Julien Salort

Laboratoire de physique / ENS Lyon
46 allée d'Italie
69364 Lyon cedex 7

E-mail: julien.salort@ens-lyon.fr
Phone: +33 (0) 4 72 72 86 91

Birth date: March, 3rd 1984

Current position : **CNRS Researcher** at *Laboratoire de Physique of ENS Lyon*

Research activity

Sept. 2011 – Aug. 2014	**Post-doctoral fellow** at *Laboratoire de Physique of ENS Lyon* in the team led by Francesca Chillà and Bernard Castaing on turbulent thermal convection.
Sept. 2008 – Aug. 2011	**Ph.D. student** in *Institut Néel, CNRS* in Grenoble supervised by Philippe-E. Roche and Bernard Hébral. Title : Quantum *versus* classical turbulence. Defended on November 16th, 2011.
April – Aug. 2008	**Master Internship** at *Institut Néel, CNRS* in Grenoble supervised by Philippe-E. Roche. Topic: High-Rayleigh number thermal convection in cryogenic helium.
May – July 2006	**Master Internship** at *Georg-August Universität* in Göttingen (Germany) supervised by Andreas Tilgner. Topic: Low frequency oscillation in a cubic Rayleigh-Bénard cell.
June – July 2005	**Bachelor Internship** at *Carl von Ossietzky Universität* in Oldenburg (Germany) supervised by Joachim Peinke. Topic: Laser-Cantilever-Anemometry in a turbulent water jet.

University Teachings

Sept. 2011 – Aug. 2014 **Lecturer** at École Normale Supérieure de Lyon (140 hrs/year)

- Practicals, Tutorials and Training of future teachers (training of students who prepare the "Agregation" teaching competitive exam).
- Practicals for bachelor students
- Member of the jury for bachelor and master internships

Sept. 2008 – Aug. 2011 **Lecturer** at Joseph Fourier University in Grenoble (64 hrs/year)

- Lectures, Tutorials and Practicals for first year university students ("Conservation laws and fluids")
- C++ Practicals for third year university students
- Lecture and Practicals on Cryogeny for final year professional bachelors in Savoie University

Sept. 2007 – May 2008 **Tutor** of students training for the practicals of the "Agregation" competitive exam

Academic background

Sept. 2008 – Août 2011	**Ph.D.** at Grenoble University. Defended November 16th 2011.
2007 – 2008	**Master degree** of Sciences at ENS Lyon with very high honnors. Rank : 3rd.
2006 – 2007	Successful candidate of the "Agregation" national teaching competitive exam with major in physics. Rank: 50th.
2005 – 2006	**Master Part 1** of Sciences at ENS Lyon with very high honnors.
2004 – 2005	**Bachelor** of Sciences at ENS Lyon with very high honnors
2002 – 2004	Preparatory classes (PCSI and PC*) in Lycée Thiers, Marseille (France) University level preparation for the competitive entrance exams to French engineering/research schools. Admitted in École Normale Supérieure of Lyon.

Research papers

- **Inhomogeneity and Lagrangian unsteadiness in turbulent thermal convection**, O. Liot, A. Gay, J. Salort, M. Bourgoin and F. Chillà, *Phys. Rev. Fluids*, **1**:064406 (2016)
- **Simultaneous temperature and velocity Lagrangian measurements in turbulent thermal convection**, O. Liot, F. Seychelles, F. Zonta, S. Chibbaro, T. Coudarchet, Y. Gasteuil, J.-F. Pinton, J. Salort and F. Chillà, *J. Fluid Mech.*, **794**:655 (2016)
- **Boundary layer structure in a rough Rayleigh-Bénard cell filled with air**, O. Liot, J. Salort, R. Kaiser, R. du Puits and F. Chillà, *J. Fluid Mech.*, **786**:275 (2016)
- **Probing quantum and classical turbulence analogy through global bifurcations in a von Kármán liquid Helium experiment**, B. Saint-Michel, E. Herbert, J. Salort, C. Baudet, M. Bon Mardion, P. Bonnay, M. Bourgoin, B. Castaing, L. Chevillard, F. Daviaud, P. Diribarne, B. Dubrulle, Y. Gagne, M. Gibert, A. Girard, B. Hébral, Th. Lehner, B. Rousset, *Phys. Fluids*, **26**:125109 (2014)
- **Superfluid High REynolds von Kármán experiment (SHREK)**, B. Rousset, P. Bonnay, P. Diribarne, A. Girard, J.-M. Poncet, E. Herbert, J. Salort, C. Baudet, B. Castaing, L. Chevillard, F. Daviaud, B. Dubrulle, Y. Gagne, M. Gibert, B. Hébral, Th. Lehner, P.-E. Roche, B. Saint-Michel and M. Bon-Mardion, *Rev. Sci. Instrum.*, **85**:103908 (2014)
- **Thermal boundary layer near roughnesses in turbulent Rayleigh-Bénard convection: flow structure and multistability**, J. Salort, O. Liot, E. Rusaouen, F. Seychelles, J.-C. Tisserand, M. Creyssels, B. Castaing and F. Chillà, *Phys. Fluids*, **26** (2014), 015112
- **Laminar and Intermittent flow in a tilted heat pipe**, E. Rusaouen, X. Riedinger, J.-C. Tisserand, F. Seychelles, J. Salort, B. Castaing and F. Chillà, *Eur. Phys. J. E*, **37**:4 (2014)
- **Turbulent velocity profiles in a tilted heat pipe**, J. Salort, X. Riedinger, E. Rusaouen, J.-C. Tisserand, F. Seychelles, B. Castaing and F. Chillà, *Phys. Fluids*, **25** (2013), 105110
- **Cantilever Anemometer Based on a Superconducting Micro-resonator: Application to Superfluid Turbulence**, J. Salort, A. Monfardini and P.-E. Roche, *Rev. Sci. Instrum.*, **82** (2012), 125002
- **Energy cascade and the four-fifths law in superfluid turbulence**, J. Salort, B. Chabaud, E. Lévêque, P.-E. Roche, *Europhys. Lett.*, **97** (2012), 34006
- **Mesoscale equipartition of kinetic energy in quantum turbulence**, J. Salort, P.-E. Roche, E. Lévêque, *Europhys. Lett.*, **94** (2011), 24001
- **Turbulent velocity spectra in superfluid flows**, J. Salort, C. Baudet, B. Castaing, B. Chabaud, F. Daviaud, T. Didelot, P. Diribarne, B. Dubrulle, Y. Gagne, F. Gauthier, A. Girard, B. Hébral, B. Rousset, P. Thibault, P.-E. Roche, *Phys. Fluids*, **22** (2010), 125102
- **On the triggering of the Ultimate Regime of convection**, P.-E. Roche, F. Gauthier, R. Kaiser and J. Salort, *New J. Phys.*, **12** (2010), 085014
- **Transition of local temperature fluctuations in highly turbulent convection**, F. Gauthier, J. Salort, O. Bourgeois, J.-L. Garden, R. du Puits, A. Thess and P.-E. Roche, *Europhys. Lett.*, **87** (2009), 44006

Conference proceedings

- **Cross-ventilation measurements in Buildings: small and full scales experimental models**, J. Salort, H. Pabiou, F. Chillà and C. Ménézo, 2014, *15th International Heat Transfer Conference*
- **Micro-Cantilever Anemometer for Cryogenic Helium**, J. Salort, A. Monfardini, P.-E. Roche, 2011, *13th European Turbulence Conference*, `hal-00640527`
- **Investigation of intermittency in superfluid turbulence**, J. Salort, B. Chabaud, E. Lévêque, P.-E. Roche, 2011, *13th European Turbulence Conference*, `hal-00640529`
- **The ultimate regime of convection over uneven plates**, R. Kaiser, J. Salort, P.-E. Roche, 2011, *13th European Turbulence Conference*, `hal-00640532`
- **Kolmogorov cascade and equipartition of kinetic energy in numerical simulation of Superfluid turbulence**, J. Salort, E. Lévêque, P.-E. Roche, 2011, *13th European Turbulence Conference*, `hal-00640533`

- **Vorticity scattering measurements in a superfluid inertial round jet**, D. Durì, J. Salort, P. Diribarne, P.-E. Roche, C. Baudet, 2011, *13th European Turbulence Conference*, `hal-00640535`
- **TSF Experiment for comparison of high Reynolds number turbulence in He I and He II: first results**, P. Diribarne, J. Salort, C. Baudet, B. Belier, B. Castaing, L. Chevillard, F. Daviaud, S. David, B. Dubrulle, Y. Gagne, A. Girard, B. Rousset, P. Tabeling, P. Thibault, H. Willaime, P.-E. Roche, 2009, *12th European Turbulence Conference*, `hal-00430197`
- **Convection at very high Rayleigh number: signature of transition from a micro-thermometer inside the flow**, J. Salort, F. Gauthier, B. Chabaud, O. Bourgeois, J.-L. Garden, R. du Puits, A. Thess, P.-E. Roche, 2009, *12th European Turbulence Conference*, `hal-00430188`

Public outreach

2011	Participant in a university workshop on "scientific journalism"
2008 – 2011	Presenter at three **Science Festivals** Presentation of experiments in glass cryostat on helium superfluidity aimed at secondary schools and broader audience.

Experimental & technical skills

Micromachining	Experience of **clean rooms** (Mimento/Femto-ST, PTA/Minatec and Nanofab/CNRS): photolithography, plasma etching (RIE et DRIE), thin layer deposition (evaporation or sputtering), electron microscope, bounding
Cryogeny and vacuum	Experience of cryostats with pumped liquid helium bath (temperatures down to 1 K) and vacuum systems (turbomolecular pump, diffusion pump, Roots pump) and traditional low temperature techniques (thermometry,…)
Data acquisition	**Low-noise Fast measurement techniques** with low electrical current. Microwave techniques (up to 10 GHz).
Visualization	Velocity measurements with **Particle Image Velocimetry** and Temperature measurements with **Synthetic Schlieren**.
Computers	Good knowledge of widely used programming and typesetting languages (C, C++, Objective-C, Matlab, LaTeX and (x)HTML).

Other skills

Languages	**French**. Native language. **English**. CLES Level 2 (*University level certificate*) Basic **German**
Life in the lab	**Elected member of the laboraty counsil** during the Ph.D. at Institut Néel Participation in the laboratory general assembly. Meeting with the AERES committee and with the elected representative of CNRS technical personnels. **Deputy representative** of post-doctoral fellows in the Physics Lab laboratory council in Lyon.
First-aid certificate	**PSC1** certificate (*Compétences de citoyen de sécurité civile - Prévention et secours civiques de niveau 1*)
Driving license	B category