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**Large Eddy Simulation of cavitating turbulent flows** SERGEI CHUMAKOV, Robert Bosch LLC, DAVID COOK, FRANK HAM, UWE IBEN — Large Eddy Simulation of a turbulent cavitating flow has been performed using the explicit spatially-filtered compressible Navier-Stokes solver Charles. The unstructured finite volume method uses a blended central-upwind scheme in single-phase regions to minimize artificial damping of resolved turbulence scales and switches to a lower-order reconstruction and an HLLC approximate Riemann solver to capture discontinuities associated with the phase change. Time discretization is performed with an explicit third order Runge Kutta scheme. Comparison between the simulations results and classic 1-D Riemann problems with and without cavitation are presented, as well as comparison with the cavitating flow experiments from the current literature.

Sergei Chumakov
Robert Bosch LLC

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