

Abstract Submitted
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A comparison between the growth of leading-edge and tip vortices on a low aspect ratio plate using 3D-PTV COLIN HARTLOPER, DAVID RIVAL, DAVID WOOD, University of Calgary, MATTHIAS KINZEL, California Institute of Technology — The vortex formation process on an impulsively started flat plate at 45 degree incidence is studied using both direct force measurements as well as 3D-PTV. The focus of this experiment has been to study the competing evolution of leading-edge and tip vortices for a range of start-up motions. The 3D-PTV measurement volume, located in the tip region of the plate, provides detailed insight into the roll-up of the shear layers at early stages of the motion. By quantifying the evolution of circulation at various spanwise and tip locations, we are able to relate the unsteady generation of force to the instantaneous vortex topology present around the plate.

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