

CURRICULUM VITAE OF MANUELA VALERIA BANICA

Born 16th September 1976 in Bucharest, Romania.

French and Romanian citizenships.

Affiliation: Laboratoire Jacques-Louis Lions, Sorbonne University.

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1. POSITIONS

09/2017–: Professor at Laboratoire Jacques-Louis Lions, Sorbonne University.

09/2015-08/2017: Transfert of the teaching duty at Paris 11 University.

02/2005-08/2017: Assistant Professor, Évry University.

09/2004-12/2004: Post-doctoral positions, Bilbao and Pisa.

10/1999-08/2003: Lecturer, Paris 11 University.

2. EDUCATION

11/2008: Habilitation thesis in Mathematics, Évry University.

09/2003: PhD thesis in Mathematics, advisor P. Gérard, Paris 11 University.

1997-2001: Student of École Normale Supérieure, Paris.

1994-1997: Student of the Faculty of Mathematics, Bucharest.

1990-1994: Informatics highschool of Bucharest.

3. DISTINCTIONS

2018-2023: Junior member of Institut Universitaire de France.

05/2015: Knight of the French National Order of Merit.

11/2014: La Recherche 2014 prize of Mathematics.

2012-2016 : PI of a National Agency of Research grant.

12/2004: Arconati Visconti prize of the Chancellery of Paris Universities for science PhD.

4. RESEARCH WORK

– Area: analysis of PDEs.

– Brief description of the research: My research is focused on linear and nonlinear Schrödinger equations in nonstandard settings: with variable coefficients, on manifolds, on graphs. I study the qualitative properties of the solutions: dispersive behavior, blow-up and instability phenomena, asymptotic regimes. I work especially on dispersive models for the time evolution of vortex filaments in fluids and superfluids. I am interested in describing situations leading to formation of singularities in finite time.

– About 25 papers published in peer-review journals and 80 seminar and conference talks. The full list of publications and talks is available on my webpage.

- Riemann's non-differentiable function and the binormal curvature flow, avec L. Vega,
ArXiv 2007.07184.
- On the energy of critical solutions of the binormal flow, avec L. Vega,
Comm. PDE 45 (2020), 820-845.
- Evolution of polygonal lines by the binormal flow, avec L. Vega,
Ann. PDE. 6 (2020), Paper No. 6, 53 pp.
- Singularity formation for the 1-D cubic NLS and the Schrödinger map on \mathbb{S}^2 , avec L. Vega,
Comm. Pure Appl. Anal. 17 (2018), 1317-1329.
- Collision of almost parallel vortex filaments, avec E. Faou et E. Miot,
Comm. Pure Appl. Math. 70 (2017), 378-405.
- Scattering for NLS with a delta potential, avec N. Visciglia,
J. Differential Equations 260 (2016), 4410-4439.
- The initial value problem for the binormal flow with rough data, avec L. Vega,
Ann. Sci. Éc. Norm. Supr. 48 (2015), 1421-1453.
Ce résultat fait l'objet d'un exposé au Sémin. Bourbaki, présenté par E. Miot.
- Global existence, scattering and blow-up for the focusing NLS on the hyperbolic space, avec T. Duyckaerts,
Dyn. of PDE 12 (2015), 53-96.
- Some constructions for the fractional Laplacian on noncompact manifolds, avec M. d. M. González et M. Sáez,
Rev. Mat. Iberoam. 31 (2015), 681-712.
- Dispersion for the Schrödinger equation on the line with multiple Dirac delta potentials and on delta trees, avec L. Ignat,
Analysis & PDE 7 (2014), 903-927.
- Collisions of vortex filament pairs, avec E. Faou et E. Miot,
J. Nonlinear Sci. 24 (2014), 1263-1284.
- Evolution, interaction and collisions of vortex filaments, avec E. Miot,
Diff. Int. Eqs. 26 (2013), 355-388.
- Stability of the selfsimilar dynamics of a vortex filament, avec L. Vega,
Arch. Ration. Mech. Anal. 210 (2013), 673-712.
- Selfsimilar solutions of the binormal flow and their stability, avec L. Vega,
Panoramas et Synthèses 38 (2012), 1-35.
- Global existence and collisions for symmetric configurations of nearly parallel vortex filaments, avec E. Miot,
Ann. I. H. Poincaré, An. Non Lin. 29 (2012), 813-832.
- Scattering for 1D cubic NLS and singular vortex dynamics, avec L. Vega,
J. Eur. Math. Soc. 14 (2012), 209-253.
- Dispersion for the Schrödinger Equation on Networks, avec L. Ignat,
J. Math. Phys. 52 (2011), 083703.
- Minimal blow-up solutions to the mass-critical inhomogeneous NLS equation, avec R. Carles et T. Duyckaerts,
Comm. PDE 36 (2011), 487-531.

- On scattering for NLS: from Euclidean to hyperbolic space, avec R. Carles et T. Duyckaerts,
Discrete Contin. Dyn. Syst. Ser. A 24 (2009), 1113-1127.
- On the stability of a singular vortex dynamics, avec L. Vega,
Comm. Math. Phys. 286 (2009), no. 2, 593-627.
- Scattering theory for radial nonlinear Schrödinger equations on hyperbolic space, avec R. Carles et G. Staffilani,
Geom. Funct. Anal. 18 (2008), no. 2, 367-399.
- On the Dirac delta as initial condition for nonlinear Schrödinger equations, avec L. Vega,
Ann. I. H. Poincaré, An. Non Lin. 25 (2008), no. 4, 697-711.
- Weighted Strichartz estimates for radial Schrödinger equation on noncompact manifolds, avec T. Duyckaerts,
Dyn. PDE 4 (2007), no. 4, 335-359.
- The nonlinear Schrödinger equation on hyperbolic space,
Comm. PDE 32 (2007), no. 10, 1643-1677.
- Remarks on the blow-up for the Schrödinger equation with critical mass on a plane domain,
Ann. Sc. Norm. Super. Pisa (5), Vol. III (2004), 139-170.
- On the nonlinear Schrödinger dynamics on \mathbb{S}^2 ,
J. Math. Pures Appl. 83 (2003), no. 1, 77-98.
- Dispersion and Strichartz Inequalities for Schrödinger Equations with Singular Coefficients,
SIAM J. Math. Anal. 35 (2003), no. 4, 868-883.