

Model Order Reduction and applications to industrial problems.

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ABSTRACT

Computational mechanics tools are indispensable to the industrial process. Despite their robustness and maturity, scenarios where parametric and multi-dimensional solutions as well as real-time simulation responses are required, still represent a challenge for the industry. Such cases included (but are not limited to) computational-based optimization, uncertainty quantification and real-time control.

Reduced Order Modelling (ROM) techniques provide an efficient and accurate alternative to tackle such problems. The core principle of ROM techniques lies in finding a *reduced basis* able to represent the solution of the problem at hand at a significantly lower cost, with reasonable accuracy.

This minisymposium aims to foster the interaction of researchers from academia and industry by providing an interdisciplinary platform of discussion on model order reduction techniques and their applications to multidisciplinary industrial problems. The main aim of the proposed minisymposium is to discuss recent advancements of the state-of-the-art of model order reduction techniques and strengthen the link between ROM and industrial applications. As such, both advances on new fundamental aspects and algorithms to improve existing techniques, such as, multi-scale approaches, non-linearity treatment and error estimation as well as contributions on the solution of daily industrial problems (e.g. in automotive, aerospace, ...) through model order reduction will be presented.