

PRESS TIP SHEET

Symposium organizers for the 2019 MRS Spring Meeting have advised that the following presentations are of special note to the trade press. Program comments (*in italics*) are from the symposium organizers themselves. Only presenting authors are listed. The content provided is based on information current as of April 5, 2019. For the most up-to-date information, and for additional information on these presentations (including abstracts), visit www.mrs.org/Spring2019, or consult the official MRS Meeting App at www.mrs.org/MeetingApp.

SYMPOSIUM EP02: Photonic Materials and Devices for Biointerfaces

- EP02.01.01 Zhenqiang Ma, Combined Optoelectronics and Transparent Electronics for Neural Imaging and Optogenetics Applications
Tuesday, 10:30 AM | PCC North, 200 Level, Room 223
This paper presents optoelectronic devices and systems that can perform neural imaging and optogenetic stimulation simultaneously.
- EP02.02.01 Zhenan Bao, Skin-Inspired Organic Electronics
EP03.02.01 Tuesday, 1:30 PM | PCC North, 200 Level, Room 222 A
EP04.02.01 *This paper presents organic devices and systems for epidermal sensing and health monitoring.*
- EP02.02.05 Takao Someya, Self-Powered Ultra-Flexible Organic Electronics for Health
EP03.02.05 Monitoring
EP04.02.05 Tuesday, 1:30 PM | PCC North, 200 Level, Room 222 A
This paper presents organic electronic devices and systems that combine flexible solar cells for energy harvesting and organic transistors for bio-signal sensing.
- EP02.02.06 Bozhi Tian, Physical Biology and Material Dynamics at the Semiconductor-Based
EP03.02.06 Biointerfaces
EP04.02.06 Tuesday, 1:30 PM | PCC North, 200 Level, Room 222 A
This paper presents silicon based thin-film optoelectronic devices for wireless, non genetic cell modulation and stimulation.
- EP02.03.05 Seok-Hyun Andy Yun, Semiconductor Laser Particles for Biomedical Applications
Wednesday, 8:30 AM | PCC North, 200 Level, Room 223
This paper presents self-assembled luminescent microspheres as injectable coherent sources for light emitters in bio-tissue.
- EP02.04.01 Juejun Hu, Flexible and Stretchable Integrated Photonics
Wednesday, 1:30 PM | PCC North, 200 Level, Room 223
This paper present chalcogenide based optical materials as a platform for flexible and stretchable integrated photonics in the infrared domain.

SYMPOSIUM EP03: Materials Strategies and Device Fabrication for Biofriendly Electronics

- EP02.02.01 Zhenan Bao, Skin-Inspired Organic Electronics
EP03.02.01 Tuesday, 1:30 PM | PCC North, 200 Level, Room 222 A
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SYMPOSIUM EP04: Soft and Stretchable Electronics—From Fundamentals to Applications

- EP02.02.01 Zhenan Bao, Skin-Inspired Organic Electronics
EP03.02.01 Tuesday, 1:30 PM | PCC North, 200 Level, Room 222 A
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SYMPOSIUM EP08: Phase-Change Materials for Memories, Photonics, Neuromorphic and Emerging Application

- EP08.02.03 Harish Bhaskaran, Photonic Computing Using Non-von Neumann and Neuromorphic Techniques and Phase Change Materials
Tuesday, 1:30 PM | PCC North, 200 Level, Room 222 B
Using phase change material for photonic computing is of significant interest to the next-generation computers and hardware accelerators for applications, such as deep learning, neuromorphic processing, and others.
- EP09.05.01 Raisul Islam, Device and Materials Requirements for Neuromorphic Computing
EP08.06.01 Wednesday, 10:00 AM | PCC North, 200 Level, Room 224 B
Using phase change material for photonic computing is of significant interest to the next-generation computers and hardware accelerators for applications, such as deep learning, neuromorphic processing, and others.

SYMPOSIUM EP09: Devices and Materials to Extend the CMOS Roadmap for Logic and Memory Applications

- EP09.05.01 Raisul Islam, Device and Materials Requirements for Neuromorphic Computing
EP08.06.01 Wednesday, 10:00 AM | PCC North, 200 Level, Room 224 B
Using phase change material for photonic computing is of significant interest to the next-generation computers and hardware accelerators for applications, such as deep learning, neuromorphic processing, and others.

SYMPOSIUM ES08: Materials Challenges in Surfaces and Coatings for Solar Thermal Technologies

- ES08.04.05 Henrik Pranov, Low-Cost, High-Efficiency Concentrated Solar Heat System Based on Nano- and Microstructured Polymer Lenses Fabricated by Roll-to-Roll Extrusion Coating
Thursday, 10:30 AM | PCC North, 100 Level, Room 123
Heliac's concentrated solar heat (CSH) panels produce high-temperature heat in utility-scale at costs below any other source of energy. The panels produce heat in the same temperature ranges as troughs for CSP, and can thus be integrated into the same systems. What sets Heliac's solution apart from CSP is the use of inexpensive, flat lenses that generate heat instead of the more costly, curved mirrors that are used in traditional CSP. The lenses can be fabricated using cost-efficient manufacturing methods and the flat panels can generate temperatures up to 400°C. In short, we think it could be interesting for the press as it is a nice example of transfer of knowledge.
- ES08.06.01 Sungho Jin, Materials Structuring for Enhanced Solar Energy Absorption and Retention
Thursday, 3:30 PM | PCC North, 100 Level, Room 123
The complete session ES08.06: "Disruptive Concepts for Increasing Absorptance in CSP Receivers" represents novel methods of manipulating physical structure to enhance intrinsic optical properties in high-T receiver coatings. In particular, the paper from Jin presents an outstanding synergy of chemistry and surface structuring to increase the solar to thermal efficiency. Moreover, it is an excellent example of knowledge transfer from basic and academic research towards industrial applications.

SYMPOSIUM ES09: Advanced Materials for the Water-Energy Nexus

- ES09.03.01 Yury Gogotsi, Two-Dimensional Carbides and Nitrides (MXenes) for Water Purification and Electrochemical Energy Storage
Tuesday, 3:30 PM | PCC North, 100 Level, Room 131 A
Gogotsi is credited as the inventor of MXenes materials and they have high potential for water/energy.
- ES09.08.01 Christopher Gorski, Rationally Selecting Intercalating Electrode Materials for the Water-Energy Nexus
Wednesday, 3:30 PM | PCC North, 100 Level, Room 131 A
Intercalating materials are a fast-emerging method of water treatment.
- ES09.10.02 Keith Stevenson, Anion-Based Redox Pseudocapacitance of the Perovskite Library
 $\text{La}_{1-x}\text{Sr}_x\text{BO}_{3-\delta}$ (B = Fe, Mn, Co)
Thursday, 10:30 AM | PCC North, 100 Level, Room 131 A
Anion interaction is a crucial bottleneck for water treatment with intercalating materials.

SYMPOSIUM ES13: Materials Selection and Design—A Tool to Enable Sustainable Materials Development and a Reduced Materials Footprint

The Symposium Organizers invite the press to the following panel session:

Materials Needs for Energy Sustainability by 2050—Incentivizing a Zero-Waste Future

Tuesday, April 23

7:15 pm – 8:30 pm

PCC North, 100 Level, Ballroom 120 D

A dynamic shift is taking place in the waste industry that will impact the materials life cycle from start to finish. What barriers exist, in technology and society, to achieving a zero-waste future? What role do materials scientists play in this transformation?

Join the MRS Focus on Sustainability Subcommittee, *MRS Energy & Sustainability* journal and the organizers of Symposium ES13 as they convene top experts for a thought-provoking discussion on the challenges and complexities associated with zero waste and the role of zero waste in enabling energy sustainability by 2050.

SYMPOSIUM ES18: Frontiers in Organic Photovoltaics

- ES18.01.01 Stephen Forrest, Excitons and Exciton Confinement in Organic Heterojunctions
Tuesday, 10:30 AM | PCC North, 100 Level, Room 131 C
This will be a great overview of recent understanding of organic solar cells and the Forrest group has reported some of the highest efficient organic solar cells reported to date.
- ES18.10.01 Taiho Park, Fully Stretchable Semiconducting Polymers—Concept, Development and Application to Solar Cells
Thursday, 1:30 PM | PCC North, 100 Level, Room 131 C
This talk will present exciting new results on fully stretchable organic solar cells.
- ES18.12.02 Jianhui Hou, Optimizing the Active Layers of High-Performance Organic Photovoltaic Cells
Friday, 8:00 AM | PCC North, 100 Level, Room 131 C
This group has been a leader in the highest efficiency organic solar cells.

SYMPOSIUM ES19: Excitonic Materials and Quantum Dots for Energy Conversion

- ES19.02.08 Edward H. Sargent, Colloidal Quantum Dot Photovoltaics
Tuesday, 1:30 PM | PCC North, 100 Level, Room 132 A
He has done the most impressive work in Quantum Dot based solar cells.

SYMPOSIUM SM03: Growing Next-Generation Materials with Synthetic Biology

- SM03.01.01 Christopher Voigt, Genetic Encoding of Material Properties
Wednesday, 1:30 PM | PCC North, 200 Level, Room 227 B
Voigt, a world leader in syn bio will describe advances that is enabling a revolution in the design of materials for various applications using synthetic biology.
- SM03.01.06 Sunil Chandran, Accessing Novel Materials Through Biology
Wednesday, 1:30 PM | PCC North, 200 Level, Room 227 B
The industrial approach on creating scale of the synthetic biology process to make materials.

- SM03.03.03 Wil V. Srubar III, Living Architecture—Synthetic Biology for Structural Building Materials
Thursday, 8:30 AM | PCC North, 200 Level, Room 227 B
The talk will highlight the use of biology to create living structural materials that are environmentally friendly.
- SM03.04.04 Domitilla Del Vecchio, Context-Dependence and its Mitigation in Synthetic Genetic Circuits
Thursday, 1:30 PM | PCC North, 200 Level, Room 227 B
The talk will highlight the use of a system engineering approach to create genetic circuits for desired functions in cells.