
ADRIEN BLANCHET
Curriculum Vitæ (April 2014)

1 Short Vitæ

BLANCHET Adrien	Born on the 22nd of November 1977 (36 years old)
Current position	Assistant Professor
Adress	21 Allée de Brienne, 31015 Toulouse, France
Tel.	00.33.5.61.12.85.51
Email.	Adrien.Blanchet@ut-capitole.fr
Webpage	http://w3-gremaq.ut-capitole.fr/blanchet
Training	
3 Dec. 2012	Habilitation à diriger des recherches from Université Toulouse 1 – Capitole <i>Variationnal methods applied to biology and economics</i>
Jury	H. Berestycki, A. Bertozzi (referee), Y. Brenier (referee), P. Degond, J. Dolbeault, M. Le Breton, P. Markowich (referee), C. Sire.
12 Dec. 2005	PhD in Sciences from Université Paris-Dauphine <i>Monotonicity formulas applied to free boundary problems and biology</i>
Jury	H. Berestycki, J. Dolbeault (advisor), R. Monneau (advisor), H. Shahgholian (referee), H. Zaag (referee), J. Carrillo.
2001-2002	Master from Université Paris-Dauphine
Report	“Formule de monotonie et méthode d’explosion pour le problème de l’obstacle parabolique” under the supervision of R. Monneau (June-Sept. 2002).

2 Scientific activities

2.1 Publications

All my publications are downloadable on <http://w3-gremaq.univ-tlse1.fr/blanchet>.

Submitted

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| [24] | “From Nash to Cournot-Nash equilibria via the Monge-Kantorovich problem”, A. BLANCHET & G. CARLIER, submitted for publication. |
| [23] | “Remarks on existence and uniqueness of Cournot-Nash equilibria in the non-potential”, A. BLANCHET & G. CARLIER, submitted for publication. |
| [22] | “Optimal transport and Cournot-Nash equilibria”, A. BLANCHET & G. CARLIER, submitted for publication. |

Accepted

- [21] “Existence and uniqueness of equilibrium for a spatial model of social interactions”, A. BLANCHET, P. MOSSAY & F. SANTAMBROGIO, under review in *International Economic Review*.
- [20] “A gradient flow approach to the Keller-Segel systems”, A. BLANCHET, to appear in *RIMS Kokyuroku's lecture note* (2013).
- [19] “The parabolic-parabolic Keller-Segel system with critical diffusion as a gradient flow in \mathbb{R}^d , $d \geq 3$ ”, A. BLANCHET & PH. LAURENÇOT, *Communication in Partial Differential Equations*, 38 n° 4 (2013), pp. 658-686.
- [18] “Functional inequalities, thick tails and asymptotics for the critical mass Patlak-Keller-Segel model”, A. BLANCHET, J. CARRILLO & E. CARLEN, *Journal of Functional Analysis*, 261 n° 5 (2012), pp. 2142-2230.
- [17] “Finite mass self-similar blowing-up solutions of a chemotaxis system with non-linear diffusion”, A. BLANCHET & PH. LAURENÇOT, *Communications on Pure and Applied Analysis*, 11 n° 1 (2012), pp. 47-60.
- [16] “On the parabolic-elliptic Patlak-Keller-Segel system in dimension 2 and higher”, A. BLANCHET, to appear in *Sémin. Équ. Dériv. Partielles, École Polytech.* (2011).
- [15] “Improved intermediate asymptotics for the heat equation”, J.-P. BARTIER, A. BLANCHET, J. DOLBEAULT & M. ESCOBEDO, *Applied Mathematics Letters*, 24 (2011), pp. 76-81.
- [14] “Large time asymptotics of the doubly nonlinear equation in the non-displacement convexity regime”, M. AGUEH, A. BLANCHET & J. CARRILLO, *Journal of Evolution Equations*, 10 n° 1 (2010), pp. 59-84.
- [13] “Asymptotic behaviour for small mass in the two-dimensional parabolic-elliptic Keller-Segel model”, A. BLANCHET, J. DOLBEAULT, M. ESCOBEDO & J. FERNANDEZ, *Journal of Mathematical Analysis and Applications*, 361 n° 2 (2010), pp. 533-542.
- [12] “Stochastic Stokes’ drift, homogenized functional inequalities, and large time behavior of Brownian ratchets”, A. BLANCHET, J. DOLBEAULT & M. KOWALCZYK, *SIAM Journal of Mathematical Analysis*, 41 n° 1 (2009), pp. 46-76.
- [11] “Critical mass for a Patlak-Keller-Segel model with degenerate diffusion in higher dimensions”, A. BLANCHET, J. CARRILLO & PH. LAURENÇOT, *Calculus of Variations and partial differential equations*, 35 n° 2 (2009), pp. 133-168.
- [10] “Asymptotics of the fast diffusion equation via entropy estimates”, A. BLANCHET, M. BONFORTE, J. DOLBEAULT, G. GRILLO & J.-L. VÁZQUEZ, *Archive for Rational Mechanics and Analysis*, 191 n° 2 (2009), pp. 347-385.
- [9] “Travelling fronts in stochastic Stokes’ drifts”, A. BLANCHET, J. DOLBEAULT & M. KOWALCZYK, *Physica A : Statistical Mechanics and its Applications*, 387 n° 23 (2008), pp. 5741-5751.
- [8] “Convergence of the mass-transport steepest descent scheme for the sub-critical Keller-Segel model”, A. BLANCHET, V. CALVEZ & J. CARRILLO, *SIAM Journal of Numerical Analysis*, 46 n° 2 (2008) , pp. 691-721.

- [7] “Infinite time aggregation for the critical Patlak-Keller-Segel model in \mathbb{R}^2 ”, A. BLANCHET, J. CARRILLO & N. MASMOUDI, *Communications on Pure and Applied Mathematics*, 61 n° 10 (2008), pp. 1449-1481
- [6] “Hardy-Poincaré inequalities and applications to nonlinear diffusions”, A. BLANCHET, M. BONFORTE, J. DOLBEAULT, G. GRILLO & J.-L. VÁZQUEZ, *Comptes Rendus de l’Académie des Sciences*, 344 (2007), pp. 431–436.
- [5] “On the singular set of the parabolic obstacle problem”, A. BLANCHET, *Journal of Differential Equations*, 231 (2006), pp. 656-672.
- [4] “Two-dimensional Keller-Segel model : Optimal critical mass and qualitative properties of the solutions”, A. BLANCHET, J. DOLBEAULT & B. PERTHAME, *Electronic Journal of Differential Equations*, 44 (2006), pp. 1–32.
- [3] “On the regularity of the free boundary of the parabolic obstacle problem. Application to American options”, A. BLANCHET, *Nonlinear Analysis Series A : Theory, Methods & Applications*, 65 (2006), pp. 1362–1378.
- [2] “On the continuity of the time derivative of the solution to the parabolic obstacle problem with variable coefficients”, A. BLANCHET, J. DOLBEAULT & R. MONNEAU, *Journal de Mathématiques Pures et Appliquées*, 85 (2006), pp. 371–414.
- [1] “On the one-dimensional parabolic obstacle problem with variable coefficients”, A. BLANCHET, J. DOLBEAULT & R. MONNEAU, *Progress in Nonlinear Differential Equations and Their Applications*, 63 (2005), pp. 59–66.

2.2 Organisation of meetings

Conferences	
1-2 Sept. 2014	10th edition of “Artificial Economics Conference” – Universitat Autònoma de Barcelona http://www.irit.fr/AE2014/
31 March- 4 April 2014	Week “Optimal transport” in the CIMI trimestre EDP-proba – UPS http://www.math.univ-toulouse.fr/edp_proba/8.php
18 Dec. 2013	Conference “Modelling economics and social phenomena” – TSE/IAST http://w3-gremaq.univ-tlse1.fr/MME/
25-30 Aug. 2013	Mini-symposium “Functional inequalities and applications” – Centro de Ciencias de Benasque
30 Aug. 2011	Mini-symposium “Aggregation versus Diffusion” – Centro de Ciencias de Benasque
26-27 Sept. 2010	Conference “Cooperation in multi-agents models applied to economics and social sciences” – TSE
1-3 Sept. 2009	Conference “Optimal transport and Kinetics Applied to Socio-Economics” – TSE
18-20 March 2008	Conference “Reaction-diffusion systems with chemotaxis” – Université d’Orsay
5-11 Aug. 2007	EQUADIFF 2007 – Mini-symposium “Non-linear diffusion equations” – Vienna University of Technology
1 JUne 2005	Workshop “mathématiques appliquées en biologie” – CERMICS-ENPC
Seminars	
2009-2011	Seminar “mathématiques de la décision” (TSE)
2008-2009	Workshop of the ANR EVaMEF project (TSE)
2006-2007	Post-doc workshop (CRM – Universitat Autònoma de Barcelona)

2004-2005	Seminar de calcul scientifique (CERMICS – ENPC)
2004-2006	PhD workshop (CEREMADE – Université Paris-Dauphine)

3 Teaching

2013-2014 Lecture	TSE & Université Toulouse 1 Capitole (192h) Analysis (M2), Algebra (M2), Advanced calculus (M1), algèbre linéaire (L1), compléments de mathématiques (L1)
2011-2012 Lecture	TSE (96h) Analysis (M2), Algebra (M2), Advanced calculus (M1)
3-4 Dec. 2011 Lecture	Summer-school “Singularities Arising in Nonlinear Problems” – SNP (Kyoto, Japon), 6h Optimal transport methods applied to biology
2010-2011 Lecture	TSE (192h) Free boundary problems (M2, Université Paul Sabatier), Analysis (M2), Algebra (M2), Advanced calculus (M1), algèbre linéaire (L1)
2009-2010 Lecture	TSE (96h) Free boundary problems (M2, Université Paul Sabatier), Analysis (M2), Algebra (M2), Advanced calculus (M1), algèbre linéaire (L1)
2008-2009 Lecture	TSE (96h) Analysis (M2), Algebra (M2), Advanced calculus (M1), algèbre linéaire (L1)
17-21 Sept. 2007 Lecture	“Optimal transportation” summer-school – Wolfgang Pauli Institut (Vienna, Austria), 8h Optimal transportation and entropy methods
2007-2008 Exercise	1/2-ATER – Université de Lille 1 (96h) Analyse numérique des EDP (M1), analyse numérique (L3), parcours renforcé (L1)
2005-2006 Exercise	1/2-ATER – Université Paris-Dauphine (96h) Statistique 2 (L2), algèbre 2 (L2)
2004-2005 Exercise	Allocataire-moniteur – Université Paris-Dauphine (64h) Statistique 2 (L2), analyse-algèbre 2 (L1)
2003-2004 Exercise	Allocataire-moniteur – Université Paris-Dauphine (64h) Algèbre 2 (L2)
2002-2003 Exercise	Allocataire-moniteur – Université Paris-Dauphine (64h) Algèbre 2 (L2)
2001-2002	Tutorat – Université Paris-Dauphine (12h) Soutien scolaire (L1)

3.1 Supervision

- Co-advison with P. Cattiaux of X. Pellet’s master memoire (M2) : “Applications du transport optimal aux modèles de Keller-Segel” (2014),
- Advison of D. Khireche’s master memoire (M1) : “simulation numérique des options américaines” (July 2009).

3.2 Popularisation

- Talk in front of College students for the Lycée de Foix : “Modélisation mathématiques : physique, biologie et économie” (2012),
- Supervision of lycée Fermat MP students TIPE project “Transport optimal et applications” (2013-2014),
- Popularisation article *Propriétés émergentes en économie* in MPT2013,
- Popularisation article *Quand les cellules font bloc* in MPT2013.

4 Other

4.1 Referee activities

- Referee for Mohammed Mraoua’s PhD “Gestion du risque climatique par l’utilisation des produits dérivés d’assurance”,
- Referee for the Wittgenstein Award of the Austrian Science Fund,
- Referee for the FNRS,
- Referee for the ANR,
- Referee for various journals (ARMA, CPDE, JMPA, etc.).

4.2 Administrative responsibilities

- Responsable of the toulousan pole of the ANR project GeoPor “Approche géométrique pour les écoulements en milieux poreux : théorie et numérique” (2014-2017),
- Coordinator of the PEPS project “Dynamiques et émergence en économie et en sciences sociales” (2014),
- Coordinator of the PEPS project “Dynamiques et émergence en économie et en sciences sociales” (2013),
- Coordinator of the ANR project EVaMEF “Modèles variationnels et d’évolution en économie et en finance” (2009-2012) with F. Bolley, G. Carlier, T. Mariotti, F. Santambrogio & S. Villeneuve,
- Exterior member of the scientific council of Université Paul Sabatier (2013-),
- Member of the scientific council of Université Toulouse 1 Capitole (2012-),
- Member of the GREMAQ department council (2009-),
- Member of opération post-doc (2013-),
- Member of opération postes (2009-2012).

4.3 Grants

- PES 2013-2017,
- PES 2009-2013,
- TSE Outstanding Vitæ Award 2010-2014,
- Délégation CNRS in 2012-2013.

4.4 Informatics

- Development of a webpage to reference the post-doc positions in mathematics in Europe : <http://postes.smai.emath.fr/postdoc/>,
- Development of a content software management for departments : <http://w3-gremaq.univ-tlse1.fr>.