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Preface

Special Issue "Numerical Methods for Challenging Problems"

NUMACH, Numerical Methods for Challenging Problems is a scientific conference, an idea that germinated during 2011. The starting edition took place in GAMMARTH, a nice seascape in Tunisia. At first, the aim for mounting this meeting is as the prelude to the ICOSAHOM organized a year later (2012) in the same country, the post-revolutionary Tunisia. The clear success of the first edition yields the ambition to perpetuate its organization, while preserving its human sized spirit which promotes and facilitates direct discussions, exchanges and prospections. The conference is hosted by Abengoa Research Department in Sevilla, 2013, before traveling to Xiamen University, China in 2015. The last edition is held by the IRIMAS at University of Haute-Alsace, Mulhouse France during July 2018.

The meeting is aiming to bring together researchers from different countries and various "applied mathematical" communities ; PDEs, Numerical Analysis, Scientific Computing, so to exchange their knowledge and expertise, to solve challenging numerical problems. All topics on efficient modelling and numerical methods to solve complex problems issued from a wide variety of fields such as mechanical engineering, life sciences and technology find a place in the conference and strongly encouraged to come and attend the future edition, expected for June 2020.

This special issue is largely spawned by the last meeting in Mulhouse. The papers collected herein and in the next issue are part of the presentations delivered in the conference and also courtesy contributions from research experts in the fields.

The thirteen papers in two issues span a wide spectrum of these computational methods in terms of new algorithms, in-depth analysis and emerging applications.

We aim at providing the readers some insights into the recent advancements through this special issue.

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