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CHALLENGES AND PROGRESS IN COMPUTATIONAL SCIENCE AND ENGINEERING: FROM INDUSTRY 4.0 TO SUSTAINABLE DEVELOPMENT

TRACK NUMBER 7000 - INDUSTRIAL APPLICATIONS

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ABSTRACT

Computational Science and Engineering (CSE) techniques represent a *de facto* standard in many applicative fields, from the analysis and forecasting of complex physical systems to the virtual prototyping during design and optimisation pipelines.

In recent years, increasing attention has been devoted to the development of cutting-edge CSE methods tailored to the construction of multi-disciplinary solutions of challenging real-world problems. Successful examples include reduced order models for the efficient computation of multiple queries of parametrised problems, integration of adaptivity strategies in optimisation routines, machine learning and artificial intelligence techniques to exploit experimental data, just to name a few.

This minisymposium is linked to the upcoming ECCOMAS thematic conference **M2P: Math 2 Product** whose first edition is scheduled in 2023 [1]. This conference focuses on emerging CSE techniques to address current and future needs of industrialists (e.g., industry 4.0) and policy makers (e.g., sustainable development), with the goal of supporting creative thought and innovation. The minisymposium will gather researchers presenting innovative CSE solutions outperforming existing industrial standards, successful interactions between CSE and industry and emerging technologies addressing the social challenges of sustainable development. Special attention will be given to the mutual inter-disciplinary and inter-sectoral transfer of knowledge as well as to the cross-fertilisation of ideas coming from academia and practitioners for the solution of challenging real-world problems.

REFERENCES

[1] ECCOMAS Thematic Conference Math 2 Product (M2P) https://congress.cimne.com/m2p/