

Minisymposium : Multidisciplinary Design Optimization In Computational Mechanics

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Multidisciplinary Design Optimization in Computational Mechanics The field of Multidisciplinary Design Optimization aims to bridge the gap between the independently evolving fields of mathematical optimization on the one hand and the simulation techniques on the other hand in order to make a way for a widespread use of optimization techniques in complex engineering problems such as aircraft or car design. In this minisymposium we wish to bring together contributions from computational mechanics, optimization and applied mathematics in order to cover a broad range of numerical approaches specifically developed for full-scale optimization problems. The scope involves coupled (solid mechanics/fluid mechanics/thermal/etc.) problems, multicriteria optimization, taking into account of different levels of uncertain parameters. A specific attention will be paid to non-intrusive approaches based on response surface modeling (kriging/diffuse approximation...), reduced order modeling techniques (POD, Proper Generalized Decomposition, etc.) and uncertainty quantification (polynomial chaos expansion, stochastic sampling...). This minisymposium is proposed by: Piotr Breitkopf, Universite de Technologie de Compiegne, France Weihong Zhang, Northwestern Polytechnical University, China Rajan Filomeno Coelho, Universite Libre de Bruxelles, Belgium.