## Abstract Submitted for the DFD13 Meeting of The American Physical Society

Transition delay by introducing spanwise velocity gradients<sup>1</sup> B.E.G. FALLENIUS, Linné Flow Centre, KTH Mechanics, K. BARCKMANN, Center of smart interfaces, TU Darmstadt, J.H.M. FRANSSON, Linné Flow Centre, KTH Mechanics, S. GRUNDMANN, Linné Flow Centre, KTH Mechanics, Center of smart interfaces, TU Darmstadt — For stabilizing a boundary layer it has been shown both numerically and experimentally that the control idea of introducing steady spanwise velocity gradients<sup>2</sup> is far more effective than what could be foreseen. Different devices have been analyzed experimentally, which can modulate the boundary layer in a controlled way, and so far miniature vortex generators<sup>3</sup> have shown to be the most coveted for transition delay. Currently, a popular control device in the control community is the plasma actuator, which mainly has shown its potential for separation control, but lately also for transition delay. In a wind tunnel investigation at KTH, the plasma actuators have been tested in a configuration aimed at making use of above control idea and its potential for transition delay will be discussed.

Jens Fransson Linné Flow Centre, KTH Mechanics

Date submitted: 02 Aug 2013 Electronic form version 1.4

<sup>&</sup>lt;sup>1</sup>Support from the European Research Council is acknowledged.

<sup>&</sup>lt;sup>2</sup>Cossu, C., Brandt, L. Eur. J. Mech./B Fluids **23**, 815, 2004.

<sup>&</sup>lt;sup>3</sup>Shahinfar, S., Sattarzadeh, S. S., Fransson, J. H. M., Talamelli, A. *Phys. Rev. Lett.* **109**, 074501, 2012.