

Connecting the global minerals, metals, and materials community.



Plan Now to Attend:

Nanostructured Materials for Rechargeable Batteries and for Supercapacitors III

This session will cover multiple experimental and theoretical aspects of nanomaterials for rechargeable batteries (Li-ion, Li-Air, Li-Sulfur, Na-ion, Mg-ion, etc) and for supercapacitors. Nanostructured materials hold great promise for energy storage applications, possessing both obvious intrinsic advantages and obvious intrinsic disadvantages. These systems have nanometer-scale diffusion distances and extremely high surface-to-volume ratios. On the up side, this allows for exquisite kinetics, potentially altered thermodynamics, and near theoretical electrochemical activities. On the down side, such systems often display markedly accelerated rates of microstructural degradation, and are prone to extensive parasitic side reactions.

The talks, which will be mostly invited, will focus on the unique “nano” aspects of these technologies. Topics of interest include, but are not limited to, synthesis of new or improved anode/cathode materials and architectures, integration of such structures into working devices, electronic structure or electrical performance simulation, degradation testing and modeling, microstructural analysis by techniques such as TEM or XPS, new chemical synthesis routes, utilization of novel carbon allotropes such as graphene and carbon nanotubes, synthesis and application of high-performance biochars with tuned porosity and surface functionality, Si and Ge nanowires, novel oxides for positive electrodes, core-shell and double core-shell architectures, sulfide-based electrodes, SEI layer formation, hybrid oxide - carbon systems, the use of ionic liquid electrolytes, nitride-based electrodes, and flexible devices.

Sponsored by:

- TMS Functional Materials Division (formerly EMPMD)
- Energy Conversion and Storage Committee

Organized by:

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For more information on how to participate, visit:

www.tms.org/TMS2015

Questions? Contact programming@tms.org