

Antonio Siconolfi

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Personal

Born on November 3, 1951 in Lecce (Italy)

Italian Citizen

Private address: Via Celimontana 28, 00184 Rome (Italy) – Phone number: + 39 06 704 76 801.

Education

1969 – July Classical High School final examination (Maturità Classica) with grade 60/60, Liceo G. Palmieri Lecce (Italy).

1969– November Start of University studies, Corso di Laurea in Matematica –Università di Roma *La Sapienza*.

1974– April Degree in Mathematics (Laurea in Matematica) with grade 110/110 cum laude, Università di Roma *La Sapienza*.

Title of the Thesis: *Automorfismi senza punti fissi*, with original results published in Rend. Lincei. Matematica e Applicazioni (1976) and MATH. ARCH (1977) (in collaboration with the supervisor A. Machì).

N.B. At that time in Italy PhD programs did not exist. There were an unique degree (Laurea) after 4 years of study. To get it, it was compulsory to present a written dissertation (Tesi di Laurea). The student had to possibility to choose a research subject for it, and try to obtain original results.

1976–1978 Postdoc Scholarship (Assegnista di ricerca) Mathematics Department–Università di Roma *La Sapienza*.

1978–1980 Postdoc Scholarship, CEREMADE–Université de Paris–Dauphine.

Career History

1980–1983 Assistant Professor (Professore Incaricato)–temporary position, Mathematics Department–Università della Calabria (Italy). Working hours: 40 per week.

1984–1986 Assistant Professor (Professore Incaricato Stabilizzato)–permanent position, Mathematics Department–Università della Calabria.

1986–1987 Associate Professor, Mathematics Department–Università della Calabria.

1987– Associate Professor, Mathematics Department–Università di Roma *La Sapienza*.

Actual position

Professor of Mathematical Analysis

Department of Mathematics – *La Sapienza* University of Roma

Scientific Interests

Viscosity solutions theory.

Weak KAM theory.

Deterministic and stochastic homogenization of Hamilton–Jacobi equations.

Turbulent combustion models.

Inverse Lyapunov Theorems.

Time functions on oriented Lorentzian manifolds.

Recent Talks, Conferences and Visits

Ecole Normale Superieure de Lyon, January 2004, visiting Professor.

PDE Real Analysis Seminar, Tokyo March 2005 invited speaker.

Homogeneisation Aleatoire, Luminy July 2005, invited speaker.

MSRI workshop on Optimal transport and applications, Berkeley November 2005, invited speaker.

French –Italian Meeting SIMAI, Workshop su Viscosity solutions: qualitative theory and applications Torino, July 2006, co–organizer.

Fukuoka University, October 2006, visiting Professor.

New Trends in Viscosity Solutions and Nonlinear, PDEs, Lisboa July 2006, invited speaker.

Mathematical Models of Phenomena and Evolution Equations, Kyoto October 2006, invited speaker.

Ecole Normale Superieure de Lyon, May 2007, visiting Professor.

25th anniversary of Viscosity solutions, Tokyo June 2007, invited speaker.

Hamilton–Jacobi day, Madrid October 2007, invited speaker

Meeting of GREFI–MEFI 2008, Luminy February 2008, invited speaker.

Viscosity, metric and Control theoretic methods in nonlinear PDEs Rome, September 2008, co–organizer.

Nonlinear PDEs, Rome September 2008, invited speaker.

Nice weak KAM methods in Nice, Nice , February 2009, invited speaker.

Universidade Tecnica de Lisboa –Lisbon, April 2009, visiting Professor.

Viscosity Solutions of Differential Equations and Related Topics, Kyoto June 2009, invited speaker.

Asymptotics in complex system, Corinaldo September–October 2009, invited speaker

Ecole Nationale Supérieure de Techniques Avancées – Paris, May 2010, visiting Professor.

Ecole Normale Supérieure de Lyon, June 2010, visiting Professor

Rencontre KAM faible de Calvi, Calvi October 2010, invited speaker.

ITN Sadco Kick off Meeting, Paris March 2011, invited speaker.

Ecole Nationale Supérieure de Techniques Avancées – Paris, May 2011, visiting Professor.

UT Austin–Portugal Conference, Lisbon June 2011, invited speaker.

Hamiltonian Dynamics, Nanjing August 2011, invited speaker.

Weak KAM theory in Italy, INDAM workshop, Cortona September 2011, co–organizer.

Centro de Investigación en Matemáticas –Guanajuato, Mexico, October 2011, visiting Professor.

Dynamical Optimization in PDE and Geometry Applications to Hamilton–Jacobi, Bordeaux December 2011, invited speaker.

Geometric PDEs and applications. Padova April 2012, invited speaker.

Ecole Nationale Supérieure de Techniques Avancées – Paris, May 2012, visiting Professor.

New trends in optimal control. Ravello September 2012, invited speaker.

Control day. Padova September 2012, invited speaker.

Graduate School of Mathematical Sciences – University of Tokyo – Tokyo, October 2012 – January 2013, visiting Professor.

Colloquium of the Graduate School of Mathematical Sciences – University of Tokyo – Tokyo, October 2012, invited speaker.

Colloquium of Mathematics Department of Tohoku University– Sendai, November 2012, invited speaker.

Weak KAM Theory and Related Topics, PDE Real Analysis Symposium, Tokyo, January 2013, co–organizer.

Fukae Workshop on PDE, Kobe, January 2013.

Recent Publications

- A. Fathi, A. Siconolfi, Existence of C^1 critical subsolutions of the Hamilton–Jacobi equations. *Invent. Math.*, **155**, (2004), 363–388.
- A. Fathi, A. Siconolfi, PDE aspects of Aubry–Mather theory for quasiconvex Hamiltonians. *Calc. Var.*, **22** (2005), 185–228.
- F. Camilli, A. Siconolfi, Time–dependent measurable Hamilton–Jacobi equations. *Comm. Partial Differential Equations*, **30** (2005) 813–847.
- A. Davini, A. Siconolfi, A generalized dynamical approach to the large time behavior of solutions of Hamilton–Jacobi equations. *SIAM J. Math. Anal.*, **38** (2006), 478–502
- F. Camilli, A. Siconolfi, Effective Hamiltonian and homogenisation for measurable Eikonal equations. *Arch. for Rat. Mech. and Anal.*, **183** (2007), 1–20

- A. Siconolfi, G. Terrone, A metric approach to the converse Lyapunov Theorem for continuous multivalued dynamics. *Nonlinearity*, **20** (2007) 1077–1093
- O. Bernardi, F. Cardin, A. Siconolfi, Cauchy problems for stationary Hamilton–Jacobi Equations under mild regularity assumptions. *Journal of Geometric Mechanics*, **1** (2009) 271–294
- A. Siconolfi, Hamilton–Jacobi Equations and Dynamical Systems: Variational aspects, Encyclopedia of Mathematical Physics ed. by J.P. Francoise, G.L. Naber, T.S. Tsu, Elsevier **2** (2006) 636–644
- A. Siconolfi, Hamilton–Jacobi Equations and Weak KAM Theory, Encyclopedia of Complexity and System Science, Springer Verlag (2009) 4540–4561
- F. Camilli, A. Cesaroni, A. Siconolfi, Randomly perturbed dynamical system and Aubry–Mather theory. *J. of diffe. Syst. and diff. Equations*, **2** (2009) 125–146
- A. Davini, A. Siconolfi, Exact and approximate correctors for stochastic Hamiltonians: the 1?dimensional case. *Math Annalen*, **345** (2009) 749–782
- A. Davini, A. Siconolfi A metric analysis of critical Hamilton–Jacobi equations in the stationary ergodic setting. *Calc. of Variation and PDE*, **40** (2011) 391–421
- A. Davini, A. Siconolfi, Weak KAM topics in the stationary ergodic setting. To appear in *Calc. of Variation and PDE*
- A. Marigonda, A. Siconolfi, Metric formulae for nonconvex Hamilton–Jacobi equations and applications. *Advances in Diff. Eq.*, **7–8** (2011) 691–724
- A. Fathi, A. Siconolfi, On smooth time functions. *Math. Proc. Cambridge Phil Soc.*, **152** (2012) 303–339
- A. Siconolfi, G. Terrone, A metric approach of the converse Lyapunov Theorem for semicontinuous multivalued dynamics *J. Discr. Cont. Dyn. Sys A*, **32**, (2012) 4409– 4427
- G. Contreras, R. Iturriaga, A. Siconolfi, Homogenization on arbitrary manifolds. to appear *Calc. of Variation and PDE*
- A. Davini, A. Siconolfi, Existence of $C^{1,1}$ strict subsolutions in the stationary ergodic setting. Submitted
- Z. Rao, A. Siconolfi, H. Zidani, Transmissions conditions on interfaces for Hamilton–Jacobi Bellman equations. Submitted