

Advanced Simulation Technologies in Additive Manufacturing

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Additive manufacturing has only recently emerged as one of the most promising technology for manufacturing structures and rapid prototyping of new composite materials eliminating tooling costs, enabling products to be customized for niche markets or even individual customers, reducing the spare part supply chain, and allowing parts to be combined to reduce assembly costs. Products based on additive manufacturing span a large range of applications such as lightweight components for the aerospace and automotive industry, composite materials or patient specific implants for medical applications and pharmaceutical applications. In order to optimization, assess the life cycle of smart material and the various processes in additive manufacturing and underlying physics, versatile simulation technologies have to be developed to understand the influence of many governing parameters, rheology model and toxicity on the final quality of the final part.

The mini-symposium aims at bringing together engineers and researcher from the applied e.g. industry and scientific community and providing a lively exchange of ideas regarding state of the art and future needs for simulation technologies in additive manufacturing.

Therefore, topics of the mini-symposium on “Advanced Simulation Technologies in Additive manufacturing” in the broad sense will include:

- Material and composite design
- Life Cycle Assessment
- Concurrent Multiscale formulation
- Multi-physic approaches
- Numerical methods and implementation issues
- Shape Optimization
- Industrial applications