

Abstract Submitted  
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**Flow around a rectangular forebody with modified inlet conditions** RENZO TRIP, JENS H.M. FRANSSON, KTH Mechanics — The near wake behind a rectangular forebody with a smooth leading edge and a blunt trailing edge is investigated, whereby the boundary layer over the forebody is modified by means of wall suction. The laminar boundary layer subject to wall suction yields the asymptotic suction boundary layer (ASBL), whereas an initially turbulent boundary layer will start to relaminarize for high enough wall suction. Wall suction therefore provides the possibility to perform a comprehensive parametrical study. The wake characteristics, such as the base pressure and the shedding frequency, are related to the boundary layer thickness and shape. Time resolved, with respect to the vortex shedding frequency, planar Particle Image Velocimetry (PIV) measurements are performed to gain fundamental knowledge on the role of the topology of the recirculation region in this respect. The mean flow fields do also allow for a global stability and sensitivity analysis on the vortex shedding instability.

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