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Atife Caglar* (caglara@uwgb.edu), 3730 Longview Ct, Green Bay, WI 54301. *A Finite Element Approximation of Navier-Stokes-Alpha Model.*

We consider the Navier-Stokes-Alpha model as an approximation of turbulent flows under realistic, non-periodic, boundary conditions. We derive the variational formulation of Navier-Stokes-Alpha model under non-periodic boundary conditions and prove that it has a unique weak solution. Next we consider finite element approximation of the model. We give a semi and fully discretization of the model and prove convergence of the method.

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