

Nitsche's method for incompressible flows

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We consider various boundary conditions for incompressible flow problems. Nitsche's method is particularly interesting in this context, since it allows for a weak formulation, that weights the influence of the different parts of the underlying PDE, the Stokes and Euler equations. Such a procedure is well known for the scalar convection-diffusion equation, but additional difficulties arise in the here considered context. Next we augment the formulation with stabilization terms in order to control the kinetic energy. For the case of an artificial outflow, this leads to a method closely related to others proposed in the literature.