

Jérôme Høepffner

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Born 21/09/1978.

Single.

Education:

2001- : PhD at the department of mechanics, KTH, Stockholm/Sweden. Supervisor: Dan Henningson. Defense scheduled for june 2006.

1995-2000: DEUG, license et maîtrise de mécanique à l'université Paul Sabatier (UPS), Toulouse, France. Master project on vibrating strings with Prof. Alessandro Bottaro.

Languages:

French: mother tongue.

English: good level, written and oral.

Swedish: good level, written and oral.

Japanese: basic level.

Research interests:

Study of hydrodynamic instabilities and their control. Competence in optimal control theory, dynamic and stochastic systems.

Direct numerical simulation (DNS) of incompressible shear flows, such as channel flow and boundary layer.

Key words:

- Flow control and estimation.
- Secondary instability and transient growth.
- Transition to turbulence.
- Dynamic systems with stochastic inputs.
- Numerical simulations and optimization.

Teaching:

Teaching assistant in first year mechanics course at KTH (in Swedish).

Experience:

Research visit:

Four month stay at UCSB (University of California San Diego) for a cooperation with Pr. Thomas Bewley during fall 2002. Research project on laminar and turbulent flow estimation in channel flow.

Two weeks stay at the lab J.A. Dieudonné, Nice/France, for a cooperation with Uwe Ehrenstein and Francois Gallaire. Work on the global modes in separated boundary layer.

Referee:

Chairman of the session “linear and bilinear matrix inequalities” of the joint European Control Conference (ECC) and Conference on Decision and Control (CDC) 2005. Séville december 2005. Referee for two articles of this conference.

Computer:

Used to operating systems *Linux*, *Windows* and *MacOS*. Coding in *Matlab* and *Fortran* for scientific computing, *HTML*, *ASP* and *PHP* for internet interfaces.

Webmaster of the department of mechanics, KTH. Developed database based dynamic functionality of the web page, with possibility for the employees to alter personal information (articles, seminars...). See www.mech.kth.se.

Publications:

The preprints can be downloaded from my home page in .pdf format.

In journals:

➡ “Transient growth on boundary layer streaks”
J. Hœpffner, L. Brandt. 2004.
J. Fluid Mech., 2005, vol 537, p91-100.

➡ “State estimation in wall-bounded flow systems. Part II. Turbulent flows”
J. Hœpffner, M. Chevalier, T. Bewley, D. Henningson. 2004.
J. Fluid Mech., to appear.

➡ “State estimation in wall-bounded flow systems. Part I. Perturbed laminar flows”
M. Chevalier, J. Hœpffner, T. Bewley, D. Henningson. 2005.
J. Fluid Mech. 2005, Vol 534, p 263-294.

Refereed conference proceedings:

➡ “Modeling flow statistics using convex optimization”
J. Hœpffner. 2005
Proceedings of the joint 44th IEEE conference in decision and control (CDC) and European control conference (ECC).

➡ “Linear feedback control of transition in shear flows”. 2004.
J. Hœpffner, M. Chevalier, T. Bewley, D. Henningson.
Proceeding of the IUTAM 2004 conference.

Licentiate thesis:

➡ “Control and estimation of wall-bounded flow systems” 2004.
Half-way to Swedish doctoral degree. Included two reports on model reduction and impulse response formulation for feedback control in channel flow.

Conferences and talks:

Several presentations of my research results. Here is a selection. The complete list, as well as overheads in .pdf format can be found on my home page.

➡ September 2005
“Global flow instability and control”, *Crete, greece*.

➡ Novembre 2005
APS, division of fluid dynamics,
Chicago.

➡ December 2005
“Conference on decision and control (CDC)/European control conference (ECC)”,
Séville, Spain.

➡ summer 2005
In the french labs:
PMMH, LIMSI, LMM, (Paris), LML(Lille), laboratoire J.A. Dieudonné (Nice), IMFT(Toulouse)

➡ December 2004
“Linear feedback control of transition in shear flows”
IUTAM 2004 conference, in
Bangalore/India.

➡ March 2004
“Turbulent channel flow estimation”
THTLAB, Tokyo university, Tokyo/Japan.

➡ November 2003
“State estimation in wall-bounded flow systems” APS 2003 conference, New Jersey, USA.

➡ August 2003
“Estimation of wall-bounded shear flows”
Conference "Svenska mekanik dagar" (The Swedish mechanics days) SMD
2003, Gothenburg, Sweden.

➡ May 2003
“Linear feedback control and estimation in wall bounded shear flows”
LadHyX, Ecole Polytechnique, Paris, France.

➡December 2002

"Optimal Flow Estimation"

Presentation to the "dynamic and system control group" of our results at UCSD.

Dept of MAE, UCSD, california, USA.

Other:

Aikido, sailing.