

## 5th ERCOFTAC SIG 33 workshop

# Laminar-Turbulent Transition Mechanisms, Prediction and Control

Nässlingen, Stockholm, Sweden

### 2006-05-31

17:15 **Boat from Åsättra brygga to Nässlingen**

18:00 **Welcome**

**Session 1, Chairman : Stefan Hein**

18:10 Tom Mullin **The transition to and from turbulence in a pipe**  
T. Mullin

18:40 Per-Olov Åsén **Direct numerical simulation of pipe flow**  
P.-O. Åsén

19:00 **Dinner**

### 2006-06-01

**Session 2, Chairman: Tom Mullin**

09:00 Ulrich Rist **Active control of laminar-turbulent transition using instantaneous wall vorticity**  
U. Rist & C. Gmelin

09:30 Jérôme Hœpffner **Control and estimation using stochastic methods**  
J. Hœpffner & D.S. Henningson

10:00 Mattias Chevalier **Feedback control in spatially growing boundary layers**  
M.P. Chevalier, J. Hœpffner, E. Åkervik & D.S. Henningson

10:30 **Coffee break**

**Session 3, Chairman: Ulrich Rist**

11:00 Philipp Schlatter **Steady solution of the Navier-Stokes equations by selective frequency damping**  
E. Åkervik, L. Brandt, D.S. Henningson, J. Hœpffner, O. Marxen & Ph. Schlatter

11:30 Olaf Marxen **Steady-State laminar separation bubbles and their global instability**  
O. Marxen & D.S. Henningson

12:00 Espen Åkervik **Control of cavity-driven separated boundary layer**  
E. Åkervik, J. Hœpffner, U. Ehrenstein & D.S. Henningson

12:30 **Lunch**

**Session 4, Chairman: Carlo Cossu**

14:00 Luca Brandt **Late stages of transition in flat-plate boundary layers**  
L. Brandt

14:30 Valery Chernoray **Visualization of sinusoidal and varicose instabilities of streaks in a boundary layer**  
V.G. Chernoray, V.V. Kozlov & L. Löfdahl

15:00	H.C. de Lange	<b>Transient growth induced breakdown and 'direct' breakdown</b> J. Mans, H.C. de Lange & A.A. van Steenhoven
15:30	<b>Coffee break</b>	
	<b>Session 5, Chairman: Grégoire Casalis</b>	
16:00	Michael Thomas	<b>Secondary instability on streaks in an asymptotic suction boundary layer</b> M.K. Thomas & J.H.M. Fransson
16:20	Carlo Cossu	<b>Delaying transition to turbulence by a passive mechanism</b> J.H.M. Fransson, A. Talamelli, L. Brandt & C. Cossu
16:50	Martin Byström	<b>Optimal disturbances in the Falkner-Skan-Cooke boundary layers</b> M. Byström, A. Hanifi & D.S. Henningson
17:10	Carl-Gustav Unckel	<b>Nonlinear PSE analysis of control of cross-flow disturbances in supersonic boundary layers by means of micron-sized roughness elements</b> C.-G. Unckel, A. Hanifi & D.S. Henningson
19:30	<b>Dinner</b>	
<b>2006-06-02</b>		
	<b>Session 6, Chairman: H.C. de Lange</b>	
9:00	Carlo Cossu	<b>Secondary optimal growth in channel flow</b> C. Cossu, M.P. Chevalier & D.S. Henningson
9:30	Stefan Hein	<b>High-frequency secondary instability modeled by nonlinear PSE</b> S. Hein
10:00	Shervin Bagheri	<b>Nonlinear PSE simulations of the development of TS waves in the presence of optimal streaks</b> S. Bagheri & A. Hanifi
10:30	<b>Coffee break</b>	
	<b>Session 7, Chairman: Luca Brandt</b>	
11:00	Grégoire Casalis	<b>Use of the PSE approach for the inviscid jet flow instability and noise prediction. Comparison with Linearized Euler Equations predictions</b> E. Piot & G. Casalis
11:30	Gunilla Efrainsson	<b>Sound prediction in conjuncture with flow control</b> A. Kierkegaard & G. Efrainsson
12:00	<b>Lunch</b>	
13:30	<b>Departure</b>	