

Abstract Submitted
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Proper orthogonal decomposition of wakes within a model wind turbine array and a matched array of porous discs ELIZABETH CAMP, RAÚL BAYOÁN CAL, Portland State University — Porous actuator discs are commonly used in computational simulations to represent wind turbines. Wind tunnel data of a 4×3 model wind turbine array and an array porous discs is obtained via stereo particle image velocimetry. Snapshot Proper Orthogonal Decomposition (POD) is used to compare the characteristics of the wake of the center turbine model in the fourth row with those of a matched porous disk in the same position. In considering the near- and far-wake, an examination of the energy content of the modes, nature of the modes themselves as well as the rate of reconstruction of low dimensional representations of flow quantities is attained.

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