Advances in polytopal methods for multiphysics problems

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Short Description

In the numerical approximation of multiphysics problems, the accurate discretization of the equations pertaining to different physical models may require very different constraints on geometric details, scale resolution, or local refinement of the computational mesh. Methods based on polytopal meshes are particularly suited to address multiphysics problems, thanks to their extreme flexibility in representing complex geometries, interfaces, and heterogeneous media. Indeed, they can handle, with relative ease, non-conforming interfaces, hanging nodes, and finite elements with generic shapes. This minisymposium aims at discussing recent advances in polytopal methods as well as their application to multiphysics models for (non-exclusively) fluid-structure interaction, filtration in porous and poroelastic media, transport and diffusion of chemical substances in living tissues, and other biological or industrial applications.