

Abstract Submitted
for the DFD09 Meeting of
The American Physical Society

Numerical Simulation of Flow Over a Savonius Wind Turbine Using a Spectral Element Method SRIHARSHA KANDALA, DIETMAR REMPFER, IIT, Chicago — A parallel spectral element code, SpecSolve, is developed with the objective of modeling flows in complex geometries. This code supports both structured and unstructured meshes and allows exact representation of boundary surfaces which are particularly useful for modeling turbo machinery flows. In this talk we present the results from 2D Navier-Stokes simulations of flow over a Savonius turbine. The simulation uses a rotating mesh in regions surrounding the blade and a stationary mesh away from the rotor. Results of a 2D Optimization study involving overlap ratio and the number of blades are also presented. These results are compared with experimental data.

Dietmar Rempfer
IIT, Chicago

Date submitted: 06 Aug 2009

Electronic form version 1.4