COMPUTATIONAL MODELLING OF MATERIAL FORMING PROCESSES

CARLOS AGELET DE SARACIBAR[*] AND ROBERTT VALENTE[†]

[*] International Center for Numerical Methods in Engineering (CIMNE)
Edificio C1, Campus Norte, UPC, Gran Capitán s/n, Barcelona, Spain
agelet@cimne.upc.edu

[†] GRIDS Research Group, Department of Mechanical Engineering, University of Aveiro
Aveiro, Portugal
robertt@ua.pt

Key words: Material Forming, Computational Modelling, Numerical Simulations.

ABSTRACT

This Minisymposium aims to bring together researchers to present and discuss state-of-the-art achievements and research on mathematical methods, numerical methods, computational techniques and industrial applications on the field of **Computational Modelling of Material Forming Processes**. The goal is to make a step forward in the formulation and solution of real life problems with a multidisciplinary vision, accounting for all the complex phenomena involved in the physical description of the problem.

Topics in the Minisymposium on **Computational Modelling of Material Forming Processes** include, but are not be limited to, the following items related to material forming processes:

- Mathematical formulation
- Numerical methods (FEM, X-FEM, Meshless, IGA, etc.)
- Solution strategies and numerical implementation issues
- Multiscale and stabilization techniques
- Coupled thermo-mechanical and metallurgical models
- Constitutive modelling
- Microstructural modelling
- Large-scale simulations
- Numerical simulation of material forming processes, including welding, friction stir welding, electro-beam welding, shaped metal deposition, casting, solidification, forging, stamping, extrusion, superplastic forming, thixoforming, hydroforming, etc.