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ADVANCED MULTI-PHYSICS CFD SIMULATIONS IN SCIENCE AND ENGINEERING

600 - FLUID DYNAMICS AND TRANSPORT PHENOMENA

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ABSTRACT

This minisymposium covers any application of the state-of-the-art CFD (computational fluid dynamics) simulations for multi-physics problems in science and engineering. The topics of interest covers, but not limited to: reactive flows, multiphase/multiscale flows, Newtonian/non-Newtonian fluid flows, and turbulent flows. It serves as a forum to exchange ideas for the future development of this field. Emphasis will be on novel computational methods, leading-edge numerical simulations, and innovative attempts on applying deep machine learning. Recent advances in data-driven analytics and AI (artificial intelligence) push the boundaries of traditional disciplines including fluid science and engineering. Advanced CFD simulations in association with the machine learning may enable us to address new challenges to solve complex flow problems across both length and time scales as well as to achieve data-driven surrogate modelling that reduces computational load. Most welcome are contributions from students and young researchers working on computational fluid dynamics, concerned with unsolved or not yet fully satisfying solved problems and possible new attempts.