

Abstract Submitted
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PIV and Acoustic Investigation for a 2D Wind Turbine Airfoil¹

GUANNAN WANG, MARK GLAUSER, Syracuse University — This study investigated the aerodynamic characteristics of a 2D airfoil designed for wind turbine applications using PIV and surface pressure measurements. The experiments were carried out in a low speed wind tunnel with/without large scale unsteadiness in the flow and with/without active closed loop blowing control on the suction surface of the airfoil. This study also measured the acoustic signal emitted from the same type of airfoil with six far field microphones in an anechoic chamber and the results indicated that the unsteadiness in the freestream affected the noise characteristics of the airfoil significantly.

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