

The MRS OnDemand Webinar Series

July 20, 2022

Correlative Microscopy with Atom Probe Tomography

Presented by *MRS Bulletin*

July 21, 2022

Understanding Surface Reactions of the Solid Electrolyte Interface via Advanced Characterization Techniques

Presented by [Thermo Fisher Scientific](#) and [Oak Ridge National Laboratory](#)

August 24, 2022

100 Years after Griffith: From Brittle Bulk Fracture to Failure in 2D Materials

Presented by *MRS Bulletin*

The MRS OnDemand Achieves



Heusler and Half-Heusler Compounds

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Materials for Ultra-Efficient, High-Speed Optoelectronics

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High Entropy Materials

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MRS OnDemand® WEBINAR SERIES Presented by: **MRS Bulletin**

Materials for Carbon Capture Technologies

Talks:

- Direct Air Capture by Membranes
Shigang Fujian, Tsinghua University
- Development of Sorbent Materials for the Direct Air Capture (DAC) of CO₂
Xiaoyang Shi, Columbia University
- Accelerated Discovery of Porous Materials for Carbon Capture by Machine Learning: A Review
Yunhao Xie, University of Missouri

Materials for Carbon Capture Technologies

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MRS OnDemand® WEBINAR SERIES Presented by: **The National Academies of SCIENCES • ENGINEERING • MEDICINE**

Ideas for the Future of Materials Research

Today's Agenda

INTRODUCTION TO THE CMMRC (5 minutes)
See Cappaswell, University of Wisconsin; Tom Witten, University of Chicago; Chris Jones, National Academies

EVOLUTION AND NEXT STEPS FROM CMMRC WORKSHOPS (30 minutes)

- Frontiers in Biomimetic Materials for Neuroimaging Imaging Applications - Linda Morimoto
- Frontiers in Synthetic Model Quantum Matter - Abhinav Kapitulnik
- Frontiers in Data Analytics and Modeling Tools for Extreme Materials - Orlin Dragne

"IDEA SEARCH" ACTIVITY (45 minutes)

- Advancing Machine Intelligence via Robotic Materials - Ryan L. Tiedey
- Uncharted territories between crystals and glasses - Xuesong Mao
- High Entropy Materials for Energy Applications - Joe Ward
- Viscous hydrodynamics in curved geometries - Aradhna Karim

Ideas for the Future of Materials Research

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MRS OnDemand® WEBINAR SERIES Presented by: **Journal of MATERIALS RESEARCH** Sponsored by: **THE NATIONAL ACADEMIES**

Ultrawide Bandgap Materials and Devices

Talks:

- Inversion-type p-channel diamond MOSFET Issues
Nikhil Sachdev, Massachusetts Institute of Technology
- Experimental Hall electron mobility of bulk single crystals of transparent semiconducting oxides
Dhruv Kalish, Oxford Instruments
- A comprehensive review on the effects of local microstructures and nanoscale chemical features on Si-Si interface films
Badrul Hossain, University of Illinois at Urbana-Champaign; The State University of New York
- Theoretical characterization and computational discovery of ultra-wide-band-gap semiconductors with predictive atomistic calculations
Emmanuel Maréchal, University of Michigan

Ultrawide Bandgap Materials and Devices

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Rare Earth Elements in Materials Science

Talks:

- RE3 - Applications, Shortages, Economics, and Thermal Characterization
Harold Robinson, CSM National Research Institute
- Mineral Economics of the Rare Earth Elements
Simon Lewis, University of Nevada, Las Vegas
- Emerging needs for high-capacity batteries - testing high performance with supply chain considerations
Eric Dufek, Tesla National Laboratory

Rare Earth Elements in Materials Science

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Visualizing Li Metal Anode Battery Degradation

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Cryo and in-situ electron microscopy diagnosis guided design ...

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Translation of 3D-Printed Materials for Medical Applications

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Electric Field Control of Magnetism for Beyond CMOS Electron ...

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Materials for Electrification of Everything

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Advanced Characterization Methods of Electrochemical Materia ...

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Oxide electronics

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Career Discovery Series: Focus On Quantum and Nanomaterials

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Materials Needs for Energy Sustainability by 2050: Frontiers ...

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Materials Opportunities for Low-Energy Computing

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Dynamic SIMS for Semiconductors – From compositional analysi ...

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Materials Evolution in 3D/4D: Understanding Time-Evolved Pr ...

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Nanomaterials for Biomedical Applications

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Acoustic Processes in Materials

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Self-Assembled Porphyrin and Macrocyclic Derivatives

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Bio-inspired “Far From Equilibrium” Materials

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Mechanical Behavior of Nanocomposites

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Piezotronics and Piezophotonics

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Materials for Strain-Mediated Magnetoelectric Systems and De ...

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Data-Centric Science for Materials Innovation

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An Introduction to Atom Probe Tomography and Its Application ...

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Materials Enabling Flexible Hybrid Electronics

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Caloric Effects in Ferromagnetic Materials

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3D Bioprinting of Organs and Organs-on-a-Chip

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Material Functionalities from Molecular Rigidity

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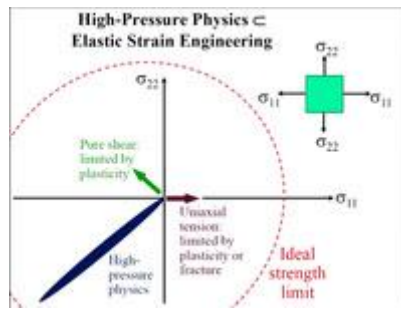
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Nanoindentation: Fundamentals and Frontiers