

Brice Saint-Michel - Postdoctoral Researcher

Born on the 28th of December, 1987 (33 years) - French Driving License

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Experimental postdoc with 10 years of experience in fluid dynamics and rheology of gels, yield-stress fluids and concentrated suspensions and a focus on local flow imaging (ultrasound, X-radiography, ...)

Employment

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| | Postdoctoral position at Imperial College London and TU Delft (Depts. Chemical Engineering). High-frequency extensional rheology of soft materials using ultrasound-driven bubbles. |
| 2018 - 2021 | <ul style="list-style-type: none">- Supervision of 5 BSc & 1 MSc students (5 experimental, 1 numerical)- Teaching Assistant for Molecular Transport Phenomena, BSc Level, Q1 2020-2021 (30 h)- Reviewer for <i>Rheologica Acta</i>, <i>Soft Matter</i> and <i>Physics of Fluids</i> (2020, 3 articles) > Valeria Garbin - v.garbin@tudelft.nl |
| 2015 - 2018 | Postdoctoral position at <i>Laboratoire de Physique</i> of Ens de Lyon, in collaboration with Solvay. Local rheology of complex fluids and soft materials using ultrasound echography. <ul style="list-style-type: none">- Deputy member of the lab council (1 year)- Demonstrator for the <i>Fête de la Science</i> (1 week, 2015 & 2017) > Sébastien Manneville, Thomas Gibaud - sebastien.manneville@ens-lyon.fr |
| 2013 - 2014 | Postdoctoral position at IRPHÉ (U. Aix-Marseille). Directional freezing of quasi-colloidal suspensions within ERC FreeCo (S. Deville, CNRS - Saint-Gobain Research Provence). > Alain Pocheau, Sylvain Deville - alain.pocheau@univ-amu.fr |
| 2010 - 2013 | Doctoral position at <i>Service de Physique de l'État Condensé</i> (CEA Saclay). Study of the unsteady regimes and statistical properties of the von Karman turbulent swirling flow in water. > François Daviaud, Bérengère Dubrulle - francois.daviaud@cea.fr |

Education

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| 2009 - 2010 | 2 nd year of MSc from <i>École Supérieure de Physique et de Chimie Industrielles de la Ville de Paris</i> (ESPCI Paris). Joint diploma with U. Pierre et Marie Curie on the Physics of Complex Systems. Awarded with honours. |
| 2006 - 2009 | 1 st to 3 rd year at ESPCI Paris. Major in Physics. Optional courses on Programming. |

Skills

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| Languages | English, French : Fluent, both written and oral German, Dutch : Beginner level |
| Computer | Proficient : LaTeX, MATLAB Fair knowledge : Scientific Python (numPy, JuPyter), Wordpress, LabVIEW, ImageJ Basic level : C/C++, Fortran, Maple, HTML/CSS, CUDA, Inventor/AutoCAD/Solidworks |
| Experimental | Excellent experience (5+ years) in rheometry and flow imaging (PIV, ultrasound echography, particle tracking, ...). Good knowledge of confocal microscopy and fluid formulation. |

Hobbies

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| Sports | Badminton (pre-Covid), Running (10 k, half-marathon), Road Cycling |
| Other | Digital Photography, Piano |

Publications (in peer-reviewed academic journals)

2020

- 22/ Acoustic Bubble Dynamics in a Yield Stress Fluid,
B. Saint-Michel and V. Garbin,
Soft Matter **16**, 10405-10418 (2020)
- 21/ Bubble Dynamics for Broadband Microrheology of Complex Fluids,
B. Saint-Michel and V. Garbin,
Current Opinion in Colloid and Interface Science **50**, 101392 (2020)
- 20/ Stability of Bubbles in Wax-Based Oleofoams: Decoupling the Effects of Bulk Oleogel Rheology and Interfacial Rheology,
S. Saha, B. Saint-Michel, V. Leynes, B. P. Binks and V. Garbin,
Rheologica Acta **59**, 255-266 (2020)

2019

- 19/ X-Ray Radiography of Viscous Resuspension,
B. Saint-Michel, S. Manneville, S. Meeker, G. Ovarlez and H. Bodiguel
Physics of Fluids **31**, 103301 (2019) - Special Issue: "Outstanding Early-Career Researchers"
- 18/ Oscillations of Small Bubbles and Medium Yielding in Elastoviscoplastic Fluids,
M. De Corato *et al.*
Physical Review Fluids **4**, 073301 (2019)
- 17/ Boundary-Induced Inhomogeneity of Particle Layers in the Solidification of Suspensions
B. Saint-Michel, M. Georgelin, S. Deville and A. Pocheau
Physical Review E **99**, 052601 (2019)
- 16/ Irreversible Hardening of a Colloidal Gel Under Shear: the Smart Response of Natural Rubber Latex Gels,
G. de Oliveira Reis *et al.*
Journal of Colloid and Interface Science **539**, 287-296 (2019)

2018

- 15/ Uncovering Instabilities in the Spatiotemporal Dynamics of a Shear-Thickening Cornstarch Suspension
B. Saint-Michel, T. Gibaud and S. Manneville
Physical Review X **8**, 031006 (2018)
- 14/ Wall Friction and Janssen Effect in the Solidification of Suspensions,
B. Saint-Michel, M. Georgelin, S. Deville and A. Pocheau,
Soft Matter **14**, 9498-9510 (2018)

2017

- 13/ Simultaneous Concentration and Velocity Maps in Particle Suspensions Under Shear from Rheo-ultrasonic Imaging,
B. Saint-Michel, H. Bodiguel, S. Meeker and S. Manneville,
Physical Review Applied **8**, 014023 (2017)
- 12/ Stochastic Chaos in a Turbulent Swirling Flow,
D. Faranda *et al.*,
Physical Review Letters **119**, 014502 (2017)

- 11/ Interaction of Multiple Particles with a Solidification Front: from Compacted Particle Layer to Particle Trapping,
B. Saint-Michel, M. Georgelin, S. Deville and A. Pocheau,
Langmuir **33**, 5617-5627 (2017)
- 10/ Predicting and Assessing Rupture in Protein Gels under Oscillatory Shear,
B. Saint-Michel, T. Gibaud and S. Manneville,
Soft Matter **13**, 2643-2653 (2017)

2016

- 9/ Shear-Banding in Wormlike Micelles: Beware of Elastic Instabilities,
M.-A. Fardin, L. Casanellas, B. Saint-Michel, S. Manneville and S. Lerouge,
Journal of Rheology **60**, 917-926 (2016)
- 8/ Local Oscillatory Rheology from Echography,
B. Saint-Michel, T. Gibaud, M. Leocmach and S. Manneville,
Physical Review Applied **5**, 034014 (2016)

2015

- 7/ A Statistical Mechanics Framework for the Large-scale Structure of Turbulent von Kármán Flows,
S. Thalabard, B. Saint-Michel, E. Herbert, F. Daviaud and B. Dubrulle,
New Journal of Physics **17**, 063006 (2015)

2014

- 6/ Probing Quantum and Classical Turbulence Analogy in von Kármán Liquid Helium, Nitrogen and Water Experiments,
B. Saint-Michel *et al.*, (SHREK collaboration)
Physics of Fluids **26**, 125109 (2014)
- 5/ Superfluid High REynolds von Kármán Experiment (SHREK),
B. Rousset *et al.*, (SHREK collaboration)
Review of Scientific Instruments **85**, 103908 (2014)
- 4/ Modelling and Analysis of Turbulent Datasets using Auto Regressive Moving Average Processes,
D. Faranda, F. M. E. Pons, B. Dubrulle, F. Daviaud, B. Saint-Michel, É. Herbert, P.-P. Cortet,
Physics of Fluids **26**, 105101 (2014)
- 3/ Influence of Reynolds Number and Forcing Type in a Turbulent von Kármán Flow,
B. Saint-Michel, B. Dubrulle, L. Marié, F. Ravelet and F. Daviaud,
New Journal of Physics **16**, 063037 (2014)
- 2/ A Zero-mode Mechanism for Spontaneous Symmetry Breaking in a Turbulent von Kármán Flow,
B. Saint-Michel, F. Daviaud and B. Dubrulle
New Journal of Physics **16**, 013055 (2014)

2013

- 1/ Evidence for Forcing-Dependent Steady States in a Turbulent Swirling Flow
B. Saint-Michel, B. Dubrulle, L. Marié, F. Ravelet and F. Daviaud,
Physical Review Letters **111**, 234502 (2013)

Participation to conferences

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|-----------|---|------------|----------------------------------|
| 2020 | International Congress on Rheology | Short Oral | Virtual (Rio de Janeiro, Brazil) |
| 2020 | APS Division of Fluid Dynamics | On-demand | Virtual (Chicago, U.S.A) |
| 2020 | Physics at Veldhoven | Oral | Veldhoven, Netherlands |
| 2019 | Congress of the <i>Groupe Français de Rhéologie</i> | Oral | Montpellier, France |
| 2019 | Stokes 200 Symposium | Poster | Cambridge, U. K. |
| 2019 | Annual European Rheology Conference | Oral | Portorož, Slovenia |
| 2018 | Liquids at Interfaces Conference | Poster | Bordeaux, France |
| 2018 | Annual European Rheology Conference | * | Sorrento, Italy |
| 2017 | Congress of the <i>Groupe Français de Rhéologie</i> | / | Nice, France |
| 2017 | <i>Rencontres du Non-Linéaire</i> | Oral | Paris, France |
| 2016 | International Soft Matter Conference | Poster | Grenoble, France |
| 2016 | STATPHYS 26 | Poster | Lyon, France |
| 2015 | APS Division of Fluid Dynamics | Oral | Boston, U. S. A. |
| 2015 | French Congress of Mechanics | Oral | Lyon, France |
| 2015 | XVIII th <i>Rencontres du Peyresq</i> | Oral | Peyresq, France |
| 2012-2013 | Journées de la Physique Statistique | Short Oral | Paris, France |
| 2012 | APS Division of Fluid Dynamics | Oral | San Diego, U. S. A. |

* Due to a busy schedule on my side, T. Gibaud accepted to present (orally) our results at the AERC