

Connecting the global minerals, metals, and materials community.



Plan Now to Attend:

Novel Synthesis and Consolidation of Powder Materials

Powder materials and their various consolidated or assembled forms are used in many industries today for a wide variety of purposes, from demanding structural applications such as nickel-base powder metallurgy superalloys in the hot sections of jet engines to distinctive functional operations such as catalysis, seeding, surface modification for extreme conditions, purification and microfiltration. In addition, nanopowder materials are expected to play a central role in enabling the transformation of various new energy sources into affordable forms of power. The powder materials community is expected to relentlessly develop novel powder synthesis and consolidation processes that will better serve our current and future needs.

In this symposium, papers addressing all aspects of novel powder synthesis and consolidation will be presented, and the proceedings, based on invitation, will be considered as a focus issue of a peer-reviewed journal following the symposium. The various aspects to be covered will include:

- Novel synthesis of powder materials including nanopowder production and coated or passivated powder by both chemical and physical means
- Novel applications of powder materials including loose powders, functionally graded powder materials, porous structures, and fully consolidated products
- Advances in characterization of powder materials
- New developments and understanding in powder consolidation (e.g. spark plasma sintering; microwave sintering; forging, extrusion, powder injection moulding, cold spray forming)
- Additive manufacturing or 3D Printing of both metallic and non-metallic materials
- Improved or novel process control of powder synthesis and consolidation
- Advanced powder-based material designs such as functionally graded powder materials and novel metal-ceramic or metal-polymer composites

Sponsored by:

- TMS Materials Processing & Manufacturing Division
- Powder Materials Committee

Organized by:

Ma Qian, RMIT University (Royal Melbourne Institute of Technology) (Australia)
Iver E. Anderson, The Ames Laboratory (USA)

**For more information on how
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Questions? Contact programming@tms.org