# Giuseppe Savaré – Curriculum vitae

## Personal information

Savaré, Giuseppe
Nationality: Italian.    Born 1966.

## Education

1984–1988: *Laurea (cum laude) in Mathematics*, University of Pavia, Italy:
*Problemi di discretizzazione per equazioni differenziali astratte.* Advisor: prof. Claudio Baiocchi.

## Current position

2000–present: *Full Professor*, Mathematical Analysis
Department of Mathematics "F. Casorati", University of Pavia, Italy

## Previous positions

1990–1998: *Researcher*, Institute of Numerical Analysis, Pavia.
Italian National Council of Research (C.N.R.)
1998–2000: *Associate professor*, Faculty of Engineering, University of Pavia, Italy.

## Fellowships and awards

1994: *Gioachino Japichino Prize*, awarded by the *Accademia Nazionale dei Lincei* to a mathematician (under 30 years of age) for a relevant publication in Analysis.
2011: *Ennio De Giorgi Prize,* first edition; awarded by the *Italian Mathematical Union* to a mathematician under 45 years of age.
2009-: Membro Corrispondente, *Istituto Lombardo, Accademia di Scienze e Lettere*, Milano.
2015: *John von Neumann Visiting Professor*, Technische-Universität München.
2016: Invited Speaker at the $7^{th}$ European Congress of Mathematics (7ECM), Berlin: section "Analysis and PDEs".
2019-: *Hans Fischer senior fellow*, Institute for Advanced Study (IAS), Technical University of Munich.

## Institutional responsabilities

1998-: IMATI-CNR, research associate.
2001-2008: Director of the PhD program in *Mathematics and Statistics*, Università di Pavia.
2019-: Director of the *Advanced School of Ph.D. Higher Education* (SAFD), Università di Pavia.

## Commissions of trust

2018–present: Scientific Advisory Board, Unione Matematica Italiana (UMI).
2014–present: Scientific Advisory Board, C.I.M.E. foundation, Firenze, Italy.
2014–2016: University Assessment Commission, University of Pavia.

## Editorial boards

2013–present: Potential Analysis.
2016–present: Applied Mathematics and Optimization

## Teaching activities

I have mainly been teaching courses of Mathematical Methods for the Engineering Faculty. Since 2014 I have also been teaching the courses of Analysis III or Analysis I for the degree in Mathematics and the degree in Physics.

Since 2000, for the PhD programme in *Mathematics and Statistics* (Pavia), I have also been teaching various courses as PDEs, Semigroup Theory, Calculus of Variations, Optimal transport.

## Invited courses to international advanced schools

– *New trends on Analysis and Geometry in Metric Spaces*, CIME -CIRM course 2017: Sobolev spaces, optimal transport and heat flow in metric measure spaces.

– *Gradient flows and entropy methods*, HIM, Bonn, 2015: The Weighted Energy-Dissipation (WED) principle for gradient flows.

– *Analysis and Geometry on Singular Spaces*, Scuola Normale Superiore, Pisa, 2014: Metric measure spaces with Riemannian Ricci curvature bounded from below.

– *Seventh Summer School in Analysis and Applied Mathematics*, Roma, 2013: Gradient flows and rate-independent evolutions: a variational approach.

– *CNA Summer School on "New Vistas in Image Processing and PDEs"* Carnegie Mellon University, Pittsburgh, 2010: Applications of optimal transport to evolutionary PDEs.

– *School on "Optimal transport:Theory and applications"* Institut Fourier, Grenoble, 2008: Gradient flows and optimal transport.

– *EVEQ2008*, Prague, 2008: A variational approach to gradient flows and rate-independent problems.

– *School in Nonlinear Analysis and Calculus of Variations* Scuola Normale Superiore, Pisa, 2006: Gradient flows: a variational approach.

## Supervision of Ph.D. students

1998: Simona Sanfelici (now Associate professor, University of Parma; co-advised with Piero Colli Franzone),

2005: Riccarda Rossi (now associate professor, University of Brescia),

2006: Stefano Lisini (now assistant professor, University of Pavia)

2007: Marco Veneroni (now associate professor, University of Pavia),

2011: Luca Natile (now high school professor),

2014: Dario Mazzoleni (now assistant professor, University of Brescia; co-advised with Aldo Pratelli, Erlangen),

2015: Giovanni Bonaschi (now Portfolio Manager at ARCA Fondi SGR, Milano; co-advised with Mark Peletier, Eindhoven.)

2016: Luca Minotti (now Functional Analyst, Accenture)

Current: Nicolò De Ponti

## Postdoctoral fellows

2006-2008: Antonio Marigonda (now assistant professor, University of Verona)

2007-2008: Daniel Matthes (now full professor, Technische Universität München)

2009-2011: Edoardo Mainini (now assistant professor, University of Genova)

2015-2016: Matteo Muratori (now assistant professor, Politecnico di Milano)

2015-2016: Carlo Orrieri (now assistant professor, Università di Trento)

2017: Dario Mazzoleni (now assistant professor, University of Brescia)

2017-: Giulia Cavagnari

## Reserach projects

2016–present: Principal Investigator of the Cariplo-Regione Lombardia grant for the project *Variational Evolution Problems and Optimal Transport* (84.000 e).

Leader of the Pavia Research unit of the following Projects of National Interest (PRIN) funded by the italian ministry of education (MIUR):

2019-: *Calculus of Variations* National leader: Luigi Ambrosio (80.199 e).

2017-: *Calculus of Variations* National leader: Luigi Ambrosio (23.688 e).

2013-2016: *Calculus of Variations* National leader: Gianni Dal Maso (92.358 e).

2010-2012: *Variational, functional-analytic, and optimal transport methods for dissipative evolutions and stability problems* National leader: Luigi Ambrosio (45.086 e).

2007-2009: *Optimal Transport and evolution variational problems* National leader: Luigi Ambrosio (14.350 e).

## Organization of scientific meetings

2018, 2016, 2014, 2012, 2010, 2008: Workshops on *Optimal Transportation and Applications*, De Giorgi Center, Pisa (IT). Co-organizers: L. Ambrosio, G. Buttazzo, A. Mielke, N. Gigli.

2018: *Optimal Control and Mean Field Games*, Pavia. Co-organizers: G. Cavagnari, S. Lisini, C. Orrieri.

2018: *Optimal Transport: Numerical Methods and Applications*, Lake Como School od Advanced Studies. Co-organizer: F. Santambrogio.

2016: bimester on *Nonlinear Flows*, Research Centre ESI, University of Vienna. Co-organizers: E. Feireisl, A. Juengel, A. Mielke, U. Stefanelli.

2014 and 2011: MFO Workshop. *Variational Methods for Evolution*, Oberwolfach (DE). Co-organizers: L. Ambrosio, A. Mielke, M. Peletier, U. Stefanelli.

2011: Conference *Analysis and Numerics of PDEs - In memory of Enrico Magenes,* Pavia (IT).

2010: BIRS Workshop: *Rate-independent systems: Modeling, Analysis, and Computations*, Banff (CA). Co-organizer: U. Stefanelli.

2008: CIME Course: *Nonlinear Partial Differential Equations and Applications,* Cetraro (IT). Co-organizer: L. Ambrosio.

## Invited presentations to conferences (selection)

– Workshop: *Optimal transport and Geometric Analysis*, Venice, 2019.

– ICMS Workshop: *Gradient flows: challenges and new directions*, Edinburgh, 2018.

– BIRS workshop: *Topics in the Calculus of Variations: Recent Advances and New Trends*, Banff, 2018.

– BIRS workshop: *Entropies, the Geometry of Nonlinear Flows, and their Applications*, Banff, 2018.

– MFO workshop: *Applications of Optimal Transportation in the Natural Sciences* Oberwolfach, 2017.

– MFO workshop: *Heat Kernels, Stochastic Processes and Functional Inequalities* Oberwolfach, 2016.

– International conference: *A mathematical Tribute to Ennio De Giorgi*, Pisa, 2016.

– 7th European Congress of Mathematics, Berlin, 2016 (Invited talk, Analysis and its Applications).

– Workshop *Analysis in Lyon*, Lyon, 2015.

– Conference on *New trends in Optimal Transport*, HIM, Bonn, 2015.

– BIRS workshop: *Entropy Methods, PDEs, Functional Inequalities, and Applications*, Banff, 2014.

– International Conference on *Fractal Geometry and Stochastics V*, Tabarz (DE), 2014. Plenary speaker.

– Workshop on *Infinite-Dimensional Geometry*, MSRI, Berkeley, 2013.

– EQUADIFF 2013, Prague. Plenary speaker.

– BIRS Workshop: *Optimal Transportation and Differential Geometry* Banff, 2012.

– MFO workshop: *Interplay of Analysis and Probability in Physics* Oberwolfach, 2012.

– MFO workshop: *Manifolds with Lower Curvature Bounds*, Oberwolfach, 2012.

– RISM meeting: *Multiphase and Multiphysics problems,* Verbania (IT), 2011.

– BIRS workshop: *Nonlinear Diffusions and Entropy Dissipation: From Geometry to Biology*, Banff, 2010.
– CIRM-HCM Meeting: *Stochastic Analysis, SPDEs, Particle Systems, Optimal Transport*, Levico (IT), 2010.
– Wokshop on *Particle systems, nonlinear diffusions, and equilibration*, HCM, Bonn, 2007.
– Workshop on *Optimal Transportation, and Applications to Geophysics and Geometry*, Edinburgh, 2007.
– Workshop on *Optimal transport: theory and application*, Centro De Giorgi, Pisa, 2006.
– *10th Conference on Free Boundary Problems*, Coimbra, June 7-12, 2005, Plenary speaker.

## Major collaborations

I have collaborated with more than 50 different co-authors. Among the main collaborations (not counting former PhD students), I recall

*Luigi Ambrosio* (Scuola Normale Superiore, Pisa, I): Optimal Transport, Gradient flows, analysis in metric-spaces. Together with N. Gigli, we wrote the monograph *Gradient flows in metric spaces and in spaces of probability measures,* Birkhäuser, 2005 (second edition in 2008).
*Yann Brenier* (Ecole polytechnique, Paris, F): Sticky particle dynamics.
*Piero Colli Franzone* (Pavia, I): Mathematical models for electrocardiology.
*Jean Dolbeault* (Université Paris Dauphine, Paris, F): Transport distances, functional inequalities.
*Massimo Fornasier* (Technical University of Munich, D): Mean field optimal control.
*Alexander Mielke* (WIAS, Berlin, D): Rate-independent problems, Entropy-transport problems.
*Nicola Gigli* (SISSA, Trieste, I): Analysis in metric-measure spaces.
*Daniel Matthes* (Technical University of Munich, D): Fourth order nonlinear diffusion equations.
*Robert McCann* (Toronto, CA): Fourth order nonlinear diffusion equations.
*Ricardo H. Nochetto* (University of Maryland, USA): Optimal error estimates for evolution problems.
*Mark Peletier* (TU Eindhoven, NL): Reaction-diffusion systems, Fokker-Planck equations.
*Alessio Porretta* (Università di Roma Tor Vergata, I): Mean field planning
*Giuseppe Toscani* (Pavia, I): Nonlinear diffusion equations, entropy methods.

# Selected Publications

The MathSciNet-Mathematical Reviews (MSC) database of the American Mathematical Society attributes to me 84 publications with 2907 citations by 1625 authors, *h*-index: 28 (MSC), 37 (Google Scholar).

## ISI Highly cited papers

*Metric measure spaces with Riemannian Ricci curvature bounded from below* (with L. Ambrosio, N. Gigli). Duke Math. J., 163 (2014):1405–1490, cit. 137 according to MathSciNet (MSC). Rank 4th among 2014 most cited papers according to MathSciNet. [The first paper on Riemannian RCD(K,∞) spaces with quadratic Cheeger energy]

*Calculus and heat flow in metric measure spaces and applications to spaces with Ricci bounds from below* (with L. Ambrosio, N. Gigli). Invent. Math. 195 (2014), 289–391, cit. 113 (MSC). Rank 10th among 2014 most cited papers according to MathSciNet. [Sobolev spaces, Heat flow and Cheeger energy in metric–measure spaces: $L^2$ and Optimal Transport theory]

*Bakry-Émery curvature-dimension condition and Riemannian Ricci curvature bounds* (with L. Ambrosio, N. Gigli). Annals of Probability, 43, (2015): 339–404, cit. 67 (MSC). [The rigorous proof of the equivalence between the Bakry-Émery and the RCD condition for metric-measure spaces]

*Density of Lipschitz functions and equivalence of weak gradients in metric measure spaces* (with L. Ambrosio, N. Gigli). Rev. Mat. Iberoamer., 29 (2013) 969-996, cit. 54 (MSC) [Proof of the equivalence of the Cheeger and the Newtonian definition of Sobolev spaces]

## Other publications

*Optimal entropy-transport problems and a new Hellinger-Kantorovich distance between positive measures* (with M. Liero, A. Mielke). Invent. Math. 211 (2018), no. 3, 969–1117 [The full analysis of unbalanced/entropic optimal transport and Hellinger-Kantorovich distance]

*Balanced viscosity (BV) solutions to infinite-dimensional rate-independent systems* (with A. Mielke, R. Rossi). JEMS, 18 (2016) 2107–2165, cit. 17 (MSC) [The first contribution to existence, characterization and properties of Balanced Viscosity solutions in infinite dimension]

*On the Bakry-Emery Condition, the Gradient Estimates and the Local-to-Global Property of RCD\*(K, N) Metric Measure Spaces* (with L. Ambrosio, A. Mondino). Journal of Geom. Analysis, 26 (2016) 24–56, cit. 42 (MSC) [Local-to-global property for the RCD condition]

*On the duality between p-Modulus and probability measures* (with L. Ambrosio, S. Di Marino) JEMS, 17 (2015) 1817–1853, cit. 8 (MSC) [Equivalence of the metric definition of Sobolev spaces based on *p*-modulus or on probability measures on curves]

*Self-improvement of the Bakry-Émery condition and Wasserstein contraction of the heat flow in RCD(K,∞) metric measure spaces*, Discrete Contin. Dyn. Syst. 34 (2014), no. 4, 1641–1661, cit. 41 (MSC). [Proof of the stronger version of the Bakry-Émery condition for general RCD metric-measure spaces]

*From diffusion to reaction via Γ-convergence* (with M. A. Peletier, M. Veneroni). SIAM J. Math. Anal. 42 (2010):1805–1825. Cit. 11 (MSC). [SIAM Review's SIGEST award]

*Existence and stability for Fokker-Planck equations with log-concave reference measure* (with L. Ambrosio, L. Zambotti). Probab. Theory Related Fields, 145 (2009):517–564. Cit. 50. [The closability of the Dirichlet form associated with a log-concave measure in infinite dimension]

*The Wasserstein gradient flow of the Fisher information and the quantum drift-diffusion equation* (with U. Gianazza, G. Toscani). Arch. Ration. Mech. Anal., 194 (2009):133–220. Cit. 74 (MSC). [Existence of nonnegative solutions to the fourth-order singular nonlinear diffusion DLSS equation in quantum mechanics]

*A new class of transport distances between measures* (with J. Dolbeault, B. Nazaret). Calc. Var. Partial Differential Equations, 39 (2009):193–231. Cit. 57 (MSC). [The construction and analysis, by the dynamical approach, of transport distances associated with nonlinear mobilities]

*Multiscale modeling for the bioelectric activity of the heart* (with M Pennacchio, P. Colli Franzone). SIAM J. Math. Anal., 37 (2005):1333–1370 Cit. 51. [The first rigorous justification of the Bidomain model of the cardiac electric field]

*A posteriori error estimates for variable time-step discretizations of nonlinear evolution equations* (with R.H. Nochetto, C. Verdi). Comm. Pure Appl. Math., 53 (2000):525–589. Cit. 80 [Optimal a posteriori and a priori error estimates for gradient flows in Hilbert spaces]

*Regularity results for elliptic equations in Lipschitz domains* J. Funct. Anal., 152 (1998):176–201 Cit. 97. [A variational approach to the optimal Besov regularity of elliptic problems in Lipschitz domains]

## Monographs and contributions to volumes

*Gradient flows in metric spaces and in the space of probability measures* (with Ambrosio, N. Gigli) Lectures in Mathematics ETH Zürich. Birkhäuser Verlag, Basel, 2005 (second edition 2008). The two editions have received 950 citations, according to MSC.

*Computational electrocardiology mathematical and numerical modeling* (with P. Colli Franzone, L. F. Pavarino; contribution). In Complex systems in biomedicine, pages 187–241. Springer Italia, Milan, 2006.

# Complete list of publications

## Preprints

[1]    Giulia Luise and Giuseppe Savaré. "Contraction and regularizing properties of heat flows in metric measure spaces". In: *ArXiv:* 1904.09825 (2019). url: https://arxiv.org/abs/1810.03939.

[2]    Luigi Ambrosio, Massimo Fornasier, Marco Morandotti, and Giuseppe Savaré. "Spatially Inhomogeneous Evolutionary Games". In: *ArXiv:* 1805.04027 (2018). url: https://arxiv.org/abs/1805.04027.

[3]    Matteo Muratori and Giuseppe Savaré. "Gradient flows and Evolution Variational Inequalities in metric spaces. I: structural properties". In: *ArXiv:* 1810.03939 (2018). pp. 1–51. url: https://arxiv.org/abs/1810.03939.

## Accepted papers

[4]    Massimo Fornasier, Stefano Lisini, Carlo Orrieri, and Giuseppe Savaré. "Mean-field optimal control as Gamma-limit of finite agent controls". In: *European Journal of Applied Mathematics, in press* (2019), pp. 1–34. doi: 10.1017/s0956792519000044.

[5]    Carlo Orrieri, Alessio Porretta, and Giuseppe Savaré. "A variational approach to the mean field planning problem". In: *Journal of Functional Analysis, in press* 1807.09874 (2019). doi: 10.1016/j.jfa.2019.04.011.

[6]    Riccarda Rossi, Giuseppe Savaré, Antonio Segatti, and Ulisse Stefanelli. "Weighted Energy-Dissipation principle for gradient flows in metric spaces". In: *J. Math. Pures Appl., in press* (2018). doi: 10.1016/j.matpur.2018.06.022. url: https://doi.org/10.1016/j.matpur.2018.06.022.

[7]    Florentin Fleissner and Giuseppe Savaré. "Reverse approximation of gradient flows as Minimizing Movements: a conjecture by De Giorgi". In: *Ann. Sc. Norm. Super. Pisa Cl. Sci., in press* (2017), pp. 1–30. url: http://arxiv.org/abs/1711.07256.

[8]    Luigi Ambrosio, Andrea Mondino, and Giuseppe Savaré. "Nonlinear diffusion equations and curvature conditions in metric measure spaces". In: *Memoirs of the A.M.S., in press* (2015). url: http://arxiv.org/abs/1509.07273.

## Published papers

[9]    Matthias Liero, Alexander Mielke, and Giuseppe Savaré. "Optimal entropy-transport problems and a new Hellinger-Kantorovich distance between positive measures". In: *Invent. Math.* 211.3 (2018), pp. 969–1117. issn: 0020-9910. doi: 10.1007/s00222-017-0759-8.

[10]   Alexander Mielke, Riccarda Rossi, and Giuseppe Savaré. "Global existence results for viscoplasticity at finite strain". In: *Arch. Ration. Mech. Anal.* 227.2 (2018), pp. 477–543. issn: 0003-9527. doi: 10.1007/s00205-017-1165-5.

[11]   Luca Minotti and Giuseppe Savaré. "Viscous corrections of the Time Incremental Minimization Scheme and Visco-Energetic Solutions to Rate-Independent Evolution Problems". In: *Arch. Ration. Mech. Anal.* 227.2 (2018), pp. 477–543. issn: 0003-9527. doi: 10.1007/s00205-017-1165-5.

[12]   Luigi Ambrosio, Nicola Gigli, and Giuseppe Savaré. "Diffusion, optimal transport and Ricci curvature for metric measure spaces". In: *Eur. Math. Soc. Newsl.* 103 (2017), pp. 19–28. issn: 1027-488X. doi: 10.4171/news/103/4.

[13] Luigi Ambrosio, Matthias Erbar, and Giuseppe Savaré. "Optimal transport, Cheeger energies and contractivity of dynamic transport distances in extended spaces". In: *Nonlinear Anal.* 137 (2016), pp. 77–134. issn: 0362-546X. doi: 10.1016/j.na.2015.12.006.

[14] Luigi Ambrosio, Andrea Mondino, and Giuseppe Savaré. "On the Bakry-Émery condition, the gradient estimates and the local-to-global property of RCD $^*(K, N)$ metric measure spaces". In: *J. Geom. Anal.* 26.1 (2016), pp. 24–56. issn: 1050-6926. doi: 10.1007/s12220-014-9537-7.

[15] Matthias Liero, Alexander Mielke, and Giuseppe Savaré. "Optimal Transport in Competition with Reaction: The Hellinger–Kantorovich Distance and Geodesic Curves". In: *SIAM J. Math. Anal.* 48.4 (2016), pp. 2869–2911. issn: 0036-1410. doi: 10.1137/15M1041420.

[16] Alexander Mielke, Riccarda Rossi, and Giuseppe Savaré. "Balanced viscosity (BV) solutions to infinite-dimensional rate-independent systems". In: *J. Eur. Math. Soc. (JEMS)* 18.9 (2016), pp. 2107–2165. issn: 1435-9855. doi: 10.4171/JEMS/639.

[17] Alexander Mielke, Riccarda Rossi, and Giuseppe Savaré. "Balanced-viscosity solutions for multi-rate systems". In: *J. Phys. Conf. Ser.* 727 (2016), pp. 012010, 26. issn: 1742-6588. doi: 10.1088/1742-6596/727/1/012010.

[18] Virginia Agostiniani, Riccarda Rossi, and Giuseppe Savaré. "On the transversality conditions and their genericity". In: *Rend. Circ. Mat. Palermo (2)* 64.1 (2015), pp. 101–116. issn: 0009-725X. doi: 10.1007/s12215-014-0184-4.

[19] Luigi Ambrosio, Nicola Gigli, and Giuseppe Savaré. "Bakry-Émery curvature-dimension condition and Riemannian Ricci curvature bounds". In: *Ann. Probab.* 43.1 (2015), pp. 339–404. issn: 0091-1798. doi: 10.1214/14-AOP907.

[20] Luigi Ambrosio, Simone Di Marino, and Giuseppe Savaré. "On the duality between $p$-modulus and probability measures". In: *J. Eur. Math. Soc. (JEMS)* 17.8 (2015), pp. 1817–1853. issn: 1435-9855. doi: 10.4171/JEMS/546.

[21] Nicola Gigli, Andrea Mondino, and Giuseppe Savaré. "Convergence of pointed non-compact metric measure spaces and stability of Ricci curvature bounds and heat flows". In: *Proc. Lond. Math. Soc. (3)* 111.5 (2015), pp. 1071–1129. issn: 0024-6115. doi: 10.1112/plms/pdv047.

[22] Luigi Ambrosio, Nicola Gigli, and Giuseppe Savaré. "Calculus and heat flow in metric measure spaces and applications to spaces with Ricci bounds from below". In: *Invent. Math.* 195.2 (2014), pp. 289–391. issn: 0020-9910. doi: 10.1007/s00222-013-0456-1.

[23] Luigi Ambrosio, Nicola Gigli, and Giuseppe Savaré. "Metric measure spaces with Riemannian Ricci curvature bounded from below". In: *Duke Math. J.* 163.7 (2014), pp. 1405–1490. issn: 0012-7094. doi: 10.1215/00127094-2681605.

[24] Giuseppe Savaré. "Self-improvement of the Bakry-Émery condition and Wasserstein contraction of the heat flow in RCD $(K, \infty)$ metric measure spaces". In: *Disc. Cont. Dyn. Sist. A* 34 (2014), pp. 1641–1661. doi: 10.3934/dcds.2014.34.1641.

[25] Giuseppe Savaré and Giuseppe Toscani. "The concavity of Rényi entropy power". In: *IEEE Trans. Inform. Theory* 60.5 (2014) pp. 2687–2693 issn: 0018-9448 doi: 10.1109/TIT.2014.2309341.

[26] Luigi Ambrosio, Nicola Gigli, and Giuseppe Savaré. "Density of Lipschitz functions and equivalence of weak gradients in metric measure spaces". In: *Rev. Mat. Iberoamericana* 29 (2013), 969–986'. doi: 10.4171/RMI/746.

[27] Y. Brenier, W. Gangbo, G. Savaré, and M. Westdickenberg. "Sticky particle dynamics with interactions". In: *J. Math. Pures Appl. (9)* 99.5 (2013), pp. 577–617. issn: 0021-7824 doi: 10.1016/j.matpur.2012.09.013.

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[28] Alexander Mielke, Riccarda Rossi, and Giuseppe Savaré. "Nonsmooth analysis of doubly non-linear evolution equations". In: *Calc. Var. Partial Differential Equations* 46.1-2 (2013), pp. 253–310. issn: 0944-2669. doi: 10.1007/s00526-011-0482-z.

[29] Riccarda Rossi and Giuseppe Savaré."A characterization of Energetic and BV solutions to one-dimensional rate-independent systems". In: *Discrete Contin. Dyn. Syst. (S)* 6.1 (2013), pp. 167–191. doi: 10.3934/dcdss.2013.6.167.

[30] Steffen Arnrich, Alexander Mielke, Mark A. Peletier, Giuseppe Savaré, and Marco Veneroni. "Passing to the Limit in a Wasserstein Gradient Flow: From Diffusion to Reaction". In: *Calc. Var. Partial Differential Equations* 44.3 (2012), pp. 419–454. doi: 10.1007/s00526-011-0440-9.

[31] Jean Dolbeault, Bruno Nazaret, and Giuseppe Savaré. "From Poincaré to logarithmic Sobolev inequalities: a gradient flow approach". In: *SIAM J. Math. Anal.* 44.5 (2012), pp. 3186–3216. issn: 0036-1410. doi: 10.1137/110835190.

[32] Simona Fornaro, Stefano Lisini, Giuseppe Savaré, and Giuseppe Toscani. "Measure valued solutions of sub-linear diffusion equations with a drift term". In: *Discrete Contin. Dyn. Syst. (A)* 32.5 (2012), pp. 1675–1707. doi: 10.3934/dcds.2012.32.1675.

[33] Stefano Lisini, Daniel Matthes, and Giuseppe Savaré. "Cahn-Hilliard and Thin Film equations with nonlinear mobility as gradient flows in weighted-Wasserstein metrics". In: *J. Differential Equations* 253.2 (2012), pp. 814–850. doi: 10.1016/j.jde.2012.04.004.

[34] Alexander Mielke, Riccarda Rossi, and Giuseppe Savaré. "BV solutions and viscosity approximations of rate-independent systems". In: *ESAIM: Control, Optimisation and Calculus of Variations* 8 (2012), pp. 36–80. doi: 10.1051/cocv:2006013.

[35] Alexander Mielke, Riccarda Rossi, and Giuseppe Savaré. "Variational convergence of gradient flows and rate-independent evolutions in metric spaces". In: *Milan J. Math.* 80.2 (2012), pp. 381–410. issn: 1424-9286. doi: 10.1007/s00032-012-0190-y.

[36] Mark A. Peletier, Giuseppe Savaré, and Marco Veneroni. "Chemical Reactions as Γ-Limit of Diffusion". In: *SIAM Review* 54.2 (2012), pp. 327–352. doi: 10.1137/110858781.

[37] Luca Natile, Mark A. Peletier, and Giuseppe Savaré. "Contraction of general transportation costs along solutions to Fokker-Planck equations with monotone drifts". In: *Journal de Mathématiques Pures et Appliqués* 95 (2011), pp. 18–35. doi: 10.1016/j.matpur.2010.07.003.

[38] Riccarda Rossi, Giuseppe Savaré, Antonio Segatti, and Ulisse Stefanelli. "A variational principle for gradient flows in metric spaces". In: *C. R. Math. Acad. Sci. Paris* 349.23-24 (2011), pp. 1225–1228. issn: 1631-073X. doi: 10.1016/j.crma.2011.11.002.

[39] Josè A. Carrillo, Stefano Lisini, Giuseppe Savaré, and Dejan Slepcev. "Nonlinear mobility continuity equations and generalized displacement convexity". In: *J. Funct. Anal.* 258.4 (2010), pp. 1273–1309. issn: 0022-1236. doi: 10.1016/j.jfa.2009.10.016.

[40] Mark A. Peletier, Giuseppe Savaré, and Marco Veneroni. "From diffusion to reaction via Γ-convergence". In: *SIAM J. Math. Anal.* 42.4 (2010), pp. 1805–1825. issn: 0036-1410. doi: 10.1137/090781474.

[41] Luigi Ambrosio, Giuseppe Savaré, and Lorenzo Zambotti. "Existence and stability for Fokker-Planck equations with log-concave reference measure". In: *Probab. Theory Related Fields* 145.3-4 (2009), pp. 517–564. issn: 0178-8051. doi: 10.1007/s00440-008-0177-3.

[42] Jean Dolbeault, Bruno Nazaret, and Giuseppe Savaré."A new class of transport distances between measures". In: *Calc. Var. Partial Differential Equations* 34.2 (2009), pp. 193–231.

[43] Ugo Gianazza, Giuseppe Savaré, and Giuseppe Toscani. "The Wasserstein gradient flow of the Fisher information and the quantum drift-diffusion equation". In: *Arch. Ration. Mech. Anal.* 194.1 (2009), pp. 133–220. issn: 0003-9527. doi: 10.1007/s00205-008-0186-5.

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