

Marjolaine PUEL

date of birth : march 12th 1974.

Address : Laboratoire J. A. Dieudonné

Université Nice Sophia

06108 Nice Cedex 02 France

e-mail : mpuel@unice.fr

Academics

- Since september 2012 : Professeur des universités (Associate professor)
Université Nice Sophia
- Fall 2015 : Complementary Programm MSRI, Berkeley
- spring 2012 : Visiting MIT in Boston
- spring 2011 : Visiting ETH Zurich
- 2006-2007 : Visiting Rutgers University, New Jersey
- 2004-2012 : Maître de conférences (assistant professor)
Université Paul Sabatier, Toulouse.
- 2004 : Post-Doc position Atomic national agency
- Fall 2003 : Visiting UPC, Barcelone
- 2002-2003 : Non permanent position at University Paris IX.
- 2001-2002 : Non permanent position at University Paris VI.
- 1997-2001 : PhD at University Paris VI.
advisor : Y. Brenier.

Research Interest

- PDE for fluid and Plasmas
- Asymptotic limits (quasi-neutral, semi-classical, non relativistic, diffusion limits)
- Homogenization of transport equations
- Optimal mass transportation and applications to PDE.

Student

- Phd student E. Nasreddine (co advisor with Ph. Laurençot) defended in 2013.

Teaching

- In France : Undergraduate classes
 - engineering school in Nice
 - technical department of the university Paul Sabatier in Toulouse

Graduate classes on optimal transportation in Toulouse

- In the US : Undergraduate classes
 - Linear algebra in Rutgers
 - Differential equations in MIT.

Administration

Member of the hiring committee for assistant professor position in Toulouse, Nice, Bordeaux, Lyon
for professor position in Nice.

Member of the "commission de la formation et de la vie Étudiante du conseil acadÉmique de l'universitÉ de Nice".

Publications

Published Papers

- [1] Y. Brenier, M. Puel. *Multiphase transportation problems with prescribed momentum*, ESAIM Contrôle Optim. Calc. Var. Volume 8 dedicated to J.L. Lions (2002) p.287–343.
- [2] M. Puel. *Convergence of the Schrödinger-Poisson system to the incompressible Euler equations* Comm. Partial Differential Equations Vol 27 (2002) No 12 & 13 p.2311-2331.
- [3] M. Puel. *Convergence of the Schrödinger-Poisson system to the Euler equations under the influence of a strong magnetic field* Math. Model. Numer. Anal. Vol 36, N° 6, (2002), p. 1071-1090.
- [4] Y. Brenier, N. Mauser, M. Puel. *Incompressible Euler and e-MHD as scaling limits of the Vlasov-Marxwell system*, Commun. Math. Sci. Vol 1 (2003) no 3, p.437–447.
- [5] M. Puel, L. Saint-Raymond. *Quasineutral limit of the relativistic Vlasov-Marxwell system*, Asymptot. Anal. Vol 40 (2004) no 3-4 p.303–352.
- [6] Y. Brenier, R. Natalini, M. Puel. *On a relaxation approximation of the incompressible Navier-Stokes equations*, Proc. Amer. Math. Soc. Vol 132 (2004) no 4, p.1021–1028.
- [7] J.-F. Clouet, F. Golse, M. Puel, R. Sentis. *On the slowing down of charged particles in a heterogeneous medium*. Kinet. Relat. Models 1 (2008), no. 3, 387–404.
- [8] R. McCann, M. Puel. *Constructing relativistic heat flows by transport time steps*, Annales de l'Institut Henri Poincaré / Analyse non linéaire 26 (2009), pp. 2539-2580
- [9] N. Ben Abdallah, A. Mellet, M. Puel *Anomalous diffusion limit for kinetic equations with degenerate collision frequency*.
Accepté dans Mathematical Models and Methods in Applied Sciences.
- [10] N. Ben Abdallah, A. Mellet, M. Puel *Fractional diffusion limit for collisional kinetic equations : a Hilbert expansion approach*.
Kinet. Relat. Models Vol. 4, no. 4 July (2011).
- [11] G. Allaire, Y. Capdeboscq, M. Puel, *Homogenization of a one-dimensional spectral problem for a singularly perturbed elliptic operator with Neumann boundary conditions*.
Discrete and Continuous Dynamical Systems Series B 17-1 (2012).
- [12] J. Bertrand, M. Puel *The optimal mass transport problem for relativistic costs*.
Calc. Var. and PDE.
- [13] N. Ben Abdallah, M. Puel, M. Vogelius, *Diffusion and homogenization limits with separate scales*.
SIAM Multiscale Modeling and Simulation.
- [14] G. Bal, M. Puel *A corrector result for diffusion and homogenization limits for the Boltzmann equation*.
SIAM J. Math. Analysis 44(6)(2012).
- [15] E. Nasreddine, M. Puel. *Diffusion limit of Fokker-Planck equation with heavy tail equilibria*.
M2AN 49 (2015) 1–17.
- [16] M. Puel, A. Vasseur. *Global weak solutions to the inviscid 3D Quasi-geostrophic equation*
accepted in Communications in Mathematical Physics
- [16] J. Bertrand, A. Pratelli, M. Puel. *Existence of Kantorovitch potentials for relativistic costs*.
accepted in Journal mathématiques pures et appliquées.

Proceedings

- [17] M. Puel. *Numerical reconstruction of multiphase flows with prescribed total momentum*, ESAIM, Proceedings CEMRACS 1999 (Orsay) vol. 10, p.151–159.
- [18] Y. Brenier, N. Mauser, M. Puel. *Sur quelques limites de la physique des particules chargées vers la (magnéto)hydrodynamique*, C. R. Acad. Sci., t 334, Série I Math., (2001) No 3 p.239–244.

Preprint

- [1] P. Cattiaux, E. Nasreddine, M Puel. *Diffusion limit of Fokker Planck equation with heavy tails equilibria : a probabilistic approach including anomalous rate*.
Submitted.
- [2] G. Lebeau, M. Puel. *Diffusion approximation for Fokker Planck with heavy tail equilibria : a spectral method in dimension 1*. Preprint.

Talks

- Conference Santa margarita de Pula 2017
- Conference en l'honneur de C. Leonard et Patrick Cattiaux, Toulouse 2017.
- LICMA Beyrouth, 2017.
- PDE'sin Chile, Valdivia, Chili, 2016.
- seminar laboratoire Jacques Louis Lions, 2016.
- Colloquium Maryland, 2016.
- research seminar, MSRI Berkeley 2015.
- PDE-applied math seminar, Maryland 2015.
- Workshop ENS Ker Lann, Rennes, 2015.
- Proba-stat seminar, Nice, 2015.
- Seminar, Mathematik Universität Erlangen-Nürnberg 2015.
- Applied Analysis for the Material Sciences with a special hommage to Michael Vogelius on the occasion of his 60th Birthday, CIRM 3013
- Interplay of Theory and Numerics for Deterministic and Stochastic Homogenization, Oberwolfach 2013.
- Boston University/Brown University PDE seminar, Brown (USA), avril 2012.
- PDE/Analysis seminar, MIT, Cambridge (USA), février 2012.
- Seminar, Oxford (UK), janvier 2012.
- Seminar Grenoble, octobre 2011.
- Seminar EDP, Bordeaux, septembre 2011.
- Journée ANR Evol, Toulouse, september 2011.
- EDP seminar, Nice, june 2011.
- analysis seminar, FIM, ETH, Zurich, may 2011.
- Seminar, Austin, february 2011.
- Workshop on Geometric Probability and Optimal Transportation, Toronto, november 2010.
- DSPDE, Barcelona, june 2010.
- Seminar, Maryland, march 2010.
- Partial differential equations, optimal design and numerics, Benasque, august 2009.
- Kinetics and Statistical Methods for Complex Particle Systems, Lisbonne, july 2009.
- Seminar LAMSIN, Tunis (Tunisia), october 2008.
- Second congrès franco-canadien, Montréal, june 2008.
- Seminar MIP, Institut de mathématiques de Toulouse, october 2007.
- Optimal transportation structures, gradient flows and entropy methods for Applied PDEs, Thematic Program at WPI, Vienna (Austria), September 2007.
- Partial differential equations, optimal design and numerics, Benasque, august 2007.
- Optimal Transportation, and Applications to Geophysics and Geometry, ICMS Edinburgh , july 2007.
- Non linear analysis seminar, Rutgers, december 2006.
- PDE/Applied math/Analysis seminar, Toronto, december 2006.
- Nonlinear diffusions : entropies, asymptotic behavior and applications, Banff , april 2006.
- Seminar ACSIOM, Université de Montpellier, march 2006.
- Seminar MIP, Université Paul Sabatier, november 2004.
- RTN Front singularities workshop, Lorentz center, Leiden, november 2004.
- Mathematical modelling and computational challenges in plasma physics and applications, october 2004.
- Workshop on Kinetic Theory, Fields Institute, Toronto, march 2004.
- Seminar Complutense University, Madrid, november 2003.
- Seminar at UPC, Barcelone, november 2003.
- Groupe de travail d'analyse du CMAT, école polytechnique, Palaiseau, march 2003.
- Groupe de travail de calcul des variations, Université Paris IX Dauphine, february 2003.
- Groupe de travail Analyse-Probabilités, Université Paris IX Dauphine, january 2003.
- Seminar, Rennes 1, november 2002.
- Seminar "Equations aux dérivées partielles", Strasbourg I, march 2002.
- Colloquium on Asymptotic Analysis of the Dirac-Maxwell system, Wien, december 2001.
- Seminar Roma 1, may 2001.
- CMAP Seminar, école polytechnique, Palaiseau, november 2001.