european society for precision engineering and nanotechnology

Special Interest Group:
Advancing Precision in Additive Manufacturing
20th-22nd September 2021

inspire AG
St. Gallen, Switzerland

American Society for
Precision Engineering

eu**spen**

The next in the series of joint Special Interest Group meetings between eu**spen** and ASPE on Advancing Precision in Additive Manufacturing is crucial to putting additive manufacturing (AM) onto the factory floor. We are seeking papers in the following categories:

1. Dimensional accuracy and surface finish in additive manufacturing (AM)
- State of the art: What level of precision is achievable?
- Functional specifications for form and finish
- Prediction and modelling of dimensional errors and surface topography
- Developments in fabricating lattice structures with high integrity
- Diversity in scale of features: large-scale to micro-/nano-scale

2. Design for precision
- Design rules and tolerancing for AM
- Topology optimisation in the context of AM and achieving precision
- Novel designs for flexures and kinematic couplings
- Metallurgy and fatigue issues in high-cycle precision applications
- Design and tolerancing of lattice structures

3. Machine precision – process development and control
- In-situ process monitoring, e.g. melt zone temperature, powder bed
- In-process measurement of workpiece shape and topography
- Using artefacts to assess machine performance, round-robin testing
- Holistic views of the control system, process feedback, correction
- Machine learning to conquer the complex AM parameter space
- Machine learning with a focus on precision and uncertainty

4. Standards certification and training
- Certifying AM equipment capabilities and material properties
- Industrial demands for ASTM and ISO standards

5. Integrating AM into a holistic manufacturing process
- Cost-benefit trade-offs of using AM within a complex process chain
- Engineered partnerships between AM and secondary finishing
- Kinematic tooling or pallets for repeatable part handling
- Digitalisation of manufacturing

6. Metrology
- Surface topography measurements on rough as-built surfaces
- Dimensional metrology of internal features using computed tomography
- Multi-sensor approaches, data fusion and machine learning
- Complex form measurement, registration and fitting of point clouds
- Measurement of 3D lattice strut dimensional accuracy and integrity
- Characterisation of internal defects and voids

Key dates

23rd Apr 2021	Short Abstract Submission Deadline
18th Jun 2021	Extended Abstract Submission Deadline
9th Jul 2021	Notification of Presentation Award (Oral/Poster)
14th Jul 2021	Delegate Registration Opens

Please visit our website for further information

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