

## **Spline Approximations of the 3D Navier-Stokes Equations**

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We consider numerical approximations of the 3D Navier-Stokes equations in velocity-pressure formulation. The pressure is eliminated from the equations by using a space of velocity fields which are divergence free. The later is discretized by means of splines of arbitrary degree and arbitrary smoothness. Energy arguments are used to derive the discrete equations satisfied by the equations. The pressure term is computed by solving a Poisson problem with Neumann boundary.