

MODELING OF PLASTICITY AND DAMAGE UNDER CYCLIC LOADING

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ABSTRACT

Analyse of fatigue based numerical simulation involves a high level of complexity, from both fundamental and industrial application standpoints, requiring robust and comprehensive technology in order to achieve realistic solutions.

Tacking into account advanced models for numerical simulation based on the Finite Element Method and Meshless formulations, this Invited Session aims to present and discuss the current state of the art as well the challenges in the computer-based engineering analysis of conventional and innovative material modelling involving plasticity and damage processes under cyclic loading, specially applied to fatigue up to ultralow cycle fatigue under high strains conditions, trying to establish guidelines for future research in this field.

In this sense, the Invited Session within this proposal intends to be a comprehensive forum for discussion on the current state-of-the-art contributing to achieve better solutions for realistic fatigue problems, at the same time trying to establish a bridge between the academic and industrial worlds. Doing so, the main goal is to promote the debate between researchers involved in this area, in order to set the major lines of developments for the near future.