Message from the organizers

Dear Colleagues and Friends,

Asia Pacific Society for Materials Research 2019 Annual Meeting (APSMR 2019 Annual Meeting) will be held in Hokkaido, Japan during July 26-29 2019.

APSMR 2019 Annual Meeting is being held every year and aimed to provide a platform for the exchange and networking between top scientists, emerging young researchers, and students across a wide spectrum of materials science and engineering.

We would like to invite you to participate in APSMR 2019 Annual Meeting. Your active participation is the key to the success of this conference.

Yours Sincerely,

APSMR 2019 Annual Meeting Committee

Asia Pacific Society for Materials Science (APSMR)

www.apsmr.org
Conference organizing committee

CONFERENCE CHAIRS

Prof. Masayoshi TATENO (Kogakuin University)

Prof. Yasuhiro YAMAZAKI (Chiba University)

Prof. Setsuko KOURA (Chiba Institute of Technology)

Prof. Noriyuki KOBAYASHI (Nagoya University)

Prof. Masanobu KOBAYASHI (Chiba Institute of Technology)

Prof. Hsin-Yi LEE (National Synchrotron Radiation Research Center)

Prof. Sheng Hsiung CHANG (Chung Yuan Christian University)

Prof. Yan-Gu LIN (National Synchrotron Radiation Research Center)

Prof. Masahiko KONDOW (Osaka University)

Prof. Tetsu MITSUMATA (Niigata University)

Prof. Satomi NIWAYAMA (Muroran Institute of Technology)

Prof. Masahiko HIGUCHI (Shinshu University)

CONFERENCE PROGRAM DIRECTORS

Dr. Yingxue SONG (APSMR)

CONFERENCE SECRETARIAT

Ms. Yaru WU (APSMR)

Mr. Chenhuan HSU (APSMR)
### Conference topics

1. **Structure materials and Functional Coatings (metals, ceramics, and composites)**: No.106 (8-14), No.201 (19-21)
2. **Materials for energy (saving, conversion, transfer, storage) and environment plus electrochemistry**
   - **2.1. Photovoltaics**:
   - **2.2. Rechargeable Batteries and Fuel Cells**: No.102 (11-14), No.106 (5)
   - **2.3. Materials for Thermal Management and Thermal Energy Utilization**: No.201 (4-6)
   - **2.4. Materials for Energy and Environmental Applications**: No.102 (4-6), No.106 (16-21), No.202 (4-7)
3. **Optics and Photonic Materials**: No.102 (8-10), No.201 (1-3), No.202 (19-21)
4. **Electronics, Magnetics and Nanomaterials**: No.201 (16-18), No.202 (1-3)
5. **Polymer Science and Molecular Chemistry**: No.106 (1-4), No.202 (16-18), No.207 (22-24)
6. **Organic Reactions and Applications to Organic and Biomaterials (Custom-tailored session)**: No.202 (8-14)
7. **Theory, Characterization and Computational Modeling of Materials**: No.102 (1-3), No.207 (25-27)

<table>
<thead>
<tr>
<th></th>
<th>FRI, 7/26</th>
<th>SAT, 7/27</th>
<th>SUN, 7/28</th>
<th>MON, 7/29</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>9:00 – 10:20</strong></td>
<td>Pre-session technical and discussion forums</td>
<td></td>
<td>Oral Presentation</td>
<td></td>
</tr>
<tr>
<td><strong>10:20 – 10:30</strong></td>
<td></td>
<td>Coffee &amp; Tea Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>10:30 – 12:00</strong></td>
<td></td>
<td></td>
<td>Oral Presentation</td>
<td></td>
</tr>
<tr>
<td><strong>12:10 – 13:00</strong></td>
<td></td>
<td>Lunch Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>13:10 – 14:40</strong></td>
<td></td>
<td>Oral Presentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>14:40 – 14:50</strong></td>
<td></td>
<td>Coffee &amp; Tea Break</td>
<td>Optional Excursion</td>
<td></td>
</tr>
<tr>
<td><strong>14:50 – 17:00</strong></td>
<td></td>
<td>Oral Presentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>17:00 – 18:30</strong></td>
<td>Conference Registration</td>
<td>Poster Session</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>19:00 – 20:30</strong></td>
<td>Conference Reception</td>
<td></td>
<td>Banquet (Japanese convivial gathering)</td>
<td></td>
</tr>
</tbody>
</table>
# Presentation List (No. 102 Meeting Room)

<table>
<thead>
<tr>
<th>Time</th>
<th>FRI, 7/26</th>
<th>SAT, 7/27</th>
<th>SUN, 7/28</th>
<th>MON, 7/29</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 10:20</td>
<td>Pre-session technical and discussion forums on international collaboration (by invitation only)</td>
<td>1. M.W. FU, 2. R. GEMMA, 3. T. MIZUGUCHI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:20 – 10:30</td>
<td>Coffee &amp; Tea Break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:10 – 13:00</td>
<td>Lunch Break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:40 – 14:50</td>
<td>Coffee &amp; Tea Break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:00 – 18:30</td>
<td>Conference Registration</td>
<td>Poster Session</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19:00 – 20:30</td>
<td>Conference Reception</td>
<td></td>
<td>Banquet (Japanese convivial gathering)</td>
<td></td>
</tr>
</tbody>
</table>
## Presentation List (No. 106 Meeting Room)

<table>
<thead>
<tr>
<th>Time</th>
<th>FRI, 7/26</th>
<th>SAT, 7/27</th>
<th>SUN, 7/28</th>
<th>MON, 7/29</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 10:20</td>
<td>Pre-session technical and discussion forums on international collaboration (by invitation only)</td>
<td>1. S. TAMESUE 2. D. MURAKAMI 3. Y.S. KIM</td>
<td>16. H.L. WU 17. H.J. LIU 18. C.T. Li</td>
<td></td>
</tr>
<tr>
<td>13:10 – 14:40</td>
<td>Optional Excursion</td>
<td></td>
<td></td>
<td>17:00 – 18:30 Conference Registration</td>
</tr>
<tr>
<td>14:40 – 14:50</td>
<td>Conference Registration</td>
<td></td>
<td></td>
<td>17:00 – 18:30 Conference Registration</td>
</tr>
<tr>
<td>14:50 – 17:00</td>
<td>Poster Session</td>
<td></td>
<td></td>
<td>17:00 – 18:30 Conference Registration</td>
</tr>
<tr>
<td>19:00 – 20:30</td>
<td>Conference Reception</td>
<td></td>
<td></td>
<td>17:00 – 18:30 Conference Registration</td>
</tr>
<tr>
<td></td>
<td>Banquet (Japanese convivial gathering)</td>
<td></td>
<td></td>
<td>17:00 – 18:30 Conference Registration</td>
</tr>
</tbody>
</table>
# Presentation List (No. 201 Meeting Room)

<table>
<thead>
<tr>
<th>Time</th>
<th>FRI, 7/26</th>
<th>SAT, 7/27</th>
<th>SUN, 7/28</th>
<th>MON, 7/29</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 10:20</td>
<td>Pre-session technical and discussion forums</td>
<td>1. R.H. HORNG</td>
<td>16. T. SAIITO</td>
<td></td>
</tr>
<tr>
<td></td>
<td>on international collaboration (by invitation only)</td>
<td>2. K. OKAMOTO</td>
<td>17. S. SUZUKI</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. T. WATANABE</td>
<td>18. K. HALADA</td>
<td></td>
</tr>
<tr>
<td>10:20 – 10:30</td>
<td>Coffee &amp; Tea Break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:10 – 13:00</td>
<td>Lunch Break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13:10 – 14:40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:40 – 14:50</td>
<td>Coffee &amp; Tea Break</td>
<td></td>
<td></td>
<td>Optional Excursion</td>
</tr>
<tr>
<td>14:50 – 17:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:00 – 18:30</td>
<td>Conference Registration</td>
<td>Poster Session</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19:00 – 20:30</td>
<td>Conference Reception</td>
<td></td>
<td>Banquet (Japanese convivial gathering)</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>FRI, 7/26</td>
<td>SAT, 7/27</td>
<td>SUN, 7/28</td>
<td>MON, 7/29</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 9:00 – 10:20 | Pre-session technical and discussion forums on international collaboration (by invitation only) | 1. H. MATSUURA  
2. Y. YASUKAWA  
3. H. YAMANE  
4. W.C. LIN  
5. Y.G. LIN  
6. W.R. LIU  
7. Q. LIU | 16. T. KANEKO  
17. N. YAMAUCHI  
18. K. AOKI |                                                                 |
| 10:20 – 10:30| Coffee & Tea Break                                  |                                                                          |                                                                          |                                                                          |
| 10:30 – 12:00| 19. J. TATEBAYASHI  
20. M. ARAI  
21. N. MIYASHITA |                                                                          |                                                                          |                                                                          |
| 12:10 – 13:00| Lunch Break                                         |                                                                          |                                                                          |                                                                          |
| 13:10 – 14:40| 11. T. MITA  
12. T. BARSUKOVA  
13. Y. MAWATARI  
14. T. TAKAHASHI  
15. Reserved |                                                                          |                                                                          |                                                                          |
| 14:40 – 14:50| Coffee & Tea Break                                  |                                                                          |                                                                          |                                                                          |
| 14:50 – 17:00| Optional Excursion                                  |                                                                          |                                                                          |                                                                          |
| 17:00 – 18:30| Conference Registration                           | Poster Session                                                           |                                                                          | Banquet (Japanese convivial gathering)                                     |
| 19:00 – 20:30| Conference Reception                               |                                                                          |                                                                          |                                                                          |
**Presentation List (No. 207 Meeting Room)**

<table>
<thead>
<tr>
<th>Time</th>
<th>FRI, 7/26</th>
<th>SAT, 7/27</th>
<th>SUN, 7/28</th>
<th>MON, 7/29</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 10:20</td>
<td>Pre-session technical and discussion forums on international collaboration (by invitation only)</td>
<td></td>
<td></td>
<td>22. T. IIMORI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>23. T. KANAI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24. M. AKIMOTO</td>
</tr>
<tr>
<td>10:20 – 10:30</td>
<td></td>
<td></td>
<td>Coffee &amp; Tea Break</td>
<td></td>
</tr>
<tr>
<td>10:30 – 12:00</td>
<td></td>
<td></td>
<td></td>
<td>25. M. HIGUCHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>26. K. HIGUCHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>27. K. UEBAYASHI</td>
</tr>
<tr>
<td>12:10 – 13:00</td>
<td>Lunch Break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13:10 – 14:40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:40 – 14:50</td>
<td>Coffee &amp; Tea Break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:50 – 17:00</td>
<td></td>
<td></td>
<td>Optional Excursion</td>
<td></td>
</tr>
<tr>
<td>17:00 – 18:30</td>
<td>Conference Registration</td>
<td>Poster Session</td>
<td></td>
<td>Banquet (Japanese convivial gathering)</td>
</tr>
<tr>
<td>19:00 – 20:30</td>
<td>Conference Reception</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Presentations for APSMR 2019 Annual Meeting

SATURDAY 07/27

Meeting Room No 102

1. Design and Development of Multi-Scaled Metal Forming Products Aided by Finite Element Simulation (M.W. FU)

2. CO2 methanation over hydrogen storage alloys via mechanical milling - Study by atom probe tomography (APT) - (R. GEMMA)

3. Hydrogen bond analysis of confined water in nanoporous silica using molecular dynamics simulations (T. MIZUGUCHI)

4. Selective Sr adsorption from the contaminated water with layered titanate nanowires (N. ASAO)

5. Single crystal growth of bulk In-Ga-Zn-O by Pressurized Optical Floating Zone Methods and its intrinsic transport properties (N. MIYAKAWA)

6. Solid-State Hydrides for Hydrogen Storage and Rechargeable Battery (H.W. LI)

7. Reserved

8. Light-Controlling Materials with Photo-/Thermo-Sensitive Liquid Crystals (M. KINOSHITA)

9. Organic Trench Structure in Foldable Low Temperature Poly-Si Thin-Film Transistors (P.H. CHEN)

10. MBE growth of GaAsBi/GaAs quantum wells by two-substrate-temperature method (S. SHIMOMURA)
11. Mn-based electrode materials for high-energy rechargeable Li/Na batteries (N. YABUUCHI)
12. A New Concept of Air-Electrode Catalysts by Using MnO2 Nanosheets and Solid Redox Mediators for Rechargeable Li-Air Batteries (M. SAITO)
13. In Situ Raman Analysis for High Capacity Zinc Anode in Alkaline Solutions (T. ITOH)
14. Mass production of transition metal core-platinum shell nanoparticle catalysts for cathode of PEMFC (Y.U. KWON)
15. Reserved

Meeting Room No 106

1. Adhesive Hydrogel Systems Utilizing Supramolecular Interactions and Macromolecular Structures (S. TAMESUE)
2. Analysis of interfacial structure at biocompatible polymer/water interface (D. MURAKAMI)
3. Biomimetic functional hydrogels with anisotropic structures (Y.S. KIM)
4. Controlled functionalization of acrylate polymers using organocatalized living polymerization (K. TAKADA)
5. Mechano-Electro-Chemical Design to Improve Reliability and Durability of Solid Oxide Fuel Cells (K. SATO)
6. TBA (J.H. JEONG)
1.

Development of Thin film LEDs by Wafer Bonding and Epilayer Transferring Technologies (R.H. HORNG)

2. New Development of Plasmonics towards High-Efficiency Light-Emitting Devices (K. OKAMOTO)

3. Photopolymer Science and Technology Related to EUV Lithography at University of Hyogo (T. WATANABE)
4. Kinetic analysis on the LiOH hydration / dehydration behavior for solar heat storage (Y. OSAKA)

5. A new, innovative finding in thermoelectric, — Colossal Seebeck effect in metallic Cu2Se — (T. TAKEUCHI)


7. Reserved

Meeting Room No 202

1. Electrical Characterization of Heavily Al-doped 4H-SiC for Collectors of SiC Insulated Gate Bipolar Transistors (H. MATSUURA)

2. Enhancement of magneto-optical properties through localized-surface plasmon resonance of Au nanoparticles (Y. YASUKAWA)

3. Chemical and biological sensors using magneto-optical cavity effects on magnetic stacked films (H. YAMANE)

4. 3D ToF-SIMS Imaging of Perovskite/Titania/FTO in Controlled Humid Environments (W.C. LIN)

5. In-situ studies of energy materials in operando condition using synchrotron X-ray (Y.G. LIN)

6. Surface treatment effects on Si/C composite anode for lithium ion batteries (W.R. LIU)
7. Discovery and Fundamental Studies of high-performance lithium cobalt oxide via advanced synchrotron techniques (Q. LIU)

8. GAP Chemistry and Multi-Layer 3D Chirality (G. LI)

9. Electrochemical Analysis of Triphenylamine Derivative Using a Microelectrode and Molecular Orbital Calculation (S. MATSUDA)

10. Soft Crystal: Polymorphic Metal Complexes Affording Luminochromism (T. SUENOBU)

11. Palladium-Catalyzed Allylic Carboxylation with Carbon Dioxide (T. MITA)


13. Synthesis and characterization of helical substituted polyacetylenes toward color-tunable material (Y. MAWATARI)


15. Reserved

**POSTER SESSION**

P1. Fracture Toughness and Fracture Patterns of Single Crystal Silicon in High Temperature Ranges (Y. SHIROKI)

P2. Relationship between Tensile Strength of Ceramics to metal joint and Thermal Stress near Edge of Interface (S. MURAOKA)
P3. Electrolytic behavior of environmental pollutants using graphene electrodes (K. FUJISAWA)

P4. Phosphate Separation and concentration from seawater by Electrodialysis (M. ASAHI)

P5. Electrical and electroless plating of Al using ionic liquid (K. MAKINO)

P6. The Study of the Effect of Oxygen Ultra Fine Bubble Water on Growth of Tomato (M. KOURA)

P7. Effect of HCO3- concentration on TiO2 photocatalytic sterilization (G. ISHII)

P8. In situ transmission X-Ray microscopy studies of Li plating and stripping mechanism in high concentrated electrolyte (C.Y. WANG)


P10. Novel Self-Healable Magnetic Nanocomposites Based on Diels-Alder Click Chemistry (W.C. KO)

P11. Anti-solvent effect on photovoltaic performance of perovskite solar cells (S.E. CHIANG)

P12. Investigations of double perovskite thin-film solar cells (D. THAKUR)

P13. A highly efficient and stable semi-transparent perovskite photovoltaic cell (J.R. WU)

P14. Effect of Ga deposition rate on GaAsSb/GaAs Quantum Dots formation (Y. OTEKI)
P15. Fabrication of Circular Defect Photonic Crystal Laser by Dry Etching (S. MIZOGUCHI)

P16. High frequency characteristics analysis of photonic crystal circular defect laser (H. YE)

P17. Influence of O2 plasma treatment on the magnetic properties of Co-Pt thin films (T. SUGIMURA)

P18. Optical electrical characteristics improvement by the transition metal addition to a ZnO film (T. KOIDE)

P19. Water-solubilization/desolubilization of high-performance biopolyamides by binding to alkali/alkaline earth metals (Y. FUNAHASHI)

P20. Biopolyamides of cinnamoyl photodimer derivatives with abnormal bending angles (T. NODA)


P22. Particle Dispersibility and Magnetorheological Effect for Magnetic Elastomers with Ultra Sonication (M. WATANABE)

P23. Electric Resistivity for Polyimide and Biopolyimide films (A.Y. FITRI ADILA)

P24. Particle dispersibility and magnetorheological effect for carrageenan magnetic hydrogels (J. IKEDA)

P25. Synthetic Studies of Polymers by Ring Opening Metathesis Polymerization (ROMP) Using Half-esters (W. SHOJI)

P26. Synthetic Studies of (Z)-β-Santalol (I. IHARA)
P27. Surface modification of cathode active material for lithium ion battery using cerium (IV) fluoride (J. SATO)

P28. Solvatochromism and fluorescence dynamics of tetracyanoquinodimethane in solutions (Y. TORII)

P29. Magnetic properties of SmFe3-type magnets (Y. OGAWA)

P30. Production of SmFe12-type magnets (F. WATANABE)

P31. Electrical properties of nitrogen doped Al2O3 films by atomic layer deposition (M. KIM)

P32. Synthesis of SnO2 aerogel/reduced graphene oxide nanocomposites for the photocatalytic degradation of methyl orange (T. KIM)

P33. Advanced surface modification by plasma electrolysis as a groundwork for multi-purpose coatings (M. P. KAMIL)

P34. Nucleation and Growth Phenomena of MgO Layer Formed on Mg-Al-Zn Alloy via Plasma Electrolytic Oxidation (S.Y. PARK)

P35. Formation of Conformal NiO Underlayer on Carbon for SMSI Effects on Electrocatalytic Performance of Supported Pd Nanoparticles (W. SHI)

P36. Mass production of Fe@Pt/C Nanoparticles for Superior catalytic active Electrocatalysts for cathode of PEMFC synthesized via Sonochemical method (A.H. PARK)

P37. Large-sized bulk single crystal growth and its characterization in pressurized optical floating zone method of InGaO3(ZnO)3 (Y. KOBAYASHI)
P38. Measurement of in-plane compressive stress of Pd thin film prepared by magnetron sputtering method (S. NAKAHIRO)

P39. Luminescent Crystalline Cu(I) Complexes Breathing Solvent Vapors (I. ARAHORI)

P40. Properties of flexible PZT piezo-generator prepared by sol-gel process (S.S. PARK)


P42. Comparison of two promising approaches to creating transparent polyethylene based hybrid silica aerogel with excellent mechanical and thermal insulation properties (D. LUO & K.I. LEE)

SUNDAY 07/28

Meeting Room No 106

16. Controlling Electrochemical Lithium Deposition and Sulfur Reduction Mechanism through Liquid Electrolytes (H.L. WU)

17. New opportunities for visible optoelectronics and green energy - the combination of metallic and wide bandgap complex oxides (H.J. LIU)


19. In Situ Synthesis of Novel Poly(3-alkylthiophene)/Inorganic Semiconductor Hybrid Materials (Y.H. LEE)
20. Novel graphene-based composite materials for counter electrodes of dye-sensitized solar cells (Y.H. YU)

21. Atomically Thin Oxide Nanosheets Grown at the Interfaces (E. YAMAMOTO)

**Meeting Room No 201**

16. Progress of Sm-Fe-N magnets (T. SAITO)
17. Synthesis of Mesoporous Manganese Dioxide Nanosheets (S. SUZUKI)
18. Materials Technology for SDGs (K. HALADA)
19. Electrochemical study of tin solder wetting (H. SAITO)
20. Metal-Resin Dissimilar material bonded technology NMT/NAT (M. ITABASHI)
21. Incorporation Behavior in Plasma Coating (Y.G. KO)

**Meeting Room No 202**

16. Photo-corrosive Bioplastics (T. KAKEKO)
17. Formation of sugar-immobilized fluorescent polymethylmethacrylate microparticles by soap-free emulsion polymerization (N. YAMAUCHI)
18. Large-scale Synthesis of Dendritic Photopolymers with Excellent Performance (K. AOKI)
20. MOVPE growth and evaluation of mid-infrared range superlattice (M. ARAI)
21. Study of GaInP/GaAs/GaInNAsSb triple junction solar cells: Effect of hydrogen incorporation to GaInNAsSb in MOCVD/MBE hybrid growth (N. MIYASHITA)

**MONDAY 07/29**

**Meeting Room No 207**

22. Modulation spectroscopy of functional molecular systems and polymers (T. IIMORI)

23. Tunable color of colloidal photonic crystals immobilized in soft polymers (T. KANAI)

24. Application of UV-curable nanoparticles to polymer-dispersed liquid crystals and other related composites (M. AKIMOTO)

25. Density Functional Scheme for Calculating the Fluctuation of the Electron Number in the Superconductor (M. HIGUCHI)

26. Magnetic Properties of graphene investigated by the nonperturbative MFRTB method (K. HIGUCHI)

27. Competitions on magnetic and structural phase transitions of intermetallic alloys (K. UEBAYASHI)