



MRS TV News

Returning for the 8th year MRS TV is at the 2019 MRS Spring Meeting in Phoenix, Arizona. The program serves to raise visibility of best practices in materials research, as well as to highlight collaborations between diverse institutions including research institutions, universities and private sector organizations, as well as governmental bodies at all levels.

MRS TV will be onsite at the Phoenix Convention Center to interview key speakers and to hear your views on hot topics.

MRS TV Highlights

BINGHAMTON UNIVERSITY STATE UNIVERSITY OF NEW YORK
 A Grand Challenge of the 21st Century is to generate, store and use energy in smarter ways. Smart Energy refers to cheaper, cleaner, safer, faster, better technologies, such as solar cells, catalysts batteries and electronics and will open new directions of innovation. The Materials Science and Engineering faculty at Binghamton instills the interdisciplinary problem solving in its training of the next generation of Smart Energy Researchers.
Department of Materials Science and Engineering at Binghamton University

UNIVERSITY OF VIRGINIA
 MATERIALS SCIENCE and ENGINEERING
 The Nanoscale Materials Characterization Facility (NMCF) at the University of Virginia (UVA) is a state-of-the-art facility dedicated to microscopy, chemical and structural characterization of materials from atomic to macroscopic levels. The instruments enable discovery amongst students in Charlottesville and visiting scientists from all around the world.
Nanoscale Materials Characterization Facility, Department of Materials Science & Engineering, University of Virginia

MONASH UNIVERSITY
 Materials engineers make a unique contribution – not just by making new materials, but also by improving what they already have. At Monash, the graduates and researchers are making things stronger, lighter, more functional, more sustainable and more cost-effective. Their contributions underpin all aspects of engineering, manufacturing and health sciences. Their research has impact on academia, industry and the wider community.
Monash University Department of Materials Science and Engineering

KAUST
 At King Abdullah University of Science and Technology (KAUST), several labs collaborate on the development of new materials for photonics and energy applications. The Functional Nanomaterials Lab examines the chemistry and physics of self-assembled hybrid organic-inorganic materials for optoelectronics, photonics, and energy applications. At the Ultrafast Laser Spectroscopy and Imaging Laboratory, ultrafast laser and electron methodologies are being developed to study

the dynamics of photogenerated charges. In the Functional Nanomaterials & Devices Group, electrochemistry-based technologies are being developed for capacitive energy storage, mobile ion batteries, on-chip storage solutions. In the Photonics Laboratory, group-III semiconductor materials and devices are developed for laser light sources and photodetectors.

Functional Nanomaterials Lab (FuNL) at KAUST

RTN
 RESEARCH TRIANGLE NANOTECHNOLOGY NETWORK
 Nanotechnology has a great impact on society. The National Nanotechnology Coordinated Infrastructure is an NSF sponsored network and is critical to supporting the growth of nanotechnology. The Research Triangle Nanotechnology Network is a nanotechnology collaborative set in the exciting region of North Carolina, and it has the infrastructure in place to support diverse nano-research and commercialization. The Research Triangle Nanotechnology is a collaborative effort between three key universities in North Carolina: UNC-Chapel Hill, Duke University, and NC State

Where to watch MRS TV

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Watch MRS TV around the convention center and at the following hotels:
Sheraton Phoenix on Channel 89. Hyatt Regency on Channel 58. Renaissance Phoenix in the hotel lobby.
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University. The RTNN offers unprecedented access to nanotechnology facilities in the Research Triangle area for researchers from across the nation. The RTNN's education, workforce training, and outreach programs are comprehensive in nature and will train the next generation of scientists, engineers, and technicians.

The Research Triangle Nanotechnology Network (RTNN)

 **JÜLICH** The Institute of Energy and Climate at the Forschungszentrum Jülich focuses on the development of new technologies for climate and environmental protection. The research areas range from Materials Synthesis and Processing, Microstructure, Properties and Electrochemical Process Engineering to Plasma Physics and Photovoltaics.

Institute of Energy and Climate Research, Forschungszentrum Jülich

 **ChemCatBio** Chemical Catalysis for Bioenergy

With more than 1 billion tons of non-food biomass predicted to be available annually by 2030, there is a vast opportunity to convert this domestic resource into biofuels and bioproducts. Thus providing jobs, generating revenue, and reducing greenhouse gas emissions. Catalysis plays a central role in converting these biomass and carbon-rich waste feedstocks into fuels and chemicals; however, critical catalysis challenges exist that are limiting commercialization of emerging bioenergy technologies. By leveraging unique U.S. Department of Energy National Laboratory capabilities and expertise, the Chemical Catalysis for Bioenergy consortium seeks to overcome these catalysis challenges and accelerate the catalyst and process development cycle.

Chemical Catalysis for Bioenergy Consortium (ChemCatBio)

 **BROOKHAVEN NATIONAL LABORATORY** Accelerator Test Facility

The Accelerator Test Facility is a DOE Office of Science User Facility supported by the DOE's Accelerator Stewardship Program, which has operated for over 25 years at BNL. It provides capabilities to users free of charge for research into fundamental accelerator science and for the development of accelerator technologies to support both scientific and industrial applications.

Brookhaven National Laboratory, Accelerator Test Facility

 **DANISH TECHNOLOGICAL INSTITUTE** There is a huge potential for unconventional production methods within nanomaterial production for various applications like catalysis, magnetic materials and printed electronics. At the Danish Technological Institute, the skills within the production of nanocatalysts and materials are based on our patented flow production method of suspended nanoparticles. With this production method, they have achieved outstanding material properties.

Danish Technological Institute

 **ulm university universität uulm**

The new Institute of Functional Nanosystems at the University of Ulm focuses on the application of materials and new developments in optoelectronics, including GaN-based electronics, optoelectronics, VCSELs and optical interconnects, and high-power semiconductor lasers. The application of materials to key societal issues such as environment & sustainability, energy (energy production, energy conversion & energy storage) and medicine & healthcare is an important part of the institute's research. Additionally, effective collaboration and partnership is an important part of daily work, both in terms of encouraging international collaboration, but also encouraging increased collaboration between universities, government and industry.

Institute of Functional Nanosystems at the University of Ulm

 **CREB** The Army, with its significant use of

technology on the battlefield, relies on batteries that are often ponderous and potentially dangerous. Army operations require that batteries are placed in extreme thermal and mechanical conditions that can be detrimental to the batteries and potentially harmful to the Soldier. The goal of the Center for Research in Extreme Batteries (CREB) is to foster collaboration in energy storage technologies to accelerate the rate of technology development. The focus is energy storage technologies that can be used in extreme environments and applications, such as defense, space and biomedical applications.

Center For Research In Extreme Batteries (CREB)

 **BGI 北京石墨烯研究院** BEIJING GRAPHENE INSTITUTE Cutting edge development of high quality graphene materials, super graphene glass, and wearable technology, exploring materials science at the frontiers of innovative graphene research.

Beijing Graphene Institute, Peking University



The Center for Reverse Engineering and Assured Microelectronics's mission is to provide the electronics industry and intelligence community with knowledge, methodology, solutions, and

skilled cybersecurity engineers to help prevent penetration and manipulation of our nation's cyber physical infrastructures. CREAM applies invasive and noninvasive hardware and software reverse engineering techniques to assess physical layer cybersecurity threats in embedded systems, specifically IoT devices. CREAM also develops countermeasures to secure them against sensitive data extraction, disruption, diversion, and obfuscation.

Center for Reverse Engineering and Assured Microelectronics (CREAM) and CAP - Morgan State University

 **PAL** Pohang Accelerator Laboratory (PAL) is a world class scientific research facility

POHANG ACCELERATOR LABORATORY featuring the latest in synchrotron light source and X-ray Free Electron Laser experimental facilities. PAL's mission is to enable internationally leading research through the operation of a user facility that's accessible to a diverse spectrum of researchers, at the same time driving the capabilities and prominence of science and technology in Korea.

Pohang Accelerator Laboratory, Pohang University of Science and Technology (POSTECH)

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