Strongly divergence-free solutions for incompressible flow: discontinuous and continuous mixed finite elements

Guido Kanschat
Mathematics, Texas A&M University
kanschat@tamu.edu

Abstract

We consider a recently introduced discontinuous Galerkin scheme yielding strongly divergence-free velocities from a mixed formulation. We will show, that this scheme is a natural higher-order extension of the MAC scheme, which can be recast as a DG method. In the end, we will show that such an extension is even possible with continuous finite elements.