european society for precision engineering and nanotechnology

Special Interest Group:

Dimensional Accuracy and Surface Finish in Additive Manufacturing

10th-12th October 2017

Katholieke Universiteit Leuven
KU Leuven, Belgium

euspen

EN033/0117

The joint topical meeting between euspen and ASPE on Dimensional Accuracy and Surface Finish in Additive Manufacturing on dimensional accuracy and surface finish is crucial to putting additive manufacturing (AM) onto the factory floor. We are seeking papers in the following categories:

Dimensional Accuracy and Surface Finish from Additive Manufacturing (AM)

- State-of-the-Art – What level of precision is achievable today?…and what developments are underway?… or are needed?
- New research work and commercially-available technologies for achieving precision
- Prediction and modeling of dimensional errors and surface topography

1. **Design for Manufacturing**
   - Design rules for additive manufacturing
   - Topology optimization in the context of AM and achieving precision
   - Novel designs for flexures, kinematic couplings or machine structures
2. **Lattice Structures and Synthetic Materials for Precision Applications**
   - Developments in fabricating lattice structures with high strut integrity
   - Measurement of 3D strut dimensional accuracy and material properties
3. **Characterizing the Performance of AM Machines**
   - In situ process monitoring, e.g. melt-zone temperature and powder bed
   - In-process measurement of workpiece shape and topography
   - Using artifacts to assess machine performance; Round-robin testing
   - Holistic views of the control system, process feedback, correction
4. **Standards**
   - Certifying AM equipment capabilities
   - Industrial demands for ASTM and ISO standards
5. **Integrating AM into Holistic Manufacturing Process**
   - Cost-benefit trade-offs of using AM within a complex manufacturing process
   - Engineered partnerships between AM and secondary finishing operations
   - Dealing with residual stress and heat treatment in a process flow
   - Kinematic tooling or pallets for repeatable part handling
6. **Metrology**
   - Surface form and texture measurements on AM surfaces
   - Functional specifications for additive surface finish and dimensional accuracy
   - Dimensional metrology of internal features using x-ray computed tomography
   - Uncertainty and traceability with x-ray computed tomography
   - Assessing measurement uncertainty

Please visit our website for further information

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