

## Curriculum vitae for LUCA BRANDT

**Date of birth:** September 4, 1971

**Nationality:** Italian

**Business address:** Linné FLOW Centre, SeRC, KTH Mechanics, 100 44 Stockholm, Sweden

**Email:** luca@mech.kth.se

**Research area:** Fluid dynamics. Hydrodynamics stability and flow control. Numerical simulations. Bio and complex fluids.

### Academic Career

2012-	<b>Professor in Fluid Mechanics,</b> Royal Institute of Technology, (KTH), Stockholm, Sweden
2009-2012	Associate Professor in Fluid Mechanics, KTH Mechanics, Stockholm
2008-2014	Senior researcher of Swedish Research Council, KTH Mechanics
2004-2008	Research Associate at KTH Mechanics
2005	“Chargé de Recherche” CNRS, Ecole Polytechnique, France (3 months)

### Education

2008	<b>Docent</b> in Fluid Mechanics, KTH Mechanics, Stockholm
2003	<b>PhD</b> in Fluid Mechanics, KTH Mechanics, Stockholm. Numerical studies of bypass transition in the Blasius boundary layer. Supervisor: Prof. D. S. Henningson
1997	Master degree in Mechanical Engineering, University of Rome “La Sapienza”, Italy. Grade: 110/110 with honors

### Positions held

2014	Member of the management group of the EU Cost Action: Flowing Matter
2013-2018	Member of the European Fluid Mechanics Conference Committee (EFMCC), managed by Euromech
2013-	Deputy head of Department of Mechanics, KTH
2013-	Member of the Editorial Board of <i>Theoretical and Applied Mechanics Letters</i>
2012-2014	Director of studies for Fluid Mechanics courses at KTH
2011-	Member of the management group of KTH Mechanics
2008-	Director of studies Linné FLOW Centre graduate school
2006-2009	Member of Management Group of Linné FLOW Centre at KTH
2003-04	Responsible for the course of Computational Fluid Mechanics, II Faculty of Engineering, University of Bologna, Italy.

## Publications

69 Journal papers (3 in *Physical Review Letters*, 26 in *Journal of Fluid Mechanics*, 15 in *Physics of Fluids*, 1 *Journal Royal Society Interface*, 4 *Physical Review E*, 6 invited papers after conference presentations)

38 Refereed Conference Proceedings

2 Review papers in 2013 +1 invited

### Bibliometry:

<u>Google scholar</u>	Citations:	1852	1446 (since 2009)
	h-index	24	23 (since 2009)
	i10-index	36	34 (since 2009)

## Supervision

### Main advisor of PhD students:

L.-U. Schrader	April 2006-November 2010
J. Klinkenberg	June 2009-November 2013 (Double Degree with TU/Eindhoven)
Lailai Zhu	September 2009-March 2014
Iman Lashgari	April 2011-
Caj-Juan Zhan	October 2011- (Scholarship from Chinese Science Council)
Walter Fornari	August 2013-
Mehdi Ardekani	October 2014-

### Post-doc:

R. Lambert	January 2011-December 2012
G. Sardina,	February 2011- September 2013
F. Picano	September 2011-September 2013
L. Biancofiore	September 2012-September 2013
C. Rorai	August 2013-
A. Samanta	April 2014-

### Co-advisor of PhD students:

E. Akervik	From January 2006, Graduated December 2008
S. Bagheri	From October 2007, Graduated February 2010
A. Monokrousos	February 2007-June 2012
O. Semeraro	October 2008-February 2013
A. Noorani	February 2011-

Advisor for the Diploma Thesis works at KTH Mechanics of more than 20 students; among them, 9 continued as PhD students at different institutions worldwide.  
Supervisor for best performed diploma work Award 2010, Bo Rydin's Foundation, Göteborg.

### Prizes and awards

- 2013                    **ERC Consolidator Grant** TRITOS, from April 2014
- 2009                    Ranked second for Chair of Applied Mechanics, University of Uppsala.
- 2008                    Awarded the **Senior Researcher Position** (Rådsforskartjänt) from the Swedish Research Council (VR) in Mechanics.  
It was the first time a position in Applied Mechanics was announced in Sweden. This implies full financial support for six year.
- 2007                    Presentation at the 5th Turbulent and Shear Flow Phenomena Symposium, Munich, selected as invited paper in special issue of the International Journal of Heat and Fluid Flow
- 2006                    Awarded the Göran Gustafsson Fellowship for young researchers
- 2004                    Winner of the competition for a permanent position as Ricercatore (Assistant Professor) at the University of Bologna, Italy
- 2001                    Awarded EGIDE fellowship as visiting researcher at Laboratoire d'Hydrodynamique, Ecole Polytechnique, France.(six months)

### Research Grants

- 2013                    **ERC Consolidator Grant, TRITOS, 2000K€**
- 2012                    Granted one research project by the Swedish Research Council (VR).  
110K€ per year for 4 years. **“Instability and sensitivity in non-Newtonian fluids.”**
- 2012                    Göran Gustafsson postdoc fellowship (KTH-Uppsala for Physics-Mathematics-Mechanics) to Luca Biancofiore
- 2011                    FLOW postdoc fellowship to Ruth Lambert
- 2009                    **Special Researcher Position (Rådsforskartjänt) from the Swedish Research Council.**  
**120 K€ per 6 years. First ever position in Mechanics announced in Sweden.**
- 2008                    Granted continuation of research project from the Swedish Research Council, VR.  
90 K€ per year for 3 years from 2009. “Receptivity of 3D boundary layers”
- 2006                    Granted one research project from the Swedish Research Council, VR.  
70K€ per year for 3 years from 2007. “Receptivity of 3D boundary layers”
- 2006                    Göran Gustafsson Fellowship for young researchers, 22k€
- 2005-11                Granted one research project from The European Office of Aerospace Research and Development (EOARD), with Prof. D. Henningson. (20000 US Dollars per year)
- 2007                    Application for a Graduate School connected to the Linné FLOW Centre. 160 K€ per year for 5 years from the Swedish Research Council, VR. Principal investigator:

KTH President, co-applicants Profs Alfredsson and Henningson and Docent L. Brandt and J. Fransson.

- 2010 Principal Investigator of DEISA (Distributed European Infrastructure for Supercomputing Applications) application WALLPART for large scale computations of particle dispersion in wall turbulence. Application awarded 2000000 CPU hours.  
Partners: University of Rome, Prof. Casciola and Technical University Eindhoven, Profs. Kuerten and Toschi.
- 2011 Co-PI DEISA application TRANSPARENT: awarded 4200000 PRACE core hours  
PI: Prof de Lange TU/Eindhoven

### Other activities and merits

**Referee** for major international journals: *Physical Review Letters*, *Journal of Fluid Mechanics*, *Physics of Fluids*, *Physical Review E*, *European Journal of Mechanics/B Fluids*, *Europhysics Letters*, *Experiments in Fluids*, *International Journal of Heat and Fluid Flow*.

**Evaluation** of application for research funding from *Foundation for Fundamental Research on Matter* (FOM), the Netherlands, the *Swiss National Science Foundation*.

**Member** of panel for projects in Mathematics, Physical Science and Technology (FRINATEK), of the Research Council of Norway.

**External examiner of PhD thesis** : Loiseau. Paris VI (2014), D.Linh University of Singapore (2012). M. Mazzuoli University of Genova (2012), M. Carini, University of Milan (2013)

**Member of grading committee PhD Defense** of I. Yildirim, Tu/ Eindhoven, The Netherlands (2011), L. Burini, Imperial College London, in addition to P. Ek and Carlborg at KTH Stockholm and P. Evergren and M. Asur, University of Lund.

Organization of

1. International workshop: **Active Fluids: New Challenges from Experiments to High-Performance Computing**, Mariehamn, May 2014. Sponsored by CECAM and SeRC.

1. **International summer school** in Numerical Methods for Multiphase Flows.

With Dr. Schlatter and KCSE (KTH Centre for Computational Science and Engineering) and the SeRC (Swedish e-Science Research Centre), held on September 3-7, 2012, at KTH.

2. International **FLOW-ERCOFTAC Summer school** in Flow Control and Optimization, held at KTH, Stockholm, June 29 to July 3, 2009

3. International summer school on **Advanced Instability Methods for Complex Flows**, May 2013, Stockholm.

Selected by KTH dean to participate to the course “Tomorrow's academic leadership”, organized by KTH and Karolinska Institutet with participants from the major universities in the Stockholm's area (2011).

Member of the Local Organising Committee of the Seventh IUTAM Symposium on Laminar-Turbulent Transition held at KTH in 2009.

Responsible for Cooperation Agreement between KTH and Technical University in Eindhoven, The Netherlands, for Double PhD Degree. Signed by KTH President, Prof. A. Flodström in 2007.

### Invited presentations

- 2014 Invited speaker: 11<sup>th</sup> International Conference on Flow Dynamics, Sendai, Japan
- 2012 Keynote speaker, Particles in complex flows 2012. 25-29 June 2012, University of Reykjavik, Iceland
- 2011 Invited lecture, 9th ERCOFTAC SIG33, Progress in Transition Modelling and Control, Toledo, Spain
- 2009 Invited speaker at EPSRC Symposium Workshop on Computational Fluid Dynamics, University of Warwick, UK.
- 2009 Plenary lecture at 22nd Nordic Seminars Computational Mechanics, Aalborg, Denmark
- 2013 Lecturer at FLOW-NORDITA Summerschool in Advanced Instability Methods for Complex Flows, Stockholm
- 2009 Lecturer at FLOW-ERCOFTAC Summerschool in Flow Control and Optimization, KTH, Stockholm
- 2010 Student luncheon at APS DFD conference, Long Beach, California. Meeting with undergraduate students to discuss research and academic career.

Research results on transition delay by passive mechanisms presented during prime-time news on Swedish national television and reviewed in Nature. In addition, coverage was given by Scientific American Sciences et Avenir, Science & Vie (France) and La Stampa (Italy).

*About 10 active ongoing collaborations with researchers in Europe, USA, Japan and India.*

*Responsible for 2 courses in Fluid Mechanics at KTH*