EFFICIENT CAD-BASED DISCRETIZATION METHODS
(TRACK NUMBER 100)

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ABSTRACT

Over the last two decades, a large variety of non-standard discretization schemes, aiming at improving the interoperability between CAD designs and finite element discretizations, have emerged in the field of the numerical approximation of partial differential equations. Amongst them, some are based on the isogeometric concept and/or fictitious domain approaches. More than facilitating the geometry modeling within analysis, these methods offer the opportunity to drastically reduce the numerical resources required for simulation by exploiting the smooth, higher-order nature of the underlying CAD-based approximation spaces [1,2,3,4].

This mini-symposium aims to bring together multidisciplinary viewpoints that facilitate fruitful discussions and exchange of ideas on how to develop efficient CAD-based discretization techniques, whether in terms of operator assembly or system solutions. We welcome contributions from both method developments and applications. Typical topics are expected to be, but not restricted to: spline-based discretizations, fictitious domain approaches, collocation methods, reduced-order modelling techniques, tensor methods, efficient numerical integration rules and fast formation of discrete operators, as well as linear systems' solvers such as domain decomposition and multigrid techniques.

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