

Abstract Submitted  
for the DFD05 Meeting of  
The American Physical Society

**2D PIV of a pitching airfoil** MELISSA GREEN, Princeton University, KAMALLUDDIEN PARKER, JULIO SORIA, Laboratory for Turbulence Research in Aerospace & Combustion, Monash University — Two dimensional particle image velocimetry (PIV) experiments were performed at the midspan of a sinusoidally pitching NACA 0020 airfoil. Measurements were taken for a range of Strouhal numbers up to 0.4 and at various Reynolds numbers. In addition, the velocity field around the airfoil moving in quiescent flow was obtained. The flow is measured in a phase-averaged sense. Far field measurements of the surrounding flow field are presented in order to investigate the generation and propagation of the wake of the pitching motion. Near field measurements are also presented at the leading edge of the airfoil in order to resolve and investigate the behavior of the dynamics stall vortex and the shear layer.

Julio Soria  
Laboratory for Turbulence Research in  
Aerospace & Combustion, Monash University

Date submitted: 09 Aug 2005

Electronic form version 1.4