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TMS 2020

149th Annual Meeting & Exhibition

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



Submit an abstract to:

Nanostructured and Heterostructured Materials

Advances and Discoveries in Non-equilibrium Driven Nanomaterials and Thin Films

This symposium plans to bring together scientists and engineers who focus on advances in synthesis and processing, atomic-scale characterization, structure-property correlations and modeling of novel non-equilibrium nanostructured materials and functional thin films. The scope of the symposium includes zero dimensional (such as nanodots), one-dimensional (nanotubes and nanowires), two-dimensional (thin films) and three-dimensional (bulk) nanostructures, uniquely synthesized under extreme non-equilibrium conditions. Integration of such novel functional materials on practical substrates such as silicon and sapphire plays a critical role in creating multifunctional materials for next-generation systems and will be included as one of the important area of interest in the proposed symposium.

The symposium highlights the science of the pulsed laser deposition and laser processing techniques, high energy ion irradiation and mechanical milling, role of interfaces and defects for fabricating such novel materials, thin film heterostructures. It also focus on the recent discoveries of pulsed laser annealing induced formation of non-equilibrium nanostructures (e.g. thin film oxides, Q-carbon, and doped nanodiamonds). We cover the synthesis engineering of large area coverage of various nanostructures and thin films, including pure and doped quenched C and c-BN structures, diamonds through non-equilibrium processing which stands to revolutionize quantum computing, superhard coatings, high-temperature and high-power electronics, and biomedical applications.

Topics include:

- Non-equilibrium processes for the synthesis of novel nanostructures
- Structure-properties correlations in complex oxide thin film heterostructures
- Atomic scale characterization of 0-D, 1-D, 2-D and 3-D nanostructures with novel functional properties
- Pulsed laser deposition and laser processing of novel materials and epitaxial thin film structures
- Role of defects and interfaces in properties manipulations in nanostructures
- Coatings and surface modifications for high-temperature and high-power electronics and biomedical applications
- Q-carbon, Q-BN, nano- and microdiamonds

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

Questions?
Contact programming@tms.org