



SUBMIT AN ABSTRACT BY JULY 1

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ANAHEIM CONVENTION CENTER & ANAHEIM MARRIOTT
ANAHEIM, CALIFORNIA, USA
#TMSAnnualMeeting

SUBMIT AN ABSTRACT FOR THE FOLLOWING TMS2022 SYMPOSIUM:

MATERIALS DESIGN

Quasicrystals and Quasicrystal-Reinforced Metal-Matrix Composites

Quasicrystals have generated significant interest due to the unusual combinations of properties that arise from their aperiodic structures. Mechanical properties such as high hardness, strength, and elastic modulus, as well as high wear and corrosion resistance suggest that there is significant potential for the application of quasicrystals in structural applications. The lack of plasticity at room temperature makes quasicrystals impractical for use in monolithic form under most circumstances, but they are promising as reinforcing phases in metal matrix composites. In particular, the low densities of Al- and Mg-based quasicrystals mean that quasicrystal-reinforced Al or Mg matrix composites could form the basis of the next generation of lightweight high-strength structural materials.

The objective of this symposium is to provide a forum for discussion on recent research into the structure, processing, properties and applications of quasicrystals and quasicrystal-reinforced metal-matrix composites. Topics of particular interest include:

- Design of novel multi-component systems in which the quasicrystals form at the cooling rates that prevail in conventional metallurgical processes
- Development of computational methodologies to overcome the limitations of periodic boundary conditions for such aperiodic structures
- Exploration of the potential for using quasicrystal-forming systems as new materials for additive manufacturing

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