

GOLDEN ACADEMY

Message from the organizers

Dear Colleagues and Friends,

2019 Symposium for the Promotion of Applied Research Collaboration in Asia (SPARCA 2019) will be held in Okinawa, Japan, during Feb 28 - Mar 03 2019.

SPARCA stands for the Symposium for the Promotion of Applied Research Collaboration in Asia (SPARCA 2019), which is aimed at providing an international 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 SPARCA 2019. Your active participation is the key to the success of this conference.



Yours Sincerely,

SPARCA 2019 Committee

Asia Pacific Society for Materials Science (APSMR)

www.apsmr.org



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Conference organizing committee

CONFERENCE CHAIRS

Prof. Dong Ha KIM (Ewha Womans University)

Prof. Shih-Chieh HSU (Tamkang University)

Prof. Jae-Seung LEE (Korea University)

Prof. Yung-Kang SHEN (Taipei Medical University)

Dr. Kuan-I LEE (National Institute for Materials Science)

CONFERENCE PROGRAM DIRECTORS

Dr. Yingxue SONG (APSMR)

CONFERENCE SECRETARIAT

Ms. Yaru WU (APSMR)

Ms. Yangjun HU (APSMR)

Mr. Chenhuan HSU (APSMR)



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Conference topics

1. **Structure materials and Functional Coatings (metals, ceramics, and composites): C1 (20, 21), S1 (25)**
2. **Materials for energy (saving, conversion, transfer, storage) and environment plus electrochemistry**
 - 2.1. **Photovoltaics: C1 (2)**
 - 2.2. **Rechargeable Batteries and Fuel Cells: C1 (3-5, 10)**
 - 2.3. **Materials for Thermal Management and Thermal Energy Utilization: S1 (27-28)**
 - 2.4. **Materials for Energy and Environmental Applications: C1 (1, 7-9), S1 (20, 26)**
3. **Optics and Photonic Materials: C1 (11), S1 (15, 18-19)**
4. **Electronics, Magnetics and Nanomaterials: C1 (6), S1 (16)**
5. **Polymer Science and Molecular Chemistry: C1 (17-19)**
6. **Organic Materials and Bio-materials: S1 (17)**
7. **Theory, Characterization and Computational Modeling of Materials: C1 (15-16)**

	THU, 02/28	FRI, 03/01	SAT, 03/02	SUN, 03/03
9:00 – 10:35	Pre-session technical and discussion forums on international collaboration	Oral Presentation		
10:35 – 10:50		Coffee & Tea Break		
10:50 – 12:30		Oral Presentation		
12:30 – 13:20		Lunch Break	Optional Excursion	
13:20 – 15:00		Oral Presentation		
15:00 – 15:15		Coffee & Tea Break		
15:15 – 16:30		Oral Presentation		
17:15 – 18:30	Conference Registration: 16:30-18:00 Welcome Reception: 17:30-18:30 Location: Conference Venue	Poster Session		
19:00 – 20:30		Conference Banquet		

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Presentation List (Conference Room 1)

	THU, 02/28	FRI, 03/01	SAT, 03/02	SUN, 03/03
9:00 – 10:35	Pre-session technical and discussion forums on international collaboration	1. H. ASANUMA 2. W. LEUNG 3. T. NAKAGAWA	15. K. SASAGAWA 16. H. INOUE 17. K. HIROSE	
10:35 – 10:50		Coffee & Tea Break		
10:50 – 12:30		4. T. ICHIKAWA 5. M.K.H. LEUNG 6. T.Y. TSAI 7. S. HIRAI	18. T. NABESHIMA 19. Y.T. SHIEH 20. M. TATENO 21. J. DING	
12:30 – 13:20		Lunch Break	Conference Excursion	
13:20 – 15:00		8. S.H. CHO 9. E.D. PARK 10. W. KIM 11. Y. OH		
15:00 – 15:15		Coffee & Tea Break		
15:15 – 16:30				
17:15 – 18:30		Conference Registration: 16:30-18:00 Welcome Reception: 17:30-18:30 Location: Conference Venue		
19:00 – 20:30		Conference Banquet (Approx. 1.5 hrs)		

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Presentation List (Seminar Room 1)

	THU, 02/28	FRI, 03/01	SAT, 03/02	SUN, 03/03
9:00 – 10:35	Pre-session technical and discussion forums on international collaboration		15. Y. OKIMOTO 16. J.H. LEE 17. S.B. CHEN	
10:35 – 10:50		Coffee & Tea Break		
10:50 – 12:30			18. J.K. HYUN 19. H. PARK 20. K.I. LEE	25. J.M. YEH 26. S.C. JUN 27. Y.Y. CHEN 28. R. WU 29. X.S. KONG
12:30 – 13:20		Lunch Break	Conference Excursion	
13:20 – 15:00				
15:00 – 15:15		Coffee & Tea Break		
15:15 – 16:30				
17:15 – 18:30	Conference Registration: 16:30-18:00 Welcome Reception: 17:30-18:30 Location: Conference Venue	Poster Session		
19:00 – 20:30		Conference Banquet (Approx. 1.5 hrs)		

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Presentations for SPARCA 2019

FRIDAY 03/01

Conference Room 1

1. Disaster Mitigation and Sustainable Engineering – Recent Progress and Future Direction (H. ASANUMA)
2. Novel Nanofiber Based Dye Sensitized Solar Cell (W. LEUNG)
3. Dehydrogenation and regeneration of ammonia borane as related material for portable fuel cell charger (T. NAKAGAWA)
4. Hydride Based Anode for All solid state Lithium ion secondary batteries -reaction mechanism and practical properties (T. ICHIKAWA)
5. Photocatalytic fuel cell - a promising solution to energy and environmental problems (M.K.H. LEUNG)
6. Study on the Development of PET/Clay/LDH Nanocomposites in Taiwan (T.Y. TSAI)
7. Introduction of ruthenates as promising oxygen evolution catalysts (S. HIRAI)
8. Mass production and applications of TiO₂ nanoparticles (S.H. CHO)
9. Catalytic Materials for Power-to-Gas (P2G) (E.D. PARK)
10. Effect of pH on the TiO₂ particle size and electrochemical properties for self-humidifying ability in PEMFC (W. KIM)
11. Synthesis, Analysis, and Environmental Applications of Chalcogenide and Carbon Aerogels (Y. OH)

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POSTER SESSION

- P1. Cobalt embedded carbon nanofibers as a bifunctional catalyst for oxygen reduction and evolution reaction (J. LIU)
- P2. Fracture Toughness of Single Crystal Silicon under High Temperature Conditions (Y. SHIROKI)
- P3. Fracture Toughness of Cleavage Plane on Single Crystal Silicon Wafer (K. IIDA)
- P4. Development of Synthetic Methods for Optically Pure [2]Rotaxanes Derived from Mechanical Interlocking of Achiral Axle and Achiral Ring Components and Their Chirality Recognition Abilities as Chiral Sensors (M. UKIMI)
- P5. Highly dispersed low loading platinum supported on porous carbon sheet for PEMFC (Y. KO)
- P6. Mechanistically Novel Molecular Ratchet Constructed by A Molecular Shuttle Type [2]Rotaxane System Consisting of Optically and Thermally Responsive Components (K. HIROSE)
- P7. Reserved (C. YANG)

SATURDAY 03/02

Conference Room 1

15. Implantable CMOS image sensors for biomedical imaging (K. SASAGAWA)
16. Prediction of Bendability and Deep Drawability Based on the Average Taylor Factor from Orientation Distribution Function for FCC metal sheets (H. INOUE)

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17. Construction of Molecular Design Guide for Rotaxane Type Molecular Machines Considering Shuttling Dynamics (K. HIROSE)
18. Functional Supramolecular Systems Synthesized by Using Coordination and/or Dynamic Covalent Bonds (T. NABESHIMA)
19. CO₂-responsive dispersion of polymeric nanoparticles (Y.T. SHIEH)
20. Fracture and Strength of Bonded Dissimilar Materials (M. TATENO)
21. 3D structures by additive manufacturing and their applications (J. DING)

Seminar Room 1

15. Ultrafast nonlinear spectroscopy in electronic ferroelectric oxides (Y. OKIMOTO)
16. Synthesis of Cu Fractal Particles Having Nanoscale Bumpy Surfaces and High-Speed Die-Attach Technology (J.H. LEE)
17. Synthesis of membranes incorporating metal-organic framework and their separation applications (S.B. CHEN)
18. Structural colors from ordered and disorderd systems and their applications (J.K. HYUN)
19. High-Stability Transparent Conducting Electrode with Superior Optical Transparency (H. PARK)
20. Ultra-Low Thermal Conductivity Aerogel Materials for Use in Thermal Management Applications (K.I. LEE)

SUNDAY 03/03

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Seminar Room 1

25. Biomimetic composite materials prepared from nanocasting technique applied for anticorrosion coatings upon metallic substrates (J.M. YEH)
26. Structural Design of electrode for Supercapattery Applications (S.C. JUN)
27. High thermoelectric performance of $(\text{Ge}_{1-x}\text{Bi}_x)\text{Te}$ crystals (Y.Y. CHEN)
28. Materials for thermal insulation and thermal management (R. WU)
29. The Study of Product Sell Model in Large Mart (X.S. KONG)