Abstract Submitted
for the DFD19 Meeting of
The American Physical Society

Hover Predictions Using a High-Order Discontinuous Galerkin Off-Body Discretization[1] KURSAT KARA, Oklahoma State University, MICHAEL BRAZELL, ANDREW KIRBY, University of Wyoming, EARL DUQUE, Intelligent Light, DIMITRI MAVRIPLIS, University of Wyoming — Hover performance of a four-bladed Sikorsky S-76 is studied using a high-order discontinuous Galerkin (DG) off-body discretization. Time accurate Navier-Stokes calculations are performed using the W^2A^2KE3D code which combines solution technologies in a multi-mesh, multi-solver paradigm through a dynamic overset framework which employs NSU3D as a near-body solver and dg4est as an off-body solver. The rotor with swept-tapered tip is simulated. The tip Mach number was 0.65, and the Reynolds number based on the reference chord was 1.2 million. A constant coning angle of 3.5is applied. Effect of time step size and sub-iterations on the integrated parameters are investigated. Convergence results are presented. The figure of merit is calculated and compared with available data in the literature, and good agreement is found.

[1]Computer time was provided by the NCAR-Wyoming Supercomputer Center (NWSC) and the University of Wyoming Advanced Research Computing Center (ARCC).

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Date submitted: 01 Aug 2019 Electronic form version 1.4