

# ASTM INTERNATIONAL CONFERENCE ON ADVANCED MANUFACTURING

## Research to Application through Standardization

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### Value Chain: Sinter-Based AM Technologies

Sinter-Based Additive Manufacturing (SBAM) processes offer improved resolution and surface finish, wider choice of materials, and increased build speed compared to fusion-based AM processes, resulting in lower production costs and enabling new applications. Sinter-based AM processes now include several technologies as defined in ISO/ASTM 52900: Binder Jetting (BJT), Material Extrusion (MEX), Material Jetting (MJT), and Vat Photopolymerization (VPP). There is also the emergence of several new SBAM technologies such as hybrid processes that rely on both additive and subtractive processes, 3D Screen printing, and 3D printing of multi-materials. Unique to these sinter-based processes, the powder feedstock is selectively bound together with a binding agent during the printing process to produce what is commonly referred to as a “green” part. Secondary debinding and sintering steps are then required to remove the binding agent and consolidate the powder material to the desired final part density. While the potential of these new technologies is high, there are still challenges being addressed to achieve the economy and scale these technologies promise and standardization needed to reach a positive inflection point in industry adoption.

#### Topics of interest include but are not limited to:

- Novel Sinter-Based AM Technology Developments
  - Feedstock, binder, and printing process developments
  - Depowdering
  - Debinding and sintering
- Characteristics of SBAM materials and processes
  - Microstructure and mechanical properties
  - Dimensional control and surface roughness
  - Post-processing
  - Feedstock handling, conditioning, and reuse considerations
- Case studies on SBAM applications – successes and remaining challenges
  - Qualification and certification of machines, processes, parts
  - Part design considerations (DfSBAM)
  - Economics of SBAM processes
  - Environmental, Health and Safety considerations and impact
- Modeling and simulation
- In-process monitoring and control
- Advancements and gaps in standards and specifications



### Symposium Organizers

- Animesh Bose, Optimus Alloys, USA
- Efrain Carreno-Morelli, University of Applied Sciences and Arts Western Switzerland (HES-SO), Switzerland
- Amy Elliott, Oak Ridge National Laboratory (ORNL), USA
- Simon Hoeges, GKN Additive, Germany
- Paul Prichard, Kennametal, USA
- Benoit Verquin, CETIM, France



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Research to Standards

ADDITIVE MANUFACTURING