Abstract Submitted
for the DFD14 Meeting of
The American Physical Society

Comparison of Differences Between Model Wind Turbine Array and Porous Disk Array Boundary Layer Measurements VASANT VUPPULURI, ELIZABETH CAMP, RAÚL BAYOÁN CAL, Portland State Univ — Wind turbines are often represented in computational studies as actuator disks, also known as porous disks. A wind tunnel study is performed on a 4×3 model wind turbine array and equivalent porous disk array using Stereo Particle Image Velocimetry (SPIV) in order to compare the resulting wakes. Measurements are taken both upstream and downstream of the center turbine in the fourth row with SPIV planes both parallel and perpendicular to the rotor disk. The resulting flow fields are used to quantify the cumulative effects of the differences between the rotor and porous disk wakes.

Vasant Vuppuluri
Portland State Univ

Date submitted: 30 Jul 2014 Electronic form version 1.4