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# RECENT ADVANCES IN HIGH-ORDER METHODS FOR COMPUTATIONAL FLUID DYNAMICS

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## MINISYMPOSIUM

High-order methods in computational fluid dynamics have been the subject of academic studies and industry interest for over two decades, due to their prospects of yielding high levels of accuracy at computational costs that are lower than traditional second-order methods. Many advances in high-order methods have already been made, on various fronts, including discretization, stability, solvers, mesh generation, error estimation, adaptation, and applications. However, these methods have still not yielded the proper combination of efficiency and robustness required for widespread use and adoption by industry, and hence the topic remains an important research interest.

The focus of this minisymposium is on theoretical advances in high-order numerical methods aimed at overcoming their challenges, as well as application demonstrations that stress the limits of high order and identify new challenges. Numerical methods in the scope of this minisymposium include finite volume, finite-difference, (weighted) essentially non-oscillatory, continuous/discontinuous finite element, spectral difference/volume methods, and other related discretizations. Relevant topics include, but are not restricted to, spatial discretization, time integration, shock capturing, mesh generation, error estimation, adaptivity, visualization, implementations on novel architectures, hybrid methods, scale-resolving simulations, magnetohydrodynamics, and innovative uses of machine learning methods. Of interest is also work in high-performance computing that is related to high-order methods, including GPU implementations and quantum computing.