Secondary Vortex Structures in Vortex Generator Induced Flow
CLARA VELTE, VALERY OKULOV, MARTIN HANSEN, DTU — Passive rectangular vane actuators can induce a longitudinal vortex that redistributes the momentum in the boundary layer to control the flow. Recent experiments [1] as well as previous studies [2] have shown that a secondary vortex of opposite sign is generated along with the primary one, supposedly from local separation of the boundary layer due to the primary vortex. 2D flow visualizations of a vortex in the vicinity of a boundary support this hypothesis [3]. These secondary vortices are studied for various configurations – single generator, counter- and co-rotating cascades. The objective is to study their removal through cancelation in cascades using Stereoscopic Particle Image Velocimetry and flow visualization.