Solution-Verification, Grid-Adaption and Uncertainty Quantification for Chaotic Turbulent Flow Problems

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*Benjamin Dalman (USC): LEA – a performance portable CFD solver
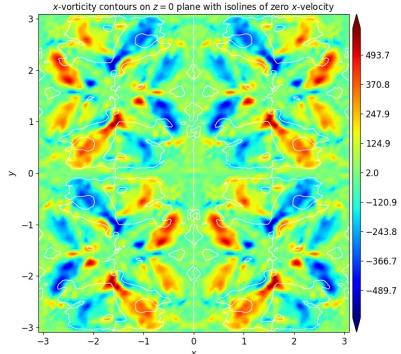
*Onboarding for SNL summer internship

LEA – a performance portable CFD solver

o LEA (Light Exascale Application) is a compressible flow solver, built to conduct direct numerical simulations (DNS) and large-eddy simulations (LES) of turbulent flows

o Built in C++, LEA uses the Kokkos programming model for intra-node parallelism and MPI for inter-node parallelism

o Incorporates software design principles of modularity, encapsulation, error-handling, and multi-level testing into the design

Taylor-Green Vortex center-plane slice, produced by LEA

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