

Abstract Submitted  
for the DFD11 Meeting of  
The American Physical Society

**Measurements in a bluff body wake with variable inlet condition<sup>1</sup>**

BENGT E.G. FALLENIOUS, RENZO TRIP, JENS H.M. FRANSSON, Linne Flow Centre, KTH Mechanics — The aim of this project is to experimentally study the instability of wakes behind bluff bodies from a fundamental research point of view, both for the natural case as well with various flow control methods applied. This is realized in an experimental setup specially designed to perform parameter variations, which are most often not possible in usually fixed experimental geometries. The bluff body is a so-called rectangular-based forebody with permeable surfaces on both sides, which enables modulation of the boundary layer through suction or blowing of air through the surfaces. The suction or blowing can either be uniform or local and the two sides can be modulated independently and consequently the inlet condition of the wake is altered. Investigations have been performed by means of pressure measurements, hot-wire anemometry and PIV in order to study how the wake mean flow, the vortex shedding frequency and the vortical structures are affected by the wake initial condition.

<sup>1</sup>This work was financially supported by the Swedish Research Council and the Göran Gustavsson Foundation. Travel grant by the Bengt Ingeström Foundation is also acknowledged.

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Date submitted: 11 Aug 2011

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