Aymeric Baradat

Chargé de recherche CNRS, Institut Camille Jordan, Lyon.

+33 6 99 61 99 38
baradat@math.univ-lyon1.fr

Education

2020– **Chargé de recherche CNRS**, *Institut Camille Jordan of Lyon 1 University*, Villeurbanne, France.

2019–2020 **Post-doctoral researcher**, *Max Planck Institute for the Mathematics in the Sciences*, Leipzig, Germany.

2016-2019 **PhD in Mathematics**, *École Polytechnique*, Palaiseau, France.
Incompressible optimal transport: dependence to the data and entropic regularization, supervised by Yann Brenier and Daniel Han-Kwan, defended in June 2019.

2016 **Master 2 in Probability**, *Université Paris 6*, Paris, France.
Constrained entropic minimization problems, supervised by Christian Léonard.

2015 **Research internship**, *Scuola Normale Superiore*, Pisa, Italy.
Supervised by Luigi Ambrosio, from February to June, on various optimization problems related to optimal transport.

2015 **Master 2 in Analysis of PDEs and Calculus of Variations**, *Université Paris 6*, Paris, France.
Variational methods applied to the study of solutions to fluid mechanics equations, supervised by Yann Brenier.

2012–2016 **Student at the ENS Ulm**, Paris, France.

2010–2012 **Classes préparatoires MPSI-MP***, *Lycée Louis le Grand*, Paris, France.

Teaching activity

2016-2019 **Teaching assistant**, *École Normale Supérieure*, Paris, France.
In charge of the course "Mathematics for Economists" for licence 3 students.

2012–2014 **Oral examiner**, *Lycée Dorian*, Paris, France.
For second year students in "Classes Préparatoires".

Responsibilities

2021– **Co-organizer of the PDE seminar**, *Institut Camille Jordan of Lyon 1 University*, Villeurbanne, France.

2018-2019 **PhD students representative towards the Laboratory Council**, *École Polytechnique*, Palaiseau, France.

2016-2019 **Co-organizer of the PhD student seminar**, *École Polytechnique*, Palaiseau, France.

Languages

French Mother tongue
English Fluent
Italian Intermediate
German Intermediate
Arabic Beginner

Publications

L. Ambrosio, A. Baradat, and Y. Brenier. Γ-convergence for a class of action functionals induced by gradients of convex functions. *Rend. Lincei-Mat. Appl.*, 32(1):97–108, 2021.

A. Baradat. Continuous dependence of the pressure field with respect to endpoints for ideal incompressible fluids. *Calc. Var. Partial Dif.*, 58(1):25, 2019.

A. Baradat. On the existence of a scalar pressure field in the Bredinger problem. Accepté au *SIAM J. Math. Anal.*, 2019.

A. Baradat. Nonlinear instability in Vlasov type equations around rough velocity profiles. *Ann. I. H. Poncaré-An.*, available online, 2020.

A. Baradat and L. Monsaingeon. Small Noise Limit and Convexity for Generalized Incompressible Flows, Schrödinger Problems, and Optimal Transport. *Arch. Ration. Mech. Anal.*, 235(2):1357–1403, 2020.

Preprints

A. Baradat and C. Léonard. Minimizing relative entropy of path measures under marginal constraints. *arXiv:2001.10920*, 2020.

A. Baradat, L. Ambrosio and Y. Brenier. Monge-Ampère gravitation as a Γ-limit of good rate functions *arXiv:2002.11966*, 2020.

Selected talks

06/2021 **SMAI Congress**, La Grande Motte, France.
Entropic minimization w.r.t. branching Brownian motion

02/2021 **Applications of Optimal Transportation in the Natural Sciences**, *MFO*, Oberwolfach, Germany.
Regularized unbalanced optimal transport and the large deviations of thebranching Brownian motion

11/2019 **Inaugural France-Korea Conference on Algebraic Geometry, Number Theory, and Partial Differential Equations**, *Université de Bordeaux*, Bordeaux, France.
Multiphase formulation of plasma physics

07/2019 **MAFRAN Conference**, *University of Cambridge*, Cambridge, UK.
Dependence with respect to the data in incompressible optimal transport

06/2019 **People in Optimal Transport and Applications**, Cortona, Italy.
Dependence with respect to the data in incompressible optimal transport

02/2019 **Trimester programm "Evolution of interfaces"**, *Hausdorff Institute*, Bonn, Germany.
Dependence with respect to the data in Incompressible Optimal Transport

11/2018 **GT CalVa: the workgroup on Calculus of Variations gathering Paris 6, Paris 7 and Paris 11**, *Université Paris 7*, Paris, France.
Entropic regularization of incompressible optimal transport.

10/2018 **Optimal Transport Theory and Hydrodynamics (from Euler to Monge and vice versa)**, *MFO*, Oberwolfach, Germany.
Entropic regularization of incompressible optimal transport.

09/2018 **MAFRAN days**, *University of Cambridge*, Cambridge, UK.
Penrose condition around rough velocity profiles.

Hobbies and interests

I practice climbing and long distance running.