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A High-Order Hybrid Turbulence Model with Implicit Large-Eddy Simulation

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**Highlights**

- Establishes new hybrid turbulence modelling algorithm with grid and flow adaptation.
- Implements hybrid Reynolds-Averaged Navier-Stokes and Implicit Large-Eddy Simulation in Compressible high-order accurate solver.
- Maintains excellent boundary layer performance at low-Mach, high-Re conditions.
- Accurately captures mean and unsteady results around cylinder with boundary layer curvature, in the sub-critical flow regime.
- Extensive validation against experimental data, Large-Eddy Simulation and Detached-Eddy Simulation based approaches.

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