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**Jean-Luc Guermond\*** ([guermond@math.tamu.edu](mailto:guermond@math.tamu.edu)), Department of Mathematics, Texas A&M University, College Station, TX 77843. *Finite-Element-based Faedo-Galerkin weak solutions to the Navier–Stokes equations with Dirichlet boundary conditions are suitable.*

Faedo-Galerkin weak solutions to the Navier–Stokes equations supplemented with Dirichlet boundary conditions in bounded domains are suitable in the sense of V. Sheffer provided they are constructed using finite-dimensional approximation spaces having a discrete commutator property and satisfying a proper inf-sup condition. Low order mixed finite element spaces appear to be acceptable for this purpose. This results extend an earlier result of the author that hold in the three-dimensional torus only. The main technical difference is that pressure estimates are more involved and are derived by using negative exponents of the Stokes. (Received October 05, 2006)