

**TMS 2018**  
147<sup>th</sup> Annual Meeting & Exhibition



**MARCH 11 – 15, 2018**  
**PHOENIX, ARIZONA**

**SUBMIT AN ABSTRACT TO:**

## **NANOSTRUCTURED MATERIALS**

# **FRONTIERS IN ADVANCED FUNCTIONAL THIN FILMS AND NANOSTRUCTURED MATERIALS**

This symposium will bring together scientists and engineers who focus on advances in synthesis and processing, atomic-scale characterization, structure-property correlations, and modeling of novel nanostructured materials. 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. Integration of novel functional materials on practical substrates, such as silicon and sapphire, through the paradigm of domain-matching epitaxy, plays a critical role in creating multifunctional materials for next-generation systems and will be included as one of the important areas of interest in this symposium.

This symposium highlights the science of pulsed laser deposition and laser processing techniques, the role of interfaces and defects for fabricating such novel materials, and thin film heterostructures. It also focuses on the recent discoveries of pulsed-laser-annealing-induced formation of non-equilibrium nanostructures (e.g. Q-carbon, Q-BN and doped nanodiamonds). It will cover the synthesis engineering of large-area coverage of pure and doped quenched C and c-BN structures, nano- and microdiamonds (including NV diamonds) through pulsed laser processing which stands to revolutionize 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 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 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, Q-BN, nano- and microdiamonds

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**ABSTRACT DEADLINE IS JULY 1, 2017. SUBMIT ONLINE AT [www.programmaster.org/TMS2018](http://www.programmaster.org/TMS2018).**

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