



## NORDITA-FLOW Spring School on Turbulent Boundary Layers

April 6-9, 2010

NORDITA

Linné FLOW Centre, KTH Mechanics

KTH Royal Institute of Technology  
Stockholm, Sweden



<http://www.flow.kth.se/graduateschool>

### Scope:

Turbulent boundary layers, appearing on solid surfaces of bodies submerged in fluids are among the canonical, wall-bounded, turbulent flows together with channel and pipe flows that have been the focus of experimental and analytical investigations for almost a century. The relevance of a thorough theoretical and practical understanding cannot be overestimated for industrial application in engineering and aeronautical application.

Still there are several unresolved issues even related to fairly basic mechanisms, such as the variation of turbulent stresses with Reynolds number, scaling of spectra, the differences (if any) between confined flows (channel and pipe) and open boundary layer flows, the interaction between outer and inner region, the properties of small-scale turbulence near the dissipation range etc. Recent accurate experimental studies, but also direct numerical simulations (DNS) together with innovative theoretical studies have made it possible to further penetrate the details of such flows.

At NORDITA, during April 2010 a research programme is held with about 40 international researchers to discuss and analyze recent progress; this school will be held during the first week of the NORDITA programme.

More Information: <http://agenda.albanova.se/conferenceDisplay.py?confId=573>

### Invited lecturers:

**Hiroyuki Abe,**  
JAXA Japan Aerospace  
Exploration Agency, Japan

**Gary Coleman,**  
University of Southampton, UK

**Beverly McKeon,** California  
Institute of Technology, USA

**Jonathan Morrison,**  
Imperial College London, UK

**Henrik Alfredsson,**  
KTH Stockholm, Sweden

**Geert Brethouwer,**  
KTH Stockholm, Sweden

**Hassan Nagib,**  
Illinois Institute of Technology,  
Chicago, USA

**Neil Sandham,**  
University of Southampton, UK

**Zhen-Su She,**  
Peking University, China

**Alessandro Talamelli,**  
University of Bologna, Italy

**Philipp Schlatter,**  
KTH Stockholm Sweden

### Topics:

The spring school is intended to give the students an overview of the main topics, including the latest research status in the following topics:

- Introduction to turbulent boundary layers
- Pressure gradient boundary layers
- Atmospheric boundary layers
- Rough boundary layers
- Compressible boundary layers
- Issues in Experiments
- Issues in direct numerical simulations (DNS)
- Modelling and large-eddy simulation (LES)
- Passive scalars
- Scaling and statistical dynamics of structures

### Location and outline:

Lectures will be given April 6 to 9, 2010 at Albanova, about 10 minutes from the KTH main campus, located close to the city centre of Stockholm, Sweden. A project will be performed by pairs of student and sent electronically to the school organisers for the final evaluation.

### Registration:

The course is free of charge, and includes lunches and accommodation (youth-hostel style). Travel is however not supported by FLOW. Interested PhD students are invited to contact Philipp Schlatter, [pschlatt@mech.kth.se](mailto:pschlatt@mech.kth.se). For further information please visit the homepage of the Linné FLOW Centre (<http://www.flow.kth.se>). The number of participants is limited to 50 students.

### Contact and organiser:

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