R.H. Bing instructor, The University of Texas at Austin

PERSONAL INFORMATION DATE OF BIRTH: March 14th 1992, Paris, France INSTITUTION: The University of Texas at Austin, 78712, Austin, Texas, USA **CURRENT POSITION:** Postdoctoral instructor recipient of the R.H. Bing Fellowship MENTOR: Alexis Vasseur https://laurent-lafleche.perso.math.cnrs.fr/en WEBPAGE: lafleche@math.utexas.edu EMAIL: EDUCATION June 28, 2019 Ph.D. in Applied Mathematics, CEREMADE, Paris-Dauphine University, PSL, Paris, France Title: Dynamics of Systems with Large Number of Particles and Dynamical Systems. Supervisors: François Golse and Stéphane Mischler. 2015 - 2016Master in Mathematics and Applications, Université Pierre et Marie Curie, Paris (75) Mathematics of modeling speciality, Numerical analysis and PDE major. 2012 - 2016 Engineering Degree, École des Ponts Paristech, Paris 2010 - 2012Classe Préparatoire aux Grandes Écoles (MP*), Lycée Sainte Geneviève, Paris Intensive program preparing for the national competitive entrance examinations to engineering schools. 2007 - 2010Baccalauréat S, Lycée Pasteur, Neuilly-sur-Seine (92) secondary school leaving certificate, science major, awarded with high honor. Research interests Partial Differential Equations (well-posedness, regularity, blow-up, asymptotic behavior). Mathematical Physics (kinetic models, fluid mechanics, quantum physics, semiclassical, diffusive and mean field limits). Functional Analysis (theory of regularity and functional spaces, optimal transport, functional inequalities). HONORS 2021 Young researcher prize, special jury award, Fondation Dauphine 2019 - 2022 R.H. Bing Fellow, The University of Texas at Austin PUBLICATIONS AND PREPRINTS [1] Jacky Jia Wei Chong, Laurent Lafleche, and Chiara Saffirio. On the L² rate of convergence in the limit from the Hartree to the Vlasov-Poisson equation. available soon, 2021.

- [2] Laurent Lafleche, Alexis F. Vasseur, and Misha Vishik. Instability for Blow-up Solutions to Incompressible Euler Equations in Calkin Algebras. *available soon*, 2021.
- [3] Jacky Jia Wei Chong, Laurent Lafleche, and Chiara Saffirio. From Many-Body Quantum Dynamics to the Hartree-Fock and Vlasov Equations with Singular Potentials. arXiv:2103.10946, pages 1–74, March 2021.
- [4] Laurent Lafleche, Alexis F. Vasseur, and Misha Vishik. Instability for Axisymmetric Blow-up Solutions to Incompressible Euler Equations. *Journal de Mathématiques Pures et Appliquées*, 155:140–154, November 2021.
- [5] Laurent Lafleche and Chiara Saffirio. Strong Semiclassical Limit from Hartree and Hartree-Fock to Vlasov-Poisson Equation. *Analysis & PDE*, accepted for publication:1–35, October 2021.

- [6] Emeric Bouin, Jean Dolbeault, and Laurent Lafleche. Fractional Hypocoercivity. *Communications in Mathematical Physics*, pages 1–46, January 2022.
- [7] Emeric Bouin, Jean Dolbeault, Laurent Lafleche, and Christian Schmeiser. Hypocoercivity and Sub-exponential Local Equilibria. *Monatshefte für Mathematik*, 194(1):41–65, November 2020.
- [8] Laurent Lafleche. Global Semiclassical Limit from Hartree to Vlasov Equation for Concentrated Initial Data. Annales de l'Institut Henri Poincaré C, Analyse non linéaire, 38(6):1739–1762, November 2021.
- [9] Laurent Lafleche. Propagation of Moments and Semiclassical Limit from Hartree to Vlasov Equation. *Journal of Statistical Physics*, 177(1):20–60, October 2019.
- [10] Laurent Lafleche and Samir Salem. p-Laplacian Keller-Segel Equation: Fair Competition and Diffusion Dominated Cases. *Comptes Rendus Mathematique*, 357(4):360–365, April 2019.
- [11] Samir Salem and Laurent Lafleche. Fractional Keller-Segel equations. *Séminaire Laurent Schwartz—EDP et applications*, 2019.
- [12] Laurent Lafleche and Samir Salem. Fractional Keller-Segel Equation: Global Well-posedness and Finite Time Blow-up. Communications in Mathematical Sciences, 17(8):2055–2087, December 2019.
- [13] Laurent Lafleche. Fractional Fokker-Planck Equation with General Confinement Force. *SIAM Journal on Mathematical Analysis*, 52(1):164–196, January 2020.
- [14] Diogo A. Gomes, Laurent Lafleche, and Levon Nurbekyan. A Mean-Field Game Economic Growth Model. In 2016 American Control Conference (ACC), pages 4693–4698, Boston, MA, USA, July 2016. Institute of Electrical and Electronics Engineers (IEEE). ISSN: 2378-5861.

TALKS

02-06/10/2017	Dauphine Ph.D. Summer School, Raveau, France
11/01/2018	Seminar of youth researchers CEREMADE, Université Paris-Dauphine, Paris, France
10/04/2018	CMLS Ph.D. Day, École Polytechnique, Palaiseau, France
31/05/2018	Seminar of youth researchers CEREMADE, Université Paris-Dauphine, Paris, France
07/11/2018	CMAP & CMLS Ph.D. Seminar, École Polytechnique, Palaiseau, France
22/11/2018	PDE Seminar, IRMAR, Rennes, France
19/12/2018	Phenomena of propagation and spatial organization in biology , <i>Université Paris-Dauphine</i> , Paris, France
29/01/2019	LJLL Ph.D. Workgroup, Université Pierre et Marie Curie, Paris, France
25-29/03/2019	Analysis of nonlocal and nonsmooth models, Bielefeld University, Bielefeld, Germany
16/05/2019	PDE and Mathematical Physics Seminar, Universität Zürich, Zürich, Switzerland
03-07/06/2019	Qualitative behavior of kinetic equations and related problems: numerical and theoretical aspects, <i>Hausdorff Research Institute for Mathematics</i> , Bonn, Germany
01-05/07/2019	Mathematical Frontiers in the Analysis of Many-particle Systems, Centre for Mathematical Sciences, University of Cambridge, Cambridge, United Kingdom
13/11/2019	Analysis Seminar, University of Texas at Austin, Austin, Texas, USA
10-14/12/2019	SIAM Conference on Analysis of Partial Differential Equations, La Quinta, California, USA
05-09/06/2020 (postponed)	AIMS Conference on Dynamical Systems, Differential Equations and Applications, Atlanta, Georgia, USA
23-25/11/2020 (postponed)	Ypatia Conference: Mathematics between France and Italy , <i>Scuola francese di Roma</i> , Rome, Italy
08/10/2020	Seminar of youth researchers CEREMADE, Université Paris-Dauphine, Paris, France
22-26/03/2021	Gran Sasso Quantum Meetings: From Equilibrium Phenomena Towards Open Quantum Systems, Gran Sasso Science Institute, L'Aquila, Italy
06/04/2021	Modeling, Analysis and Scientific Calculus Seminar, ICJ & UMPA Laboratories, Lyon, France
02-07/08/2021	International Congress on Mathematical Physics, Young Researchers Symposium, University of Geneva, Geneva, Switzerland

23-26/08/2021	Virtual Summer school on Kinetic and fluid equations for collective dynamics , <i>France-Korea International Research Laboratory in Mathematics</i>
15-17/12/2021	Mathematical Frontiers in the Analysis of Many-particle Systems, Institut Henri-Poincaré, Paris, France
26-30/12/2022	Optimal Transport on Quantum Structures , Erdős Center, Alfréd Rényi Institute of Mathe- matics, Budapest, Hungary
	Other Attended International Scientific Events
18-22/04/2017	PDE/Probability Interactions: Kinetic Equations, Large time and Propagation of Chaos , <i>CIRM</i> , Marseille, France
07-09/03/2018	Workshop on kinetic and fluid Partial Differential Equations, Université Paris-Descartes and Université Paris Diderot, Paris, France
10-16/06/2018	Methods and Models of Kinetic Theory, Porto Ercole, Italy Presentation of a poster
28-30/11/2018	ANR EFI Workshop, Institut Camille Jordan, Lyon, France
10-14/12/2018	Non Standard Diffusions in Fluids, Kinetic Equations and Probability , <i>CIRM</i> , Marseille, France Presentation of a poster.
11-21/06/2019	Mathematical Models in Biology and Related Applications of Partial Differential Equations, CIMPA Research Summer School, University of Havana, Havana, Cuba
	Teaching Experience
2012–2013	Experience and Opening Project , <i>École des Ponts Paristech</i> , Paris, France Tutor of primary school students.
2016–2019	Teaching Assistant , <i>Paris-Dauphine University, PSL</i> , Paris, France Undergraduate courses: Differential calculus, Multidimensional probabilities and Modeling and applications of mathematics.
2019–2022	Instructor , <i>The University of Texas at Austin</i> , Austin, Texas, US Undergraduate courses: Discrete mathematics, Integral Calculus for Science, Introduction to Real Analysis for undergraduate students. Graduate course: Semiclassical Dynamics.
	Professional Experience
July 2014 – January 2015	Engineering internship in web development , <i>Dassault Systems</i> , Velizy Villacoublay 3DPlay Collaboration over the web - Developing widgets for a web application of collaboration in interaction with CATIA.
April 2013 – July 2013	Scientific Internship , <i>TWiSt</i> , <i>Turbulence</i> , <i>Wind Energy and Stochastics Group</i> , <i>ForWind - Center for Wind Energy Research Institute of Physics</i> , <i>Carl von Ossietzky University Oldenburg</i> , Oldenburg Three Dimensional Reconstruction of Digital Particle Holograms: Implementation of Methods for the Detection of Particle Positions Using the Complex Amplitude.
September 2012	Operational training, MAJ ELIS, Val de Marne, Bry sur Marne
July 2010	Language learning and research discovery, Deutsches Zentrum für Luft- und Raumfahrt, Stuttgart
	Others

LANGUAGES: **PROGRAMMING:** Sports interests: TRAVELS:

French (mothertongue), Italian (fluent), English (fluent), German (moderate). C/C++, Python, Java, Caml, Maple, Matlab, Scilab, CUDA, Web (HTML, CSS, PHP, JavaScript). Judo, hiking, scuba diving, skiing, mountaineering, table tennis, badminton, archery.

Italy, United Kingdom, Germany, Saudi Arabia, Austria, India, Cuba, Japan, Jordania, Russia, Tunisia, Dubai, Czech Republic.