

## NOVEL NUMERICAL METHODS AND MULTI-APPROACH STRATEGIES IN COMPUTATIONAL FLUID DYNAMICS

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### ABSTRACT

The challenges faced in modern engineering are becoming increasingly interdisciplinary and complex. Numerical analysis has evolved into a multi-method approach, integrating various computational and experimental techniques to address sophisticated simulations. In the development of new numerical methods for solving engineering problems, exposure to a diverse range of approaches often leads to the identification of more effective solutions. This session seeks to accelerate this virtuous cycle by offering a platform for research presentations and discussions that shape the future of computational engineering. The topics covered span a broad range of technologies, including multiphysics, multiscale analysis, machine learning, deep generative modeling, reduced-order modeling, and massively parallel computing, alongside their industrial applications.