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Discontinuous Galerkin Methods for Turbulent Flow Simulations[1]
CRISTOBAL ARMAZA, Cornell University, SXS COLLABORATION — Turbulence is thought to be a fundamental ingredient in the mechanism that governs core-collapse supernovae explosions as well as other astrophysical phenomena. Previous work has shown that for core collapse, finite-difference methods need unattainable resolutions to satisfactorily resolve the small-scale features and correctly capture the physics. We investigate whether the high resolution achievable in principle with discontinuous Galerkin (DG) methods can deal with this problem. We present results from the new SpECTRE DG code for the model turbulence problem previously studied with finite-difference methods.

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