

CURRICULUM VITAE MARILENA LIGABÒ**Personal details:**

Name: Marilena
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Current position: October 2015-today: Assistant professor - University of Bari

Other positions:

- May 2014-May 2015: Post doc position at Polytechnic of Bari;
- September 2012-August 2013: Post doc position at University of Bologna;

Education:

- 2 July 2012: PhD in Mathematics - University of Bari (tutor Prof. Paolo Facchi, thesis “The passage from quantum to classic: singular dynamics on trial”).
- 9 October 2008: Master degree in Mathematics, - University of Bari, *Summa Cum Laude* (tutor Prof. Paolo Facchi, thesis “Effetto Zenone quantistico e formule prodotto”).
- 10 March 2006: Bachelor degree in Mathematics, - University of Bari, *Summa Cum Laude* (tutor Prof. Lorenzo D’Ambrosio, thesis “Teoremi di punto fisso ed applicazioni a problemi ellittici semilineari”).

Fellowship:

- May 2009: Gakushuin University Tokyo.
Visiting period under the supervision of Prof. Kenji Yajima.
- June 2009: Waseda University Tokyo.
Visiting period under the supervision of Prof. Kazuya Yuasa.
- February-July 2011: Centre de Mathématique Laurent Schwartz, École Polytechnique, Paris.
Visiting period under the supervision of Prof. Thierry Paul.

Research interest:

- Classical and quantum tomography
- Random walk in random environments

- Weyl-Wigner formalism for quantum mechanics
- Quantization on the Torus
- Quantum Zeno effect and dynamics, product formula
- Classical limit of singular quantum dynamics
- Boundary conditions
- Perturbation theory
- Elasticity

Collaborations:

- Paolo Facchi, Giuseppe Maria Coclite (University of Bari);
- Sandro Graffi, Marco Lenci, Giampaolo Cristadoro (University of Bologna);
- Sergio Solimini, Giuseppe Florio, Franco Maddalena, Giuseppe Devillanova, Giuseppe Puglisi, Michele Dassisti (Polytechnic of Bari);
- Alessandra Bianchi (University of Padova);
- Alessio Figalli (ETH Zurich);
- Thierry Paul (Centre de Mathématique Laurent Schwartz - École Polytechnique, Paris);
- Fabio Deelan Cunden (University of Bristol);
- Pierpaolo Vivi (King's College, London);
- Kenji Yajima (Gakushuin University, Tokyo);
- Kazuya Yuasa (Waseda University, Tokyo).

Publications and preprint:

- P. Facchi, M. Ligabò, S. Pascazio: “On the inversion of the Radon transform: standard vs M^2 approach”, *Journal of Modern Optics* **57**, issue 3, p. 239-243, (2010)
- P. Facchi, M. Ligabò: “Quantum Zeno effect and dynamics”, *Journal of Mathematical Physics* **51**, issue 2, 022103, (2010)
- P. Facchi, S. Graffi, M. Ligabò: “The classical limit of the quantum Zeno effect”, *Journal of Physics A: Mathematical Theoretical* **43**, 032001, (2010)
- P. Facchi, M. Ligabò: “Classical and quantum aspects of Tomography”, *AIP Conference Proceedings* **1260**, 3, (2010)
- A. Figalli, M. Ligabò, T. Paul: “Semiclassical limit for mixed states with singular and rough potentials”, *Indiana University Mathematics Journal* **61** no. 1, p. 193-222, (2012)
- P. Facchi, M. Ligabò, S. Solimini: “Tomography: mathematical aspects and applications”, *Physica Scripta* **90**, 074007 (2015)
- M. Ligabò: “Torus as phase space: Weyl quantization, dequantization and Wigner formalism”, *Journal of Mathematical Physics* **57**, 082110 (2016)

- A. Bianchi, G. Cristadoro, M. Lenci, M. Ligabò: “Random walks in a one-dimensional Lévy random environment”, *Journal of Statistical Physics* **163** no. 1, pp 2240 (2016)
- G. M. Coclite, G. Florio, M. Ligabò, F. Maddalena: “Nonlinear waves in adhesive strings”, arXiv:1603.07648, submitted to *SIAM Applied Mathematics* (2016)

Research projects:

- **Principal Investigator** of “Progetto Giovani GNFM 2016”, title “Condizioni al bordo quantistiche”, (2016).
- **Principal Investigator** of “Tomografia classica e quantistica: aspetti matematici e applicativi”, *Future in Research* (2016-2018).
- **Principal Investigator** of “Progetto Giovani GNFM 2014”, title “Tomografia: aspetti matematici e applicativi”, (2014).
- **Principal Investigator** of “Progetto Giovani GNFM 2013”, title “Aspetti dinamici di sistemi classici e quantistici confinati”, (2013).
- **Participant** in “Progetto IDEA - Giovani Ricercatori” (University of Bari), title “Entanglement quantistico e complessità”, principal investigator Paolo Facchi, (2010-2011).
- **Participant** in “Progetto Giovani GNFM 2012”, title “Entanglement quantistico: aspetti matematici e legami con la meccanica statistica”, principal investigator Giuseppe Florio, (2012).

Contributed talks and Poster:

- February 2009 “Effetto Zenone quantistico”, conference “IperBa 2009”, University of Bari;
- February 2009 “Quantum Zeno effect and dynamics”, conference “Mathematical Methods in Quantum Mechanics”, Bressanone (BZ);
- May 2009 “Quantum dynamics and product formulae” at Research Center for Information Security AIST, Tokyo;
- May 2009 “Zeno product formulae” at Gakushuin University, Tokyo;
- June 2009 “Characterization of the quantum Zeno effect and dynamics” at Waseda University, Tokyo;
- August 2010 “The classical limit of the quantum Zeno effect”, at *École de physique*, Les Houches;
- February 2011 “Semiclassical limit for mixed states with singular and rough potentials”, conference “Mathematical Methods in Quantum Mechanics”, Bressanone (BZ);
- July 2012 “Quantization on the torus”, at University of Bologna;
- December 2012 “Quantization on the torus”, conference “X-Math 2012”, University of Bari;
- December 2013 “Quantum maps on the Torus”, conference “X-Math 20123”, University of Bari;
- March 2014 “Quantization on the torus”, GNFM meeting, Montecatini;
- October 2014 “Formalismo di Weyl, Wigner, Moyal: dalla meccanica classica alla meccanica quantistica” at University of Bari;
- December 2014 “Tomography: a variational approach” conference “X-Math 2014”, University of Bari.

- September 2015 “Weyl quantization, dequantization and Wigner transform for N-dimensional quantum systems” conference “IQIS 2015”, Monopoli (BA);
- May 2016 “Tomografia classica e quantistica: aspetti matematici e applicativi”, meeting between A.R.T.I. and the researchers Future in Research, University of Bari.

Lectures:

- 2011-2012: “Geometria e Algebra”, CdL Ingegneria Gestionale, Polytechnic of Bari;
- 2012-2013: “Elementi di Matematica per l’Economia” (Mod 2), CdL Economia Aziendale, University of Bologna;
- 2015-2016: “Fisica con elementi di Matematica” (Matematica), CdL Farmacia, University of Bari;
- 2015-2016: “Fisica Matematica 2”, CdL Matematica, University of Bari;
- 2015-2016/ 2016/2017: “Matematica con elementi di probabilità e statistica”, CdL Biologia, University of Bari;
- 2016-2017: “Meccanica analitica”, CdL Fisica, University of Bari.

Supervision of students:

- March 2015: Supervisor of the master thesis in Mathematics of Francesco Sasso (University of Bari), title: “Approssimazioni regolari di sistemi Hamiltoniani discontinui”.

Grants and awards:

- December 2014: Research project “Tomografia classica e quantistica: aspetti matematici e applicativi”, 334TQ40, Future in Research, Regione Puglia.
- 2005/2006: prize “prof. Oreste Del Prete” for the best thesis in Mathematics and Physics, University of Bari.

September 17, 2016

Marilena Ligabò