# Recent advancements in Polytopal Methods for Fluid Mechanics

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## ABSTRACT

The development and analysis of numerical methods for the approximation of Partial Differential Equations (PDEs) on polygonal and polyhedral meshes has now reached a fairly mature stage, drawing the attention of an increasing number of researchers.
Indeed, polytopal grids offer a very convenient framework to handle, for instance, hanging nodes, different cell shapes within the same mesh, and non-matching interfaces. Such a flexibility represents a powerful tool towards the efficient solution of problems with complex inclusions (as in geophysical flows) or posed on very complicated or possibly deformable geometries (as encountered in reservoir simulations, fluid-structure interaction, deforming meshes in Lagrangian fluid simulation, crack propagation, contact problems, etc..).
In recent years, several discretization methods for polygonal and polyhedral meshes have been developed and there are strong connections among them. The aim of this Mini Symposium is to bring together experts in the field, with a particular focus on the successful Virtual Element [1,2] and Hybrid High Order / Discrete de Rham [3,4] methods (see [5] for bridges between these technologies), in order to have a wide view on the most recent polytopal advancements in the realm of fluid-dynamics.

## REFERENCES

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