

Preface

This issue covers all aspects related to advanced and non-conventional modeling and simulation of forming processes, including the application of machine learning and AI techniques. By that, we consider developments in the field of numerical simulation that can eventually and potentially be applied to the simulation of any forming process. Among these, the following non-exclusive list of topics is considered:

- Advances in Finite Element Technology and their applications
- Meshless and mesh-free methods
- AI-based computing
- Advanced shell methodologies, solid/shell formulations
- Numerical techniques for challenging processes (3D printing, FSW, LFW, ...)
- Speeding up simulations (parallel computing, model order reduction, AI, ...)
- Data-driven simulation and control of forming processes
- Hybrid modeling approaches, combining data-driven and numerical approaches

This issue also presents the research in the following challenging fields:

1. Computer-aided technology design
2. Simulation-based real-time control
3. AI-based material and process models
4. Supercomputing (GPUs, ...) and deployed systems
5. Virtual and augmented reality solutions
6. Alleviating mesh constraints (anisotropic meshes, advanced remeshing, meshless, ...)
7. Data-driven simulations and hybrid approaches.

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