Claudio Cacciapuoti

CURRICULUM VITAE

PERSONAL INFORMATION

Surname, First Name	Cacciapuoti, Claudio
Address	Dipartimento di Scienza e Alta Tecnologia (DiSAT)
	Università degli Studi dell'Insubria
	Via Valleggio 11, 22100 Como, Italia
Phone	+39 - 031 - 2386266
E-Mail	claudio.cacciapuoti@uninsubria.it
Nationality	Italian
Place and date of birth	Napoli (Italy), 17 May 1978

RESEARCH AND ACADEMIC POSITIONS

03/2014 - 03/2019	Researcher in Mathematical Physics (RTD-A)
Institution	DiSAT, Università degli Studi dell'Insubria
Funding information	Università degli Studi dell'Insubria
	FIR consolidator grant "Cond-Math: Condensed Matter in Mathematical Physics"
	Coordinator of the local unit at University of Insubria
03/2011 - 02/2014	Postdoc
Institution	Hausdorff Center for Mathematics (Bonn University), Bonn, Germany
Funding information	Postdoctoral position of the Hausdorff Center for Mathematics
10/2010 - 02/2011	Postdoc
Institution	Tohoku University, Sendai, Japan
Funding information	Postdoctoral fellowship of Japan Society for the Promotion of Science
09/2008 - 08/2010	Postdoc
Institution	Hausdorff Center for Mathematics (Bonn University), Bonn, Germany
Funding information	Postdoctoral position of the Hausdorff Center for Mathematics
06/2007 - 08/2008	Postdoc
Institution	Faculty of Nuclear Sciences and Physical Engineering, Prague, Czech Republic
Funding information	Czech Technical University in Prague
10/2006 - 05/2007	Postdoc
Institution	Institut für Angewandte Mathematik der Universität Bonn, Germany
Funding information	Deutscher Akademischer Austausch Dienst (DAAD)
	Collaborative Research Center (SFB) 611, "Singular Phenomena and Scaling in Mathematical Models"
09/2006	Postdoc
Institution	Faculty of Nuclear Sciences and Physical Engineering, Prague, Czech Republic
Funding information	Czech Technical University in Prague
03/2006 - 08/2006	Postdoc
Institution	Institut für Angewandte Mathematik der Universität Bonn, Germany
Funding information	EU-Project "Quantum Probability with Applications to Physics, Information Theory and Biology"

QUALIFICATIONS AND EDUCATION

2017	Habilitation (Abilitazione Scientifica Nazionale) for Full Professor in Mathematical Physics (01–A4). Validity: from 28/03/2017 to 28/03/2023
2013	Habilitation (Abilitazione Scientifica Nazionale) for Associate Professor in Mathematical Physics (01–A4). Validity: from 03/12/2013 to 03/12/2019
14/12/2005 Institution Thesis title	Ph.D. in Physics Università degli Studi di Napoli Federico II Point interactions in quantum mechanics and acoustics
30/10/2002 Institution Thesis title	Degree in Physics. Grade: 110/110 with laude Università degli Studi di Napoli Federico II Models of interaction between oscillators and acoustic field (in Italian)

TEACHING EXPERIENCE

2017-2018	Mathematical Physics University of Insubria, Course for Bachelor's degree in Mathematics
2016-2017	Mathematics, and Basics of Informatics and Statistics University of Insubria, Course for Bachelor's degree in Biotechnology
2016-2017	Preparation course for Mathematics, and Basics of Informatics and Statistics University of Insubria, Course for Bachelor's degree in Biotechnology
2015-2017	Mathematics, and Basics of Informatics and Statistics University of Insubria, Course for Bachelor's degree in Biotechnology
2014-2015	Mathematical Physics University of Insubria, Course for Bachelor's degree in Mathematics
2012-2013	Schrödinger Operators: Spectral Properties, Scattering Theory and Solvable Examples Bonn University, Course for Master's degree in Mathematics

RESEARCH COORDINATOR

03/2014-03/2017 Rôle	MIUR - FIR Project "Futuro in Ricerca 2013" - consolidator. Project name "Cond-Math: Condensed Matter in Mathematical Physics" Coordinator of the unit at DiSAT - University of Insubria
05/2016-05/2017 Rôle	Young Researchers Project GNFM. Project name "Scale limits and quantum many particle systems with contact interactions" Coordinator
04/2016-11/2016	Postdoc supervisor: Dr. Davide Fermi. At at DiSAT - University of Insubria within the research program "Mathematical problems in condensed matter physics"

ORGANIZATION OF CONFERENCES AND WORKSHOPS

2017	Insubria Summer School in Mathematical Physics. Spectral and scattering theory: from selfadjoint operators to boundary value problems 18-22 September 2017, DiSAT - Como, Italy Linear and Nonlinear Dirac Equation: advances and open problems 8-10 February 2017, DiSAT - Como, Italy
2016	Mathematical Challenges in Quantum Mechanics 8-13 February 2016, Bressanone, Italy
2015	Trails in Quantum Mechanics and Surroundings 8-10 July 2015, DiSAT - Como, Italy

INVITED SPEAKER

Conferences and Workshops	Discrete and continuous models in the theory of networks ZiF, Bielefeld, Germany, November 27 - December 1, 2017. Rencontres autour de l'équation de Dirac avec des interactions singulières Laboratoire de Mathématiques de Besançon, Besançon, France, July 10-13, 2017. Nonlinear Partial Differential Equations on Graphs MFO, Oberwolfach, Germany, June 18-24, 2017. Assemblea Nazionale del GNFM Montecatini, Italy, May 4-6, 2017. 2nd workshop Mathematical Challenges of Zero-Range Physics: rigorous results and open problems SISSA, Trieste, Italy, November 7-10, 2016. QMath13: Mathematical Results in Quantum Physics Georgia Institute of Technology, Atlanta, GA, USA, October 8-11, 2016. Special session: Quantum mechanics on graphs and similar structures. Stochastic and Analytic Methods in Mathematical Physics Yerevan, Armenia, September 4-11, 2016. Mathematical Challenge of Quantum Transport in Nanosystems Saint Petersburg, Russia, September 9-11, 2015. Second Dynamics Days Central Asia Khiva, Uzbekistan, May 25-27, 2015. KAM and dispersive methods in Hamiltonian PDEs Milan, Italy, December 1-5, 2014. Mathematical challenges of zero-range physics: rigorous results and open problems Munich, Germany, February 26-28, 2014. Equadiff 13 - Minisymposium "Quantum dynamics on graphs" Prague, Czech Republic, August 26-30, 2013.

INVITED SPEAKER (continued)

	Assemblea Nazionale del GNFM Montecatini, Italy, October 4-6, 2012.
	Stochastic and Analytic Methods in Mathematical Physics Yerevan, Armenia, September 2-9, 2012.
	Mathematical Aspects of Quantum Mechanics and Quantum Transport Theory Workshop of the ZiF Research Group 'Quantum science' Bielefeld, Germany, April 23-28, 2012.
	The First CREST-SBM International Conference "Random Media" Sendai, Japan, January 25-29, 2010.
	Quantum graphs in Mathematics, Physics and Applications, QGRAPH Network meeting Lund, Sweden, April 17-19, 2009
Department Seminars	2016 - FernUniversität Hagen, Fakultät für Mathematik und Informatik Title of the talk: Existence of Ground State for the NLS on Star-like Graphs
	2014 - Dipartimento di Matematica e Fisica, Università degli Studi Roma Tre Title of the talk: Point-like limit for a NLS equation with spatially concentrated nonlinearity
	2013 - Bogoliubov Laboratory of Theoretical Physics, Dubna Title of the talk: Nonlinear Schrödinger Equation on a Star-Graph
	2013 - University of Bristol, Department of Mathematics Title of the talk: Nonlinear Schrödinger Equation on Star-Graphs
	2012 - Laboratoire de Mathématiques de Reims Title of the talk: Nonlinear Schrödinger Equation on Star-Graphs
	2011 - Department of Mathematics, Hokkaido University Title of the talk: Nonlinear Schrödinger Equation on Star Graphs: Scattering of Fast Solitons
	2010 - Department of Applied Analysis, Ulm University Title of the talk: Graph-like models for networks of thin tubes
	2010- Institut de Recherche Mathématique de Rennes Title of the talk: Fast solitons on star graphs
	2009 - Laboratoire d'Analyse Topologie et Probabilités, Aix-Marseille Université Title of the talk: Graph-like models for bent waveguides
	2008 - Colloquium in Mathematics, Lund University Title of the talk: Graph-like models for bent waveguides
	2008 - Institut für Mathematik, HU-Berlin Title of the talk: One dimensional approximations of the Laplacian on thin waveguides

CITATION METRICS

	Scopus	Web of Science	Google Scholar
Number of citations	280	297	551
h-index	11	11	14

LIST OF PUBLICATIONS

2017

28. Cacciapuoti, C., Finco, D., Noja, D., and Teta, A., *The point-like limit for a NLS equation with concentrated nonlinearity in dimension three*, J. Funct. Anal. **273** (2017), 1762–1809. https://doi.org/10.1016/j.jfa.2017.04.011.

27. Cacciapuoti, C., Carlone, R., Noja, D., and Posilicano, A., *The One-Dimensional Dirac Equation with Concentrated Nonlinearity*, SIAM J. Math. Anal. **49** (2017), no. 3, 2246–2268. https://doi.org/10.1137/16M1084420.

26. Cacciapuoti, C., Finco, D., and Noja, D., *Ground state and orbital stability for the NLS equation on a general starlike graph with potentials*, Nonlinearity **30** (2017), 3271–3303. https://doi.org/10.1088/1361-6544/aa7cc3.

25. Cacciapuoti, C., *Graph-like asymptotics for the Dirichlet Laplacian in connected tubular domains*, Analysis, Geometry and Number Theory **2** (2017), 34pp, http://www.libraweb.net/articoli.php?chiave=201712501&rivista=125.

24. Cacciapuoti, C., Fermi, D., and Posilicano, A., *Relative-Zeta and Casimir energy for a semitransparent hyperplane selecting transverse modes*, Advances in Quantum Mechanics: contemporary trends and open problems (Dell'Antonio, G. and Michelangeli, A., eds.), Springer INdAM Series, Springer, 2017, pp. 71–97. ISSN: 2281–518X. https://doi.org/10.1007/978-3-319-58904-6.

23. Albeverio, S., Cacciapuoti, C., and Spreafico, M., *Relative partition function of Coulomb plus delta interaction*, Functional Analysis and Operator Theory for Quantum Physics. Pavel Exner Anniversary Volume. (Dittrich, J., Kovařík, H., and Laptev, A., eds.), EMS Series of Congress Reports, Europ. Math. Soc. Publ. House, 2017, pp. 1–29. ISBN: 978–3–03719–175–0. https://doi.org/10.4171/175-1/1.

2016

22. Adami, R., Cacciapuoti, C., Finco, D., and Noja, D., *Stable standing waves for a NLS on star graphs as local minimizers of the constrained energy*, J. Differ. Equations **260** (2016), no. 10, 7397–7415. https://doi.org/10.1016/j.jde.2016.01.029.

2015

21. Cacciapuoti, C., Figari, R., and Posilicano, A., *Effective equation for a system of mechanical oscillators in an acoustic field*, Asymp. Anal. **91** (2015), no. 3-4, 253–264. https://doi.org/10.3233/ASY-141264.

20. Cacciapuoti, C., Finco, D., and Noja, D., *Topology-induced bifurcations for the nonlinear Schrödinger equation on the tadpole graph*, Phys. Rev. E **91** (2015), no. 1, 013206 8pp. https://doi.org/10.1103/PhysRevE.91.013206.

19. Cacciapuoti, C., Maltsev, A., and Schlein, B., *Bounds for the Stieltjes transform and the density of states of Wigner matrices*, Probab. Theory Relat. Fields **163** (2015), no. 1, 1–59. https://doi.org/10.1007/s00440-014-0586-4.

2014

18. Adami, R., Cacciapuoti, C., Finco, D., and Noja, D., *Variational properties and orbital stability of standing waves for NLS equation on a star graph*, J. Differ. Equations **257** (2014), no. 10, 3738–3777. https://doi.org/10.1016/j.jde.2014.07.008.

17. Cacciapuoti, C., Finco, D., Noja, D., and Teta, A., *The NLS equation in dimension one with spatially concentrated nonlinearities: the pointlike limit*, Lett. Math. Phys. **104** (2014), no. 12, 1557–1570. https://doi.org/10.1007/s11005-014-0725-y.

16. Adami, R., Cacciapuoti, C., Finco, D., and Noja, D., *Constrained energy minimization and orbital stability for the NLS equation on a star graph*, Ann. Inst. H. Poincaré (C) Non Lin. An. **31** (2014), no. 6, 1289–1310. https://doi.org/10.1016/j.anihpc.2013.09.003.

LIST OF PUBLICATIONS (continued)

2013

15. Cacciapuoti, C., Maltsev, A., and Schlein, B., *Local Marchenko-Pastur law at the hard edge of sample covariance matrices*, J. Math. Phys. **54** (2013), no. 4, 043302 13pp. `https://doi.org/10.1063/1.4801856`.

14. Albeverio, S. and Cacciapuoti, C., *The Riemann zeta in terms of the dilogarithm*, J. Numb. Theo. **133** (2013), no. 1, 242–277. `https://doi.org/10.1016/j.jnt.2012.06.002`.

2012

13. Adami, R., Cacciapuoti, C., Finco, D., and Noja, D., *Stationary states of NLS on star graphs*, EPL **100** (2012), no. 1, 10003 6pp. `https://doi.org/10.1209/0295-5075/100/10003`.

12. Adami, R., Cacciapuoti, C., Finco, D., and Noja, D., *On the structure of critical energy levels for the cubic focusing NLS on star graphs*, J. Phys. A: Math. Theor. **45** (2012), no. 19, 192001 7pp. `https://doi.org/10.1088/1751-8113/45/19/192001`.

2011

11. Cacciapuoti, C., Carlone, R., and Figari, R., *Perturbations of eigenvalues embedded at threshold: Two-dimensional solvable models*, J. Math. Phys. **52** (2011), no. 8, 083515 12pp. `https://doi.org/10.1063/1.3627566`.

10. Adami, R., Cacciapuoti, C., Finco, D., and Noja, D., *Fast solitons on star graphs*, Rev. Math. Phys. **23** (2011), no. 4, 409–451. `https://doi.org/10.1142/S0129055X11004345`.

2010

9. Cacciapuoti, C. and Finco, D., *Graph-like models for thin waveguides with Robin boundary conditions*, Asymp. Anal. **70** (2010), no. 3-4, 199–230. `https://doi.org/10.3233/ASY-2010-1014`.

8. Cacciapuoti, C., Carlone, R., and Figari, R., *Perturbations of eigenvalues embedded at threshold: I. One- and three-dimensional solvable models*, J. Phys. A: Math. Theor. **43** (2010), no. 47, 474009 15pp. `https://doi.org/10.1088/1751-8113/43/47/474009`.

2009

7. Cacciapuoti, C., Carlone, R., and Figari, R., *Resonances in models of spin-dependent point interactions*, J. Phys. A: Math. Theor. **42** (2009), no. 3, 035202 19pp. `https://doi.org/10.1088/1751-8113/42/3/035202`.

2007

6. Cacciapuoti, C. and Exner, P., *Nontrivial edge coupling from a Dirichlet network squeezing: The case of a bent waveguide*, J. Phys. A: Math. Theor. **40** (2007), no. 26, F511–F523. `https://doi.org/10.1088/1751-8113/40/26/F02`.

5. Cacciapuoti, C., Carlone, R., and Figari, R., *A solvable model of a tracking chamber*, Rep. Math. Phys. **59** (2007), no. 3, 337–349. `https://doi.org/10.1016/S0034-4877(07)80070-X`.

4. Albeverio, S., Cacciapuoti, C., and Finco, D., *Coupling in the singular limit of thin quantum waveguides*, J. Math. Phys. **48** (2007), no. 3, 032103 21pp. `https://doi.org/10.1063/1.2710197`.

3. Cacciapuoti, C., Carlone, R., and Figari, R., *Spin-dependent point potentials in one and three dimensions*, J. Phys. A: Math. Theor. **40** (2007), no. 2, 249–261. `https://doi.org/10.1088/1751-8113/40/2/004`.

2006

2. Cacciapuoti, C., Figari, R., and Posilicano, A., *Point interactions in acoustics: One-dimensional models*, J. Math. Phys. **47** (2006), no. 6, 062901 22pp. `https://doi.org/10.1063/1.2209553`.

LIST OF PUBLICATIONS (continued)

2005 | 1. Cacciapuoti, C., Carlone, R., and Figari, R., *Decoherence induced by scattering: A three-dimensional model*, J. Phys. A: Math. Gen. **38** (2005), no. 22, 4933–4946. `https://doi.org/10.1088/0305-4470/38/22/016`.

PROCEEDINGS

2016 | PR2. Cacciapuoti, C., Mantile, A., and Posilicano, A., *Time dependent delta-prime interactions in dimension one*, Nanosystems: Phys., Chem., Math. **7** (2016), no. 2, 303–314. `https://doi.org/10.17586/2220-8054-2016-7-2-303-314`.

2015 | PR1. Cacciapuoti, C., *On the derivation of the Schrödinger equation with point-like nonlinearity*, Nanosystems: Phys., Chem., Math. **6** (2015), no. 1, 79–94. `https://doi.org/10.17586/2220-8054-2015-6-1-79-94`.

PREPRINTS

2017 | PP2. Cacciapuoti, C., *Existence of the ground state for the NLS with potential on graphs*, arXiv:1707.07326 [math-ph] (2017). `https://arxiv.org/abs/1707.07326`.

2016 | PP1. Cacciapuoti, C., Pankrashkin, K., and Posilicano, A., *Self-adjoint indefinite Laplacians*, arXiv:1611.00696 [math.SP] (2016), to appear in: Journal d'Analyse Mathématique. `https://arxiv.org/abs/1611.00696`.

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March 26, 2018