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TMS 2020

149th Annual Meeting & Exhibition

February 23-27, 2020 • San Diego, California, USA



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Nanostructured and Heterostructured Materials

Functional Nanomaterials 2020: Translating Innovation into Pioneering Technologies

The 2020 Functional Nanomaterials Symposium will cover the fundamentals and applications of nanomaterials. We will focus on the significant impacts functional nanomaterials will have on our global society's needs when incorporated into 21st century technologies. We foresee opportunities for technological advances in nearly every sector of science and industry, particularly in medicine, electronic/bio/chemical sensors, computing and microelectronics, environmental stewardship controls and remediation, transportation, energy production/storage, artificial intelligence among others. Both conventional nanomaterials sessions and focused sessions will be held.

Topics of interest include, but are not limited to:

- Design of novel isotropic and anisotropic nanostructures, elucidation of their structure-property correlations, and theoretical understanding of the mechanistic principles that govern their novel properties
- Rational control and assemblies of nanoscale components in one-, two- or three- dimensions and the effect of dimensionality on their optical, electronic, chemical, magnetic, and physical properties
- Soft matter physics (e.g. self-assemblies, non-equilibrium colloids dynamic)
- Design and processing of nanostructured materials for energy production and storage
- Progress and characterization of multifunctional nanomaterials, such as bulk MAX and 2D MXenes
- Advances in state-of-the-art nano-sensing platforms with mono- or multi- modal capabilities
- Computational and experimental discovery and design of novel nanomaterials, such as functional nanoparticles and 2D/3D materials

The scope of the focused sessions will cover incorporation of functional nanomaterials in devices for emerging applications, such as:

- Design, synthesis, characterization and applications of nanomaterials for next-generation batteries (e.g. Li/S, Li/air, Na-ion, Zn-ion batteries)
- Development of nanomaterials toward stretchable electronics and degradable sensors
- Fundamental properties and applications of nanomaterials for hydrogen production
- The additive manufacturing of nanomaterials based devices and related soft matter physics
- Nano-scale robotics, actuation, and manipulation for distinctive applications
- Emerging nano-sensor technologies for artificial intelligence, electronics, environmental stewardship and bio-chemical applications
- Application of computational and experimental methods to functional nanomaterials, surfaces, and interfaces

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Abstract Deadline is July 1, 2019. Submit online at
www.programmaster.org/TMS2020.

Questions?
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