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Update: Oct. 2022

Dr Camille Scalliet

Independent Research Fellow at the University of Cambridge

Academic positions

10/2020-10/2023 **Herchel Smith Postdoctoral Fellow**, Department of Applied Mathematics and Theoretical Physics, University of Cambridge.

10/2020-10/2023 **Ramon Jenkins Research Fellow**, Sidney Sussex College, University of Cambridge.

10/2019-10/2020 **Postdoctoral Research Associate**, *Soft Matter Group*, Department of Applied Mathematics and Theoretical Physics, University of Cambridge.

Education

09/2016-09/2019 **PhD in Theoretical Physics**, *Université de Montpellier*, France.
"Amorphous solids from the glass transition to 1 Kelvin". Supervisor : Dr L. Berthier. Co-supervisor : F. Zamponi.

2013 - 2015 **Master in Physics with Highest Honours**, *Ecole Normale Supérieure de Lyon*, France.
Nonequilibrium Statistical Physics and Nonlinear Systems.

January - July 2014 **Erasmus Exchange programme**, *La Sapienza University*, Rome, Italy.
Statistical and Computational Physics. Highest grade 30/30 obtained in the first examination session.

2012 - 2013 **Bachelor in Physics with Highest Honours**, *Ecole Normale Supérieure de Lyon*, France.

2010 - 2012 **Classes préparatoires aux Grandes Ecoles PCSI-PC***, *Lycée aux Lazaristes*, Lyon, France.

Scholarships, Fellowships and Awards

2022 **Early Career Scientist Prize in Statistical Physics**, International Union for Pure and Applied Physics (IUPAP).

2021 **Rising Stars in Soft and Biological Matter**, NSF MRSEC (Princeton, Chicago and Delaware).

2020-2023 **Herchel Smith Fellowship**, *University of Cambridge*.
Independent postdoctoral fellowship, ca. GBP 200 000, success rate ∼5%.

2020-2023 **Research Fellowship**, *Sidney Sussex College, University of Cambridge*.
Independent postdoctoral fellowship, ca. GBP 130,000, success rate ∼1%.

2018 **L'Oréal-UNESCO For Women in Science Fellowship**, EUR 15 000.

2016-2019 **PhD scholarship**, EUR 65 000 from French Education Ministry.

2014 **Erasmus Fellowship**, La Sapienza University, Rome, Italy.

2012-2016 **Ecole Normale Supérieure Stipendiary studentship**, ca. EUR 1,300/month for 4 years.
Most prestigious post-secondary scholarship in France.

Publications

17 articles, 10 first author (including 1 Nature Physics, 1 PRX, 4 PRL, 1 Nat. Com.).
Impact (Google scholar) : 457 citations, h-index 10.

In preparation

[21] **Defects Induce Phase Transition from Dynamic to Static Ripples in Graphene**, F. L. Thiemann, C. Scalliet, E. A. Muller, and A. Michaelides.

[20] **Understanding the giant speedup of particle-swap dynamics in supercooled liquids**, K. Nguyen and C. Scalliet.

[19] **Machine learning Two-Level Systems**,
S. Ciarella, D. Khomenko, C. Scalliet, F.C. Mocanu, L. Berthier, D. R. Reichman, and F. Zamponi .

[18] **Inherent dynamics of highly viscous liquids**,
T. Schrøder, J. Dyre, and C. Scalliet.

Submitted

[17] **Two-step devitrification of ultrastable glasses**,
C. Herrero, C. Scalliet, M. D. Ediger, and L. Berthier,
arXiv preprint 2210.04775.

[16] **Microscopic observation of two-level systems in a metallic glass model**,
F. C. Mocanu, L. Berthier, S. Ciarella, D. Khomenko, D. R. Reichman, C. Scalliet, F. Zamponi,
arXiv preprint 2209.09579. Under review at JCP.

[15] **Dynamical mean-field theory : from ecosystems to reaction networks**,
E. De Giuli, C. Scalliet,
arXiv preprint 2205.02204. 2nd round of review at JPhysA.

Published

[14] **Thirty milliseconds in the life of a supercooled liquid**,
C. Scalliet*, B. Guiselin*, L. Berthier,
Physical Review X (in press), arXiv preprint 2207.00491.

[13] **Water Untangled**,
C. Scalliet,
Nature Physics (2022) - News&Views.

[12] **Microscopic origin of excess wings in relaxation spectra of deeply supercooled liquids**,
B. Guiselin*, C. Scalliet*, L. Berthier,
Nature Physics 18, 468-472 (2022). Featured in a News&Views.

[11] **Excess wings and asymmetric relaxation spectra in a facilitated trap model**,
C. Scalliet, B. Guiselin, L. Berthier,
The Journal of Chemical Physics 155, 064505 (2021).

[10] **Depletion of two-level systems in ultrastable computer-generated glasses**,
D. Khomenko*, C. Scalliet*, L. Berthier, D.R. Reichman, F. Zamponi,
Physical Review Letters 124, 225901 (2020), Featured in Physics.

[9] **Nature of excitations and defects in structural glasses**,
C. Scalliet, L. Berthier, F. Zamponi,
Nature Communications 10, 5102 (2019).

[8] **Does the Adam-Gibbs relation hold in simulated supercooled liquids ?**,
M. Ozawa, C. Scalliet, A. Ninarello, L. Berthier,
The Journal of Chemical Physics 151, 084504 (2019).

[7] **Rejuvenation and Memory Effects in a Structural Glass**,
C. Scalliet, L. Berthier,
Physical Review Letters 122, 255502 (2019), Editor's Suggestion.

[6] **Perspective : Configurational entropy of glass-forming liquids**,
L. Berthier, M. Ozawa, C. Scalliet,
The Journal of Chemical Physics 150 (16), 160902 (2019).

[5] **Efficient swap algorithms for molecular dynamics simulations of equilibrium supercooled liquids**,
L. Berthier, E. Flenner, C. J. Fullerton, C. Scalliet, M. Singh,
Journal of Statistical Mechanics : Theory and Experiment 6, 064004 (2019).

[4] **Marginally stable phases in mean-field structural glasses**,
C. Scalliet, L. Berthier, F. Zamponi,
Physical Review E 99, 012107 (2019).

[3] **Absence of Marginal Stability in a Structural Glass**,
C. Scalliet, L. Berthier, F. Zamponi,
Physical Review Letters 119, 205501 (2017).

[2] **Cages and anomalous diffusion in vibrated dense granular media**,
C. Scalliet, A. Gnoli, A. Puglisi, A. Vulpiani,
Physical Review Letters 114, 198001 (2015).

[1] **Measurements of the dielectric and viscoelastic constants in mixtures of 4,4'-n-octyl-cyanobiphenyl and biphenyl**,
P. Oswald, C. Scalliet,
Physical Review E 89, 032504 (2014).

*equal contribution.

Conferences, seminars, and schools

2022 Mathematical physics seminar, Imperial College, *London*, **Invited Seminar**.
"Machine Learning Glasses" workshop, *Paris (Fr)*, **Invited talk**.
Edinburgh Statistical Physics and Complexity Webinar Series, *online*, **Invited seminar**.
'Selected Topics of Materials Modeling' Colloquium, D-MATL ETH, *Zurich (Ch)*, **Invited seminar**.
CECAM Workshop 'New frontiers in liquid matter', *Paris (Fr)*, Contributed talk.
Workshop : Viscous liquids and the glass transition XVIII, *Sominestationen (Dk)*, **Invited talk**.
IoP Theory of Condensed Matter Day, *Univ. of Warwick*, **Invited talk**.
Herchel Smith Fund, *Cambridge*, Seminar.
Diversity in DAMTP, *Cambridge*, Invited presentation.
Edwards Centre for Soft Matter mini-conference, *Cambridge*, Organiser.
Statistical mechanics research group, Chemistry Department, *Cambridge*, Seminar.

2021 Glass and Time Research Group, *Roskilde University (Dk)*, **Invited seminar**.
Soft Matter for All, *Princeton (online)*, **Invited talk** after nomination as 'Rising Stars in Soft and Biological Materials'.
Lennard-Jones Centre, *Cambridge*, **Invited seminar**.
11th Liquid matter conference, *online*, Contributed talk.
Glassy Systems and Inter-Disciplinary Applications, *Cargese (Fr)*, **Invited seminar**.
Beg Rohu Summer School : Stat. Mechanics and Emergent Phenomena in Biology, *Quiberon (Fr)*.
Interdisciplinary Challenges in Non-Equilibrium Physics, *online*, **Invited talk**.
CECAM workshop Recent Advances on the Glass Problem, *online*, **Invited talk**.

2020 Complex Fluids 2020 Symposium, *online*, Contributed talk.
Edwards Centre for Soft Matter mini-conference, *Cambridge*, Organiser.
Physics Department, *Bristol*, **Invited Seminar**.
CMD2020GEFES International conference, *Madrid (Esp)*, **Invited talk**.
Collective Phenomena Group Meeting, *Cambridge*, **Invited seminar**.
Edwards Centre for Soft Matter mini-conference, *Cambridge*, Contributed talk.

2019 Workshop : Two-level systems in glasses, *Paris (Fr)*, Organiser.
Simons Collaboration workshop, *Royaumont (Fr)*, Seminar.
DAMTP – Soft Matter Group, *University of Cambridge (UK)*, **Invited Seminar**.
Beg Rohu Summer School : Glasses, Jamming and Slow Dynamics, *Quiberon (Fr)*.
Laboratoire Interdisciplinaire de Physique, *Grenoble (Fr)*, **Invited Seminar**.
Institut Lumière Matière, *Université de Lyon (Fr)*, **Invited Seminar**.
APS March Meeting, *Boston (USA)*, **Invited talk**.
Simons Collaboration Annual Meeting, *New York (USA)*, Poster.
Journées de Physique Statistique – ENS, *Paris (Fr)*, Contributed talk.

2018 DAMTP – Soft Matter Group, *University of Cambridge (UK)*, **Invited Seminar**.
Simons Collaboration workshop, *Royaumont (Fr)*, Seminar.
Unifying Concepts in Glass Physics, *Bristol (UK)*, Contributed talk.
Department of Mathematics, *Duke University (USA)*, **Invited Seminar**.
Simons Collaboration Annual Meeting, *New York (USA)*, Poster.
Workshop : marginal stability in glasses, *Montpellier (Fr)*, Organisor.

2017 Simons Collaboration workshop, *Royaumont (Fr)*, Seminar.
Boulder School : Frustrated and Disordered Systems, *Boulder (USA)*, 1 month.
APS March Meeting, *New Orleans (USA)*, Contributed talk.
Simons Collaboration Annual Meeting, *New York (USA)*, Poster.
CECAM Workshop Glass and Jamming Transitions, *Lausanne (Swz)*, Poster.

2016 Workshop : Nonlinear Response in Complex Matter, *Primosten (Croatia)*, Contributed talk.
Laboratoire de Physique Statistique, *ENS Paris (Fr)*, Seminar.
Simons Collaboration Kick-off Meeting, *Chicago (USA)*, Contributed talk.

2015 Lorentz Center – Active Liquids, *Leiden University (NL)*.
Workshop on Dynamics in Viscous Liquids, *University of Montpellier (Fr)*.

Internships

2015 **Research project**, University of Montpellier, France, 6 months.
Numerical investigation of the Gardner transition in finite dimensional glasses, with Ludovic Berthier.

2014 **Master - 2^{nd} year**, Gulliver Lab, ESPCI Paris, France, 16 weeks.
Revisiting the coffee-ring effect with colloids and confocal microscopy, with Olivier Dauchot.

2014 **Master - 1^{st} year**, Institute for Complex Systems, Rome, Italy, 12 weeks.
Elastic cages and anomalous diffusion in vibrated dense granular media, with Andrea Puglisi.

2013 **Bachelor**, Ecole Normale Supérieure de Lyon, France, 8 weeks.
Effect of a rigid nonpolar solute on the viscoelastic properties of a nematic liquid crystal, with Patrick Oswald.

Academic activities

Peer-review

Reviewer for Nature Physics, Nature Communications, Proceedings of the National Academy of Sciences, Physical Review (Letters, E, Fluids), The Journal of Chemical Physics, Soft Matter, J. Stat. Mech. : Theory and Experiments, Materials Today Physics, and Oxford University Press.

Organizational

2020-2022 **Organizer of the weekly Soft Matter group seminar**, DAMTP, Univ. of Cambridge.

2021-2022 **Member of the first Equality Diversity Inclusion working group**, Sidney Sussex College, Cambridge.
First working group aimed at writing the Equality, Diversity and Inclusion Policy Framework of the College.

2020-2022 **Organized two mini-conferences for the Edwards Centre for Soft Matter**, University of Cambridge.
Dec. 2020 and Feb. 2022, online.

2020-2022 **Organized two workshops for the Simons Collaboration 'Cracking the glass problem'**.
Topics : Gardner transition (Montpellier, Jan. 2018) and Two-Level Systems (Paris, Nov. 2019).

Teaching

Nov 2021 - May 2022 **Supervision of a Masters research project**, Kimlam Nguyen (Trinity College and Department of Physics, Cambridge).
Title : *Understanding the giant speedup of particle-swap algorithms.*

2020-2022 **Admission interviewer in Mathematics and Natural Sciences**, Sidney Sussex College, University of Cambridge.
Interviewer for prospective undergraduate students, 20 h/year

2020-2021 **Volunteer for the 'For Girls in Science' program by the Fondation L'Oréal**.
Free tutoring in Mathematics, Physics, Chemistry for underprivileged high school girls, 2h/week

2016-2019 **Teaching Assistant**, University of Montpellier (64 h/year), Undergraduate tutorials (Classical Mechanics) and Practical Physics (Optics and Light).

2013 - 2014 **Physics and Chemistry tutorials**, Lycée Assomption Bellevue, Lyon.
Oral examinations to prepare competitive national examinations for the French Grandes Ecoles, 60 h/year.

Outreach

April 2022 **Author of an article in Pour la Science**, *'A la recherche du verre idéal'*.

March 2022 **Organizer of a panel discussion for applicants to the L'Oréal-UNESCO Fellowship**.
Organized and animated the discussion, inviting previous award recipients and experts reviewing applications.

2017-2020 **Active member of the association Femmes&Sciences**, Organisation of general public events to promote science : Festival of Science, school interventions, film debates.