison to conventional FE-SEMs so as to provide high contrast and high resolution images in short time. The 3View2XP from Gatan Inc. is a specimen stage equipped with a ultramicrotome. It repeatedly cut and see a surface of a block specimen in a SEM chamber, so you can take serial two-dimensional images and reconstruct into a three-dimensional image.
Aberration corrected electron microscope breaks the barrier of resolution. Traditionally, electron microscope had to optimize objective lens for high resolution imaging with narrow polepiece gap or high contrast/high tilt configuration with the large gap. However, aberration correction enables to satisfy the both contradictory demands. Now we are facing the new barrier that how to record the proper atomic resolution image and how to utilize the room in the lens gap.

The longer exposure time gives more signal to the detector and improve the S/N. But it is prone to blur the image because of drifting, vibration, and other interferences. The one way to overcome this situation is summing multiple frames to accumulate signal and improve S/N. The simple summation is still affected by the interference, but if drift correction is applied for each frames, the improvement of image quality is expected without deterioration.

The sensitivity improvement in EDS analysis using large opening angle of SDD-EDS detectors speeded up and acquisition time becomes very short. So high throughput EDS analysis without compromising atomic scale resolution is achieved by the aid of aberration correction. And now it is realistic for simultaneous acquisition with EELS signal. From P/B and S/N ratio point of view, each has advantage and disadvantage. But the improvement of collection efficiency for both method enables complementary analysis, not simple qualitative analysis, but supplemental chemical analysis from EELS and simultaneous analysis for wide variety of elements(from low-Z to high-Z) by EDS.

The large space around specimen opens the way for in-situ analysis with accepting wide variety of specimen holders. Such in-situ experiments requires the high quality but long recording time for targeting the reaction in atomic scale.

In this workshop, I will present the recent enabling technologies and applications from imaging, spectroscopy, specimen environment, and software point of view.
Social Events

Reception
Date: Tuesday, November 24, 17:30-19:30
Venue: The Himeji Chamber of Commerce and Industry (HCCI)

Conference Dinner
Date: Thursday, November 26, 18:30-20:30
Venue: The Himeji Chamber of Commerce and Industry (HCCI)

Tours
There are three excursion tours. The participants may choose one of them without any cost.
Date: Thursday, November 26
Time: 14:30-18:15

Excursion 1: SPring-8 Campus Bus Tour
SPring-8 campus is located 30km from the center of Himeji city. SPring-8 synchrotron radiation facility and SACLA X-ray free electron laser facility are placed in SPring-8 campus. In the tour, “Cryo-electron microscopy system for life science” is also shown to the participants.

Excursion 2: Shoshazan Engyoji Bus Tour
“Shoshazan Engyoji” is located 9km from the center of Himeji city. It was founded by Shoku Shonin in 966. The complex of buildings is at the top of Mt. Shosha. The area is one of the best places of the viewing of colorful leaves (koyo) in Japanese Autumn.

Excursion 3: Himeji Castle Self-Guided Tour
National Treasure, World Heritage, “Himeji castle” is located at center of Himeji city. The castle is now beautiful white colored because it is just after the repair construction. The participants get the entrance ticket and walk 15min to Himeji castle.
The 2nd East-Asia Microscopy Conference (EAMC2)
Young Scientists Satellite Meeting
— Toward Next Generation of Microscopic Sciences —

Date: November 27 to 28, 2015
Venue: AWAJI YUMEBUTAI International Conference Center, Awaji Island, Japan
1 Yumebutai, Awaji City, Hyogo 656-2306 Japan

The Satellite Meeting is designed for Young Scientists from academics and industries in four East-Asian societies to find something extra leading to the next generation microscopy, and to progress it toward cross-disciplinary researches between life and material sciences.
We are pleased to welcome everybody to participate this meeting to make it fruitful one.

For details, please access: http://www.med.miyazaki-u.ac.jp/2anat/pg132.html
Contact to: eamc2ysm@med.miyazaki-u.ac.jp

The Japanese Society of Microscopy (JSM) Meetings
公益社団法人日本顕微鏡学会 関連会議

11月24日（火） 11:20～12:00 財務委員会
13:00～14:30 常務理事会
14:30～16:30 学術運営合同会議
場所：イーグレひめじ 第1・第2会議室

11月25日（水） 12:30～13:30 Microscopy 編集委員会
場所：姫路商工会議所 602会議室（Room F）

11月26日（木） 14:45～18:15 理事会
場所：姫路商工会議所 602会議室（Room F）
Exhibition

Venue
The Himeji Chamber of Commerce and Industry (HCCI)
Exhibition Hall, 1st Floor

Date and Time
Wednesday, November 25, 9:00-20:00
Thursday, November 26, 9:00-17:00

Exhibitors List

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<tr>
<th>Name</th>
<th>Location</th>
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<td>JEOL Ltd.</td>
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<tr>
<td>FEI Company Japan Ltd.</td>
<td>1st Floor</td>
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<tr>
<td>Hitachi High-Technologies Corporation</td>
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<tr>
<td>AD Science Inc.</td>
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<td>AMETEK Co., Ltd. EDAX BU</td>
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<td>Bruker Corporation AXS K.K.</td>
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<td>Carl Zeiss Microscopy Co., Ltd.</td>
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<td>Diatome Ltd.</td>
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<td>E.A. Fischione Instruments, Inc.</td>
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<td>Gatan Inc.</td>
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<td>HREM Research Inc.</td>
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<td>Leica Microsystems K.K.</td>
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<td>NIMS Advanced Characterization Nanotechnology Platform</td>
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<td>Nisshin EM Co., Ltd.</td>
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<td>Oxford Instruments</td>
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<td>Oxford University Press</td>
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<td>Sanyu Electron Co., Ltd.</td>
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<td>Seika Digital Image Corporation</td>
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<td>TechnoLab Company</td>
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<td>TSL Solutions</td>
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<tr>
<td>Leading Program, University of Hyogo (UH-LP)</td>
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<tr>
<td>RIKEN, SPring-8</td>
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<tr>
<td>The Japanese Society of Microscopy (JSM)</td>
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<td>Chinese Electron Microscopy Society (CEMS)</td>
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<td>Korean Society of Microscopy (KSM)</td>
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<td>Microscopy Society of Taiwan (MST)</td>
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<td>International Federation of Societies for Microscopy (IFSM)</td>
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<tr>
<td>Nanotechnology Platform</td>
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Exhibition Floor Layout
1st Floor

Discussion Area

Coffee Corner

Fei Company Japan Ltd.

Hitachi High-Technologies Corporation

ENTRANCE

Registration

Poster Session

*Booths of UH-LP, RIKEN SPring-8, IFSM, JSM, CEMS, KSM, and MST are located on the 2nd floor.
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