

HYBRID AND POLYTOPAL DISCRETIZATION METHODS FOR COUPLED MULTIPHYSICS PDES

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ABSTRACT

This minisymposium aims to bring together leading researchers working on the analysis and application of hybrid and polytopal discretization methods. Particular emphasis will be placed on the development of novel numerical schemes for coupled partial differential equations (PDEs) arising in complex multiphysics problems, including interface-coupled systems and heterogeneous media.

The session will cover recent advances in the design, analysis, and implementation of discretization techniques for problems in continuum mechanics. Contributions addressing spectral approximations and eigenvalue problems associated with these formulations are also strongly encouraged.

SPEAKERS

1. Jessika Camaño (Universidad Católica de la Santísima Concepción, Chile): A mixed FEM based on pseudostress and stream-function for the Navier–Stokes problem.
2. Verónica Anaya (Universidad del Bío-Bío, Chile): Vorticity formulation for fluid flow problems.

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3. Alberth Silgado (Universidad del Bío-Bío, Chile): Stream VEM for the Navier-Stokes problem.
 4. Arbaz Khan (Indian Institute of Technology Roorkee, India): Virtual element approximations for thermo-poroelasticity problems.
 5. Andrés Rubiano (Monash University, Australia): Stream function - pressure VEM for the Stokes-Darcy interface problem.
 6. Jesus Vellojin (Universidad Técnica Federico Santa María, Chile): Div-conforming methods for flow-transport equations.
 7. Segundo Villa (Universidad de Los Lagos, Chile): Numerical analysis of a porous natural convection system with vorticity and viscous dissipation.