

Lucrezia Cossetti

Curriculum Vitae

Karlsruhe Institute of Technology (KIT),
Department of Mathematics,
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Personal Information

Date of birth July 5, 1990
Place of birth Rome, Italy
Nationality Italian

Present and Recent Positions

Jan. 2019-Jun. 2022 **Post-doc**, Department of Mathematics, Karlsruhe Institute of Technology, Karlsruhe, Germany.
Jul. 2018-Dec. 2018 **Post-doc**, Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague, Prague, Czech Republic.
Supervisor: David Krejčířík
May 2018-Jun. 2018 **Post-doc**, Laboratoire de Mathématiques J.A.Dieudonné, Université Côte D'Azur, Nice, France.
Supervisor: Oana Ivanovici
Jan. 2018-Mar. 2018 **Visiting Fellowship**, BCAM-Basque Center for Applied Mathematics, Bilbao, Spain.
Supervisor: Luis Vega

Education

Dec. 18, 2017 **PhD's degree in Mathematics**, "*Lamé and ZK: Spectral Analysis and Unique Continuation*", Sapienza University of Rome, Excellent.
Supervisor: Luca Fanelli
Oct. 29, 2014 **Master's degree in Mathematics**, "*Nonlinear wave equation with small data*", Sapienza University of Rome, 110/110 cum laude.
Supervisor: Piero D'Ancona
Jul. 25, 2012 **Bachelor's degree in Mathematics**, "*Fixed point theorems and applications*", Sapienza University of Rome, 110/110 cum laude.
Supervisor: Piero D'Ancona

Research Interests

Dispersive partial differential equations
Limiting absorption principles

Spectral theory
 Hardy-type inequalities
 Non-self-adjoint operators
 Uncertainty principles
 Unique continuation
 Solitons solutions

Publications (10)

- 2021 B. Cassano, L. Cossetti, L. Fanelli, *Spectral enclosures for the damped elastic wave equation*, Preprint on [arXiv:2108.07676\[math.SP\]](#)
- 2021 B. Cassano, L. Cossetti, L. Fanelli, *Improved Hardy-Rellich inequalities*, Preprint on [arXiv:2106.09804\[math.AP\]](#)
- 2019 L. Cossetti, *Bounds on eigenvalues for perturbed Lamé operators with complex potentials*, **Math. Eng.** 4 (2021), 5, 1-29, Available on [AIMS Press](#) (published-version)
- 2021 L. Cossetti, R. Mandel, *A limiting absorption principle for Helmholtz systems and time-harmonic isotropic Maxwell's equations*, **J. Funct. Anal.** 281 (2021), 11, 109233, Available on [ScienceDirect](#) (pre-published version)
- 2021 B. Cassano, L. Cossetti, L. Fanelli, *Eigenvalue bounds and spectral stability of Lamé operator with complex potentials*, **Journal of Differential Equations** 298 (2021), 528-559, Available on [ScienceDirect](#) (pre-published version)
- 2020 L. Cossetti, L. Fanelli and D. Krejčířík, *Absence of eigenvalues of Dirac and Pauli Hamiltonians via the method of multipliers*, **Comm. Math. Phys.** 379 (2020), 633-691, Available on [SpringerLink](#) (published version)
- 2020 L. Cossetti, D. Krejčířík, *Absence of eigenvalues of non-self-adjoint Robin Laplacians on half-space*, **Proc. Lond. Math. Soc.** 121 (3) (2020), 584-616, Available on [LMS](#) (published version)
- 2019 L. Cossetti, *On the unique continuation property of solutions to the two-dimensional Zakharov-Kuznetsov equation*, Preprint on [arXiv:1907.13377\[math.AP\]](#)
- 2019 L. Cossetti, L. Fanelli and F. Linares, *Uniqueness results for Zakharov-Kuznetsov equations*, **Comm. Partial Differential Equations** 44 (2019), 504-544, Available on [Taylor & Francis](#) (published version)
- 2017 L. Cossetti, *Uniform resolvent estimates and absence of eigenvalues for Lamé operator with complex potentials*, **J. Math. Anal. Appl.** 455 (2017), 336-360, Available on [ScienceDirect](#) (published version)

Conferences and Workshops (38)

- Oct. 2022 New trends in Mathematics of Dispersive, Integrable and Nonintegrable Models in Fluids, waves and Quantum Physics, Banff, Alberta, Canada (Organizer)
- Jul. 2022 Mathematical Aspects of Physics with non-self-Adjoint Operators, Banff, Alberta, Canada (Main speaker)

- Aug. 2021 International Conference of Mathematical Physics (ICMP), Geneve, Switzerland (Poster presentation)
- Jul. 2021 Young Research Symposium (YRS), Geneve, Switzerland (Poster presentation)
- Jun. 2021 *Mathematical Challenges in Quantum Mechanics*, Como, Italy (online)
- Feb. 2021 *Mathematical aspects of the physics with non-self-adjoint operators: 10 years after*, Marseille, France (Invited speaker - Video)
- Oct. 2020 CRC's annual meeting, Karlsruhe, Germany
- Jun. 2020 *On nonlinear PDEs: from physical to abstract framework*, Institut Mittag-Leffler, Djursholm, Sweden (Invited speaker)–[Cancelled due to COVID-19 pandemic]
- Jun. 2020 *3rd Bilbao meeting on Analysis and PDEs*, Bilbao, Spain (Invited speaker)–[Cancelled due to COVID-19 pandemic]
- Mar. 2020 *CRC's annual meeting*, Bad Herrenalb, Germany–[Cancelled due to COVID-19 pandemic]
- Mar. 2020 *Mathematical aspects of the physics with non-self-adjoint operators: 10 years after*, Marseille, France (Invited speaker)–[Postponed due to COVID-19 pandemic]
- Feb. 2020 *Special Functions and Semi-Classical Approximation*, Marseille, France (Invited speaker - Blackboard)
- Oct. 2019 *Asymptotic Analysis & Spectra Theory*, Orsay, France (Invited speaker - Slide)
- Sept. 2019 Minisymposium *Analysis of Wave Propagation DMV Jahrestagung*, Karlsruhe, Germany (Invited speaker - Slide)
- Sept. 2019 *ÖMG Conference 2019*, Dornbirn, Austria (Invited speaker - Slide)
- Jun. 2019 *Second International Conference on Applications of Mathematics to Nonlinear Sciences (AMNS-2019)*, Pokhara, Nepal (Invited speaker - Slide1 / Slide2)
- Jun. 2019 *Nonlinear Dispersive Waves, Solitons and Related Topics*, Djursholm, Sweden (Invited speaker - Slide)
- Mar. 2019 *PT-Symmetry and Physics with Non-Hermitian Hamiltonian*, Sanya, China (Invited speaker - Slide)
- Feb. 2019 *Nonlinear Waves and Hamiltonian PDE's*, La Thuile, Italy (Invited speaker - Slide)
- Jan. 2019 *10th Itinerant Workshop in PDE's*, Rome, Italy
- Nov. 2018 *Gran Sasso Quantum Meeting: From Many Particle Systems to Quantum Fluids*, L'Aquila, Italy
- Oct. 2018 *Nonlinear PDE's in Rome*, Rome, Italy (Invited speaker - Slide)
- Sept. 2018 *Linear and Nonlinear Wave Phenomena: Stability, Propagation of Regularity and Turbulence*, Cortona, Italy
- Jul. 2018 *Mathematics of Wave Phenomena in Karlsruhe*, Karlsruhe, Germany (Invited speaker - Slide)
- Jun. 2018 *Journées Équation aux Dérivées Partielles*, Obernai, France
- Apr. 2018 *Semi-classical and Geometric Asymptotics in mathematical physics*, Toulon, France (Invited speaker - Slide)
- Feb. 2018 *Dynamics of hamiltonian PDE's*, La Thuile, Italy (Invited speaker - Slide)

- Jan. 2018 *Sampling, uncertainty principles, and combinatorial methods in harmonic analysis*, Bilbao, Spain
- Jan. 2018 *Ninth Itinerant Workshop in PDE's*, Bordeaux, France
- Sept. 2017 *First Summer School on Harmonic Analysis, Spectral Theory and PDE's*, Rome, Italy
- Jul. 2017 *Third Summer School on Harmonic Analysis and Partial Differential Equations*, Bilbao, Spain (Contributed talk - Slide)
- May 2017 *Mathematical Aspects of Physics with Non-Self-Adjoint Operators*, Marseille, France
- May 2017 *A.MA.CA. - Analisi MAtematica al CAstelnuovo*, Rome, Italy (Invited speaker - Slide)
- Apr. 2017 *Spectral Days 2017*, Stuttgart, Germany (Poster)
- Jan. 2017 *Eighth Itinerant Meeting in PDE's*, Bilbao, Spain
- Jul. 2016 *Second summer school on Harmonic Analysis and Partial Differential Equations*, Bilbao, Spain
- Feb. 2016 *Mathematical Challenges in Quantum Mechanics*, Bressanone, Italy
- Jan. 2016 *Seventh Itinerant Meeting in PDE's*, Parc Valrose, Nice, France
- Sept. 2015 *Shocks, Singularities and Oscillations in Nonlinear Optics and Fluid Mechanics*, INdAM, Rome, Italy
- Jun. 2015 *Espalia 2015, Three days in PDEs and calculus of variations between Italy and Spain*, Rome, Italy
- Jun. 2015 *Eighth Summer School in Analysis and Applied Mathematics*, Rome, Italy
- Feb. 2015 *The Mathematics of Topological Insulators in Naples*, Naples, Italy

Invited Seminar (21)

- Jul. 2021 AG Funktionalanalysis, Karlsruhe, Germany (Blackboard)
- Jul. 2021 Job interview-Junior Research Group Leader, Karlsruhe Institute of Technology, Karlsruhe, Germany (Slide)
- Jul. 2021 Karlsruhe Institute of Technology, Karlsruhe, Germany (Slide)
- Feb. 2021 Bilbao Analysis and PDE seminar, Bilbao, Spain (Slide) (Video)
- Feb. 2021 AG Mathematische Physik, Karlsruhe, Germany (Slide)
- Jan. 2021 GAuS Seminar-German Austrian Swiss Seminar on Analysis and PDE (Slide)
- Nov. 2020 Karlsruhe Institute of Technology, Karlsruhe, Germany (Slide)
- Oct. 2020 Seminário latinoamericano de EDPs dispersivas (Slide)
- Oct. 2020 Job interview-SBAI, Sapienza University of Rome, Rome, Italy (Slide)
- Mar. 2020 DIM University of Chile, Santiago, Chile (Slide)
- Jan. 2020 LMU, Munich, Germany (Blackboard)
- Dec. 2019 University of Vienna, Vienna, Austria (Blackboard)
- Nov. 2019 University of Bonn, Bonn, Germany (Blackboard)
- Jul. 2019 Karlsruhe Institute of Technology, Karlsruhe, Germany (Slide)

May 2019 University of Cambridge, Cambridge, UK (Blackboard)
 May 2019 Karlsruhe Institute of Technology, Karlsruhe, Germany (Slide)
 May 2019 Czech Technical University in Prague, Prague, Czech Republic (Slide)
 Dec. 2018 Czech Technical University in Prague, Prague, Czech Republic (Slide)
 Nov. 2018 University of Paris Sud, Paris, France (Slide)
 Dec. 2017 **PhD defense**-Sapienza University of Rome, Rome, Italy (Slide)
 Nov. 2017 Czech Technical University in Prague, Prague, Czech Republic (Slide)
 Dec. 2016 IMPA, Rio de Janeiro, Brazil (Slide)

Poster (2)

Aug. 2021 *ICMP*, Geneve, Switzerland (Poster)
 Apr. 2017 *Spectral Days 2017*, Stuttgart, Germany (Poster)

Distinguished Visiting Periods

Nov. 2021 Czech Technical University in Prague, Prague, Czech Republic (1 week)
 Sep. 2021 BCAM-Basque Center for Applied Mathematics, Bilbao, Spain (2 weeks)
 Mar. 2020 DIM University of Chile, Santiago, Chile (2 weeks)
 Jan. 2020 LMU, Munich, Germany (1 week)
 May 2019 Czech Technical University in Prague, Prague, Czech Republic (1 week)
 Dec. 2018 University of Paris Sud, Paris, France (1 week)
 Nov. 2017 Czech Technical University in Prague, Prague, Czech Republic (1 week)
 Oct.-Dec. 2016 Instituto de Matematica Pura e Aplicada, Rio de Janeiro, Brasil (2 months)
 Mar.-Apr. 2016 Universidad Autonoma de Madrid, Madrid, Spain (1 month)

Teaching Experience

2020-2021 **Assistant in exam grading**, Functional Analysis and Numerical Methods, Department of Mathematics.
 Karlsruhe Institute of Technology
 2019-2020 **Reading course**, Hilbert Space Methods, Department of Mathematics.
 Karlsruhe Institute of Technology
 2018-2020 **Assistant in exam grading**, Advanced Mathematics I, II, III for Physics, Department of Mathematics.
 Karlsruhe Institute of Technology
 2017-2018 **Teaching assistant**, Mathematics 2, Economics and Finance department.
 LUISS-Libera Università Internazionale degli Studi Sociali Guido Carli
 2017-2018 **Teaching assistant**, Mathematical Methods for economics and Finance, Economics and Finance department.
 LUISS-Libera Università Internazionale degli Studi Sociali Guido Carli

- 2016-2017 **Teaching assistant**, Analysis I course, Department of Mathematics.
Sapienza University of Rome
- 2015-2016 **Teaching assistant**, **Geometry course**, Communications and Electronic Engineering department.
Sapienza University of Rome
- 2015-2016 **Teaching assistant**, **Geometry course**, Computer Engineering department.
Sapienza University of Rome
- 2015-2016 **Teaching assistant**, **Geometry course**, Management Engineering department.
Sapienza University of Rome

Organization of Events

- 2022 *New trends in Mathematics of dispersive integrable and nonintegrable models in Fluids, Waves and Quantum Physics* (Proposal submitted and accepted for BIRS program (Banff/Oaxaca) 2022)
- 2021 *New trends in Mathematics of dispersive integrable and nonintegrable models in Fluids, Waves and Quantum Physics* (Proposal submitted for BIRS program (Banff/Oaxaca) 2021)
- 2017 *1st Summer School and Workshop in Harmonic Analysis, Spectral Theory and PDE's*, Rome, Italy

Reviewing Activities

- Referee for Journal of Fourier Analysis and Applications
- Referee for Journal Nonlinear Analysis
- Referee for Journal Acta Physica Polonica A
- Referee for Journal Mathematical Methods in the Applied Sciences

Services

- Organizer **CRC/PDE seminar**, Department of Mathematics, Karlsruhe Institute of Technology

Projects and Groups

- 2019-today Member of **Collaborative Research Center 1173 "Wave Phenomena"** (7/19-6/23), Projects A5, A11, AP2
- 2015-today Member of INDAM group **GNAMPA**
- 2015-today Member of Research Group in **Harmonic Analysis and Dispersive PDE's**, Department of Mathematics, Sapienza University of Rome

Funding Information

- 2016 Principal Investigator of "Progetto per Avvio alla Ricerca," *Inverse problems in elasticity (1 participant 1000 €)*

Languages

Italian	Mothertongue
English	Fluent
Spanish	Fluent
German	A2 level
Portuguese	Basic Knowledge
French	Basic Knowledge

Hobbies

Volley
Piano
Handwriting
Cooking

Updated

14th October 2021