Luigi Forcella – CV

Contact Informations

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ORCID Profile:	ORCID

Employment History

- April 2022 – present: Assistant Professor, non-tenured (Italian RTD-A – Ricercatore a Tempo Determinato di Tipo A), at the **University of L'Aquila**.
- October 2020 – March 2022: Research Associate (PostDoc) at the **Heriot-Watt University**, and **The Maxwell Institute for the Mathematical Sciences**.
  Supervisors: Professors Oana Pocovnicu and Tadahiro Oh.

  I was a member of the research team for the project `Deterministic and probabilistic dynamics of nonlinear dispersive PDEs`, funded by the "Engineering and Physical Sciences Research Council", Award EP/S033157/1, PI Prof. O. Pocovnicu.
- February 2018 – September 2020: Research Scientist (PostDoc) at **École Polytechnique Fédérale de Lausanne**.
  Supervisor: Professor Joachim Krieger.

  I was a member of the Chair of PDE.

Education

- 01 November 2014 – 31 January 2018: **Scuola Normale Superiore – Pisa (SNS)**

  PhD in Mathematics (Diploma di Perfezionamento). Thesis: "Asymptotic problems for some classes of dispersive PDEs". Advisor: Professor Nicola Visciglia.

  Defended ***cum Laude*** on 19 February 2018.

  Scientific committee: Professors Luigi Ambrosio (President, SNS), Franco Flandoli (SNS), Fulvio Ricci (SNS), Nikolay Tzvetkov (Referee, Cergy Pontoise – Paris), Luis Vega (Referee, BCAM – Bilbao), Nicola Visciglia (Advisor, University of Pisa).
- July, 2014: **University of L'Aquila**

  M.S. in Mathematics. Thesis: "On the Zakharov System". Advisors: Professor Pierangelo Marcati (University of L'Aquila) and Dr. Paolo Antonelli (GSSI – L'Aquila).
  Final grade: **110/110** ***cum Laude***.

- July, 2011: **University of L'Aquila**

  B.A. in Mathematics. Thesis: "The Stein-Tomas restriction theorem and Strichartz estimates". Advisor: Professor Pierangelo Marcati (University of L'Aquila).
  Final grade: **110/110 *cum Laude***.

- September 2012 – January 2013: **Pierre and Marie Curie, University, Paris VI**

  Erasmus student.

Awards

- **Global Talent for Exceptional Talent, awarded by The Royal Society**

  With this award, I have been granted permission to enter and stay in the UK under the Global Talent route "for leader or potential leader in academia or research" from 1st April 2021 until 1st April 2024.

- **Kovalevskaya Grant, endorsed by the International Mathematical Union and funded through the ICM Local Organizing Committee**

  With this grant, I can attend the ICM 2022 in St. Petersburg[1].

Research Activity

Papers

Preprints

14. Dynamics of solutions to the Gross-Pitaevskii equation describing dipolar Bose-Einstein condensates,
joint work with J. Bellazzini (University of Pisa).
`Submitted`. Link: preprint;

Accepted papers

13. On finite time blow-up for a 3D Davey-Stewartson system,
Proceedings of the American Mathematical Society, to appear. Link: preprint;

12. Ground state energy threshold and blow-up for NLS with competing nonlinearities,
joint work with J. Bellazzini (University of Pisa) and V. Georgiev (University of Pisa).
Annali della Scuola Normale Superiore di Pisa, to appear. Links: preprint;

Published papers

11. Mass-Energy Threshold Dynamics for Dipolar Quantum Gases,
joint work with V. D. Dinh (University of Lille) and H. Hajaiej (California State University).
Communications in Mathematical Sciences, Vol. 20, No. 1, pp. 165-200 (2022). Links: publisher, preprint;

[1] In-presence event cancelled, due to the Russo-Ukrainian War

10. Dynamical collapse of cylindrical symmetric Dipolar Bose-Einstein condensates,
joint work with J. Bellazzini (University of Sassari).
Calculus of Variations and Partial Differential Equations, 60, 229 (2021). Links: publisher, preprint;

9. Sharp conditions for scattering and blow-up for a system of NLS arising in optical materials with χ^3 nonlinear response,
joint work with A. H. Ardila (IMPA, Rio de Janeiro) and V. D. Dinh (University of Lille).
Communications in Partial Differential Equations, 46:11, 2134-2170. Links: publisher, preprint;

8. Blow-up results for systems of nonlinear Schrödinger equations with quadratic interaction,
joint work with V. D. Dinh (University of Lille).
Zeitschrift für angewandte Mathematik und Physik, Vol. 72, 178 (2021). Links: publisher, preprint;

7. Large data scattering for the Nonlinear Klein-Gordon equation on waveguide $\mathbb{R}^d \times \mathbb{T}$,
joint work with L. Hari (Université Franche-Comté).
Journal of Hyperbolic Differential Equations, Vol. 17, No. 02, pp. 355-394 (2020). Links: publisher, preprint;

6. Regularity results for rough solutions of the incompressible Euler equations via interpolation methods,
joint work with M. Colombo (EPFL) and L. De Rosa (EPFL).
Nonlinearity, 33 (2020) 4818-4836. Links: publisher, preprint;

5. Asymptotic dynamic for dipolar Quantum Gases below the ground state energy threshold,
joint work with J. Bellazzini (University of Sassari).
Journal of Functional Analysis, 277 (2019), no. 6, 1958-1998. Links: publisher, preprint;

4. Blow-up or global existence for the fractional Ginzburg-Landau equation in multi-dimensional case,
joint work with K. Fujiwara (CRM Ennio De Giorgi, Pisa), V. Georgiev (University of Pisa) and T. Ozawa (Waseda University, Tokyo).
New Tools for Nonlinear PDEs and Applications – Trends in Mathematics (2019), Birkhäuser. Links: publisher; preprint;

3. Local Well-posedness and Blow-up for the Half Ginzburg-Landau-Kuramoto equation with rough coefficients and potential,
joint work with K. Fujiwara (CRM Ennio De Giorgi, Pisa), V. Georgiev (University of Pisa) and T. Ozawa (Waseda University, Tokyo).
Discrete and Continuous Dynamical Systems, 2019 Vol. 39, N. 5, 2661-2678. Links: publisher, preprint;

2. Double scattering channels for 1D NLS in the energy space and a generalization to higher dimensions,
joint work with N. Visciglia (University of Pisa).
Journal of Differential Equations, 264 (2018), no. 2, 929-958. Links: publisher, preprint;

1. The electrostatic limit for the 3D Zakharov system,
joint work with P. Antonelli (GSSI, L'Aquila).
Nonlinear Analysis, 163 (2017), 19-33. Links: publisher, preprint.

Service

I serve as a Referee for international mathematical journals. I am also a contributor to MathSciNet as a Reviewer (MathSciNet Reviewer number: 135165)

Languages

Italian (mother-tongue), English, French.

L'Aquila, June 10th, 2022.