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**Variational multiscale formulation of LES on unstructured meshes** CARLOS COLOSQUI, ASSAD OBERAI, Boston University — The variational multiscale (VMS) formulation of large eddy simulation (LES) is a new approach to LES which relies on variational projections rather than filters to accomplish scale separation. In addition, in this approach the resolved scales are subdivided into coarse and fine scale components, and different models are utilized for their evolution. The implementation of this formulation using spectral methods is relatively straightforward, and over the last few years several encouraging results have been reported. In this talk, motivated by the eventual application of the VMS formulation of LES to flows in complex geometries, we present a finite element implementation for the incompressible Navier Stokes equations. We describe important features of our formulation and report results for the 3-D lid-driven cavity flow at  $Re=10,000$  on fully unstructured meshes.

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