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AN APPLICATION OF KURGANOV AND TADMOR SCHEMES TO INCOMPRESSIBLE FLOW PROBLEMS

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Abstract. This work presents an extension of the Kurganov and Tadmor central scheme for its use with solvers based on conservative fluxes, which are usual in the solution of incompressible flows. The scheme retains the desirable properties of simplicity, low numerical viscosity and multidimensionality working in non-staggered polyhedral meshes. Thus, a complete derivation is presented in semi-discrete form for the one dimensional case, which is then extended to multidimensions and polyhedral meshes. A series of one and two dimensional cases are solved in the context of multiphase flows which show the remarkable properties of the proposed scheme.