

NORDITA and Linné FLOW Centre Workshop on Turbulent Boundary Layers

April 29-30, 2010

ROOM FB42, AlbaNova, Stockholm (Sweden)

Programme

Thursday 29/4

Session 1 9:00-10:40 Chairman: Henrik Alfredsson

09:00-09:15 Opening. P. Henrik Alfredsson & Philipp Schlatter (KTH)

09:15-10:00 Accurately measuring and modelling near-wall turbulence. Ivan Marusic (University of Melbourne)

10:00-10:20 ICET: Coordinated measurements in high Reynolds number turbulent boundary layers from three wind tunnels. Hassan Nagib (IIT), Alexander Smits (Princeton University), Ivan Marusic (University of Melbourne), P. Henrik Alfredsson (KTH) & ICET Team

10:20-10:40 Accurate and independent measurements of wall-shear stress in turbulent flows. Jean-Daniel Rüedi (University of Bologna)

10:40-11:00 Coffee

Session 2 11:00-12:20 Chairman: Philipp Schlatter

11:00-11:20 Turbulence measurements with hot wires in high Reynolds number boundary layers. J.H.M. Fransson (KTH), N. Hutchins (Univ. Melbourne), R. Örlü (KTH), M. Chong (Univ. Melbourne) & ICET TEAM. Presented by Henrik Alfredsson

11:20-11:40 Anisotropic pressure correlation spectra in turbulent shear flow. Yoshiyuki Tsuji (Nagoya University)

11:40-12:00 Large Pipe at CICLoPE: A new facility for detailed measurements of wall-bounded turbulence. Alessandro Talamelli (University of Bologna)

12:00-12:20 DNS of shear induced drag reduction. Gary Coleman (University of Southampton)

12:20-13:30 Lunch

Session 3 13:30-15:15 Chairman: Ivan Marusic

13:30-14:15 Some effects of surface roughness on turbulent flows. Per-Åge Krogstad, (NTU, Trondheim)

14:15-14:35 Similarity structures in very rough boundary layer flows. Jonathan Morrison (Imperial College)

14:35-14:55 Large and very large scale structures in a turbulent boundary layer under a strong pressure gradient. S. Rahgozar & Y. Maciel (Laval University, Quebec)

14:55-15:15 Evolution and lifetimes of flow topology in a turbulent boundary layer Gerrit Elsinga (TU Delft) & Ivan Marusic (University of Melbourne)

15:15-15:40 Coffee

Session 4 15:40-18:20 Chairman: Carlo Casciola

15:40-16:00 Large scale accumulation patterns of inertial particles in wall-bounded turbulent flow. G. Sardina, F. Picano, C.M. Casciola (University of Rome La Sapienza), P. Schlatter, L. Brandt (KTH)

16:00-16:20 On a self-sustained process at large scale in the turbulent channel flow. Yongyun Hwang (Ecole Polytechnique) & C. Cossu (CNRS & Ecole Polytechnique)

16:20-16:40 Testing a vorticity stretching diagnostic for turbulent flows. Neil Sandham (University of Southampton) & Johan Ohlsson (KTH)

16:40-17:00 Dynamics in a turbulent three-dimensional separated diffuser flow" Johan Ohlsson, Philipp Schlatter, Dan Henningson (KTH) & Neil Sandham (University of Southampton)

17:00-17:20 New conservation laws for helical flows. Martin Oberlack (Technische Universität Darmstadt)

17:20-17:40 Assessment of DNS data for turbulent boundary layers Philipp Schlatter & Ramis Örlü (KTH)

17:40-18:00 Skin friction and heat transfer increase due to free-stream turbulence. Qiang Li, Philipp Schlatter & Dan Henningson (KTH)

18:00-18:20 Transitional and turbulent boundary layer with heat transfer; Establishing the generality of three phenomena using a boundary layer with passing wakes. Xiaohua Wu (Royal Military College of Canada) & Parviz Moin (Stanford University)

19:00 Workshop dinner at AlbaNova restaurant

Friday 30/4

Session 5 9:15-10:40 Chairman: Hassan Nagib

09:15-10:00 Vortex reconnection. Katepalli Raju Sreenivasan (New York University)

10:00-10:20 Effect of intermittency on the outer region of boundary layers.
J. Jimenez, S. Hoyas, M.P. Simens, and Y. Mizuno (University Madrid)

10:20-10:40 Correlation between small scale velocity and scalar fields in a turbulent channel flow H. Abe (JAXA), R. A. Antonia (University of Newcastle) & H. Kawamura (Tokyo University of Science)

10:40-11:00 Coffee

Session 6 11:00-12:20 Chairman: Yvan Maciel

11:00-11:20 Direct numerical simulation of the turbulent boundary layer over a cube-roughened wall. Hyung Jin Sung (KAIST Seoul)

11:20-11:40 Linear non-normal energy amplification of harmonic and stochastic forcing in the turbulent channel flow. C. Cossu (CNRS & Ecole Polytechnique) & Yongyun Hwang (Ecole Polytechnique)

11:40-12:00 Critical modes in turbulent pipe flow. Beverly McKeon, Jean-Loup Bourguignon, (California Institute of Technology) & Ati Sharma (Imperial College)

12:00-12:20 Skin friction measurements using towing tank facilities. Masaharu Matsubara (Shinshu University, Nagano)

12:20-13:30 Lunch

Session 7 13:30-15:00 Chairman: Dan Henningson

13:30-14:15 Coherent structures – fine scale turbulence interaction. Fazle Hussain (Univ. of Houston)

14:15-14:35 Direct Numerical Simulations of flame propagation in turbulent boundary layers. Andrea Gruber (SINTEF Energy Research, Trondheim)

14:35-14:55 **VisIt**: a visualization tool for large turbulence simulations. Hank Childs (Lawrence Livermore National Laboratory)

14:55-15:00 Summing up and closure. Henrik Alfredsson & Philipp Schlatter

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