Isogeometric Variational Multiscale Large Eddy Simulation of Turbulent Flow through Annulus Channel YOUSEF GHAFFARI MOTLAGH, HYUNG TAEK AHN, School of Naval Architecture and Ocean Engineering, University of Ulsan — A large eddy simulation type variational multiscale method is performed for a turbulent annulus channel flow. The unsteady Navier-Stokes equations are solved numerically for two radius ratios. To model the annulus channel, Non-Uniformed Rational B-Spline (NURBS) basis functions are used. A key feature is to present geometry exactly by NURBS elements and the coarsest mesh encapsulates the exact geometry. In our calculation, we employ quadratic discretization that is C^1-continuous across element boundaries. The transverse curvature effect on near wall turbulent structures are analyzed for strong and weak curvature effects. To validate our results we compare them with available DNS data.

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