

Laurent BRUNEAU

Born: 07 September 1976, Lille, France

Departement de Mathematiques

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CURRICULUM VITAE

Education

November 10, 2011: **Habilitation thesis**, University of Cergy-Pontoise.

1998/2002: **Ph.D.** in Mathematics at the University of Lille.

ADVISOR: S. De Bièvre

TITLE: *A Hamiltonian model for linear friction in a homogeneous medium.*

DEFENSE: 12 December 2002.

1998: Agrégation Externe de Mathématiques.

1995/1999: Student at the Ecole Normale Supérieure de Cachan.

Employment

September 2009-February 2010: CNRS researcher, at the University of Cergy-Pontoise.

Since September 2007: **Maître de Conférence (associate professor)** at the University of Cergy-Pontoise.

September 2006-August 2007: **ATER(teaching assistant)** at the University of Cergy-Pontoise.

September 2005-August 2006: **ATER(teaching assistant)** at the University of Toulon.

September 2004-August 2005: **ATER(teaching assistant)** at the University of Grenoble.

Summer 2004: Invited at the CRM, Montreal.

January 2003-May 2004: **Post-doctoral** fellow at Warsaw University.

Fall 2002: **ATER (teaching assistant)** at the University of Lille.

Awards

2009/2013, 2013/2017: Prime d'Excellence Scientifique of the University of Cergy.

Teaching

Since Sept. 2007: **Associate professor** at the university of Cergy-Pontoise.

2006/2007: **Teaching assistant** at the university of Cergy-Pontoise.

2005/2006: **Teaching assistant** at the university of Toulon.

2004/2005: **Teaching assistant** at the university of Grenoble.

1998/2002: **Teaching assistant** at the University of Lille.

PUBLICATIONS

Published or accepted papers

- [18] L. Bruneau, V. Jakšić, Y. Last, C.-A. Pillet. *Crystalline conductance and absolutely continuous spectrum of 1D samples*. **Lett. Math. Phys.** 106, vol 6, 787-797 (2016).
- [17] L. Bruneau, V. Jakšić, Y. Last, C.-A. Pillet. *Conductance and absolutely continuous spectrum of 1D samples*. **Comm. Math. Phys.** 344, 959-981 (2016).
- [16] L. Bruneau, V. Jakšić, Y. Last, C.-A. Pillet. *Landauer-Büttiker and Thouless conductance*. **Comm. Math. Phys.** 338, 347-366 (2015).
- [15] L. Bruneau. *Mixing properties of the one-atom maser*. **J. Stat. Phys.** 155, vol 5, 888-908 (2014).
- [14] L. Bruneau, A. Joye, M. Merkli. *Repeated interactions in open quantum systems*. **J. Math. Phys.** 55, 075204 (2014).
- [13] L. Bruneau, V. Jakšić, C.-A. Pillet. *Landauer-Büttiker formula and Schrödinger conjecture*. **Comm. Math. Phys.** 319, issue 2, 501-513 (2013).
- [12] L. Bruneau, S. De Bièvre, C.-A. Pillet. *Scattering induced current in a tight-binding band*. **J. Math. Phys.** 52, 022109 (2011).
- [11] L. Bruneau, J. Dereziński, V. Georgescu. *Homogeneous Schrödinger operators on half-line*. **Annales Henri Poincaré**, 12, vol 3, 547-590 (2011).
- [10] L. Bruneau, A. Joye, M. Merkli. *Repeated and continuous interactions in open quantum systems*. **Annales Henri Poincaré**, 10, vol 7, 1251-1284 (2010).
- [9] L. Bruneau, C.-A. Pillet. *Thermal relaxation of a QED cavity*. **J. Stat. Phys.** 134, vol 5-6, 1071-1095 (2009).
- [8] L. Bruneau, A. Joye, M. Merkli. *Infinite products of random matrices and repeated interaction quantum dynamics*. **Ann. Inst. Henri Poincaré Probab. Stat.**, 46, vol 2, 442-464 (2010).
- [7] L. Bruneau, F. Germinet. *On the singularity of random matrices with independent entries*. **Proc. Amer. Math. Soc.** 137, vol 3, 787-792 (2009).
- [6] L. Bruneau, A. Joye, M. Merkli. *Random repeated interaction quantum systems*. **Comm. Math. Phys.** 284, 553-581 (2008).
- [5] L. Bruneau. *Ground state for a quantum Hamiltonian describing friction*. **Canadian Journal of Maths.** 59, vol 5, 897-916 (2007).
- [4] L. Bruneau, J. Dereziński. *Bogoliubov Hamiltonians and one-parameter groups of Bogoliubov transformations*. **J. Math. Phys.** 48, vol 2 (2007).
- [3] L. Bruneau, A. Joye, M. Merkli. *Asymptotics of repeated quantum interaction systems*. **J. Func. Anal.** 239, 310-344 (2006).
- [2] L. Bruneau, J. Dereziński. *Pauli-Fierz Hamiltonians defined as quadratic forms*. **Reports in Math. Phys.** 54, 169-199 (2004).
- [1] L. Bruneau, S. De Bièvre. *A Hamiltonian model for linear friction in a homogeneous medium*. **Comm. Math. Phys.** 229, 511-542 (2002).

Notes and proceedings

- [iii] L. Bruneau, V. Jakšić, Y. Last, C.-A. Pillet. *What is absolutely continuous spectrum?* Proceedings of ICMP 2015. Expanded version on arXiv 1602.01893

- [ii] L. Bruneau. *Repeated interaction quantum systems*. Proceedings de “Inhomogeneous Random Systems 2007”, **Markov Process. Rel. Fields.** 14, vol 3, 345-364 (2008).
- [i] L. Bruneau. *The ground state problem for a quantum Hamiltonian describing friction*. **C.R. Acad. Sci. Paris**, Ser I. 339, 151-156 (2004).

CONFERENCES AND SEMINARS

Talks in Conferences:

- May 2016, Workshop *Open Quantum Systems*, Grenoble.
- July 2014, Mini-course, Montreal (McGill).
- June 2014, Conference *Spectral Days*, Marseille.
- April 2014, Workshop *Theoretical and Numerical Aspects of Quantum Transport*, Aalborg.
- July 2013, Summer school *Advances in Open Quantum Systems*, Autrans.
- August 2012, *Franco-Romanian workshop on Applied Mathematics*, Bucarest.
- July 2011, mini-course at the summer school *Non-equilibrium Statistical Mechanics*, Montreal.
- December 2010, Journées *Mathematical models of quantum field theory*, École Polytechnique.
- November 2010, Meeting *Open Quantum Systems*, Grenoble.
- November 2009, Workshop *Open Quantum Systems*, Cergy.
- April 2009, Workshop *Mathematical aspects of quantum field theory*, Bordeaux.
- January 2009, Workshop *Resonances in Mathematical Physics*, Marseille.
- February 2008, Workshop *Systèmes ouverts et hors équilibre*, Orléans.
- June 2007, Workshop *Large quantum systems*, Warwick.
- January 2007, Workshop *Inhomogeneous random systems*, Paris.
- November 2006, Workshop *Open systems days*, Marseille.
- March 2006, Meeting du GDRE *Mathematics and quantum physics*, Bologna.
- April 2005, Meeting du Network européen *Analysis and large quantum systems*, Munich.
- December 2004, One-day workshop *Open Quantum Systems*, Lyon.
- September 2004, Conference *Qmath 9*, Giens.
- August 2004, Workshop *Dynamical systems in statistical mechanics*, Montreal.
- December 2003, Meeting du Network européen *Analysis and large quantum systems*, Vienna.
- January 2001, *Journées semi-classique*, Paris 13.

Talks in Seminars:

- 2015: Lille, Montreal.
- 2014: Paris (IHP), Montreal, Grenoble.
- 2013: Toulouse, Montreal.
- 2012: Bordeaux, Orsay.
- 2011: Rennes.
- 2010: Montreal, CPT Marseille.
- 2009: Orsay, Paris 7, Lille, Paris 13.
- 2008: Ecole des Ponts et Chaussées, Lyon, Cergy, Paris (IHP), Aarhus, Grenoble.
- 2007: Paris 7, Cergy.
- 2006: Nantes, Bordeaux, Grenoble, Cergy, Orsay.

2005: CPT Marseille.
2004: Cergy, Warsaw, Grenoble.
2003: Warsaw.
2002: Grenoble.
2001: Lille.

OTHER ACTIVITIES

Organization of Conferences

- June 2016: Workshop “*Spectral Theory and Mathematical Physics*” at the University of Cergy (with T. Daudé and V. Georgescu).
- Sept. 2015: Workshop “*Journées AGM*” at the University of Cergy (with T. Daudé, F. Fillastre, E. Locherbach and N. Tzvetkov).
- June 2015: Workshop “*Quantum Spin Systems*” at the University of Cergy (with F. Koukiou, B. Nachtergaele and R. Sims).
- June 2013: Workshop “*Entropy in Quantum Mechanics: Recent Advances*” at the University of Cergy (with V. Jaksic, F. Koukiou, M. Lewin and R. Seiringer).
- May-July 2011: Joint semester Cergy-Pontoise and McGill-CRM “*Frontiers in Mathematical Physics*” (with V. Jaksic, R. Livi, C.-A. Pillet and R. Seiringer).
- Nov. 2009: Workshop “*Systèmes quantiques ouverts*” at the University of Cergy (with S. Attal).
- June 2009: One-day workshop “*Systèmes quantiques infinis*” at the University of Cergy (with M. Lewin).
- Jan. 2009: “*Symposium in honor of Michael Aizenmann*” on the occasion of his Doctorat Honoris Causa at the University of Cergy (with T. Duyckaerts, F. Germinet and M. Lewin).
- 2008-2015: General organization of the *Journées thématiques* of the Maths Department (with M. Lewin).
- April 2008: *Conférence à destination des lycéens* (Lycée E. Galois de Sartrouville) at the University of Cergy .
- Jan. 2008: Conference *Spectral Problems in Mathematical Physics* at the University of Cergy (with F. Germinet and M. Lewin).

Organization of Seminars

- Sept 2007/–: “Mathematical Physics” seminar at the University of Cergy-Pontoise (with M. Lewin).
- Sept. 2005 /Aug. 2006: “Rigorous Statistical Mechanics and non-equilibrium phenomena” working group at CPT (with C.A. Pillet and P. Briet).

NetWorks and Projects

- Member of the GDR project “Quantum Dynamics” (2009/2016).
- Member of the ANR Project “Ham-Mark” (Sept. 2009 - Aug. 2013).
- Previous member of the GDRE project “Mathematics and Quantum Physics” (2000/2008).

Advisory

- PhD students: T. Ebroussard (PhD started in Sept. 2013) and J.-F. Bougron (PhD started in Oct. 2015).
- Master students: I. Letombe (2010/2011), T. Dumas (2011/2012), J. Fishera (2011/2012), A. Turgis (2013/2014), D. Vanzo (2013/2014) and F. Papanatsios (2013/2014).
- Co-advisor with V. Jakšić of H. Gervais (Summer 2010), and M.-A. Mandich (2012/2013) undergraduate students at McGill.
- Undergraduate students: X. Duchateau (2007/2008), A. Auvray (2010/2011) and Y. Lesage (2013/2014).

Member (* = as a referee) of the PhD committees of:

- N. Mourad* (August 2015, Univ. Paris-Est, advisor: E. Cancès).
- S. Paul (October 2012, Univ. Cergy-Pontoise, advisor: M. Lewin).
- C. Rojas-Molina (June 2012, Univ. Cergy-Pontoise, advisor: F. Germinet).

Other

- Feb. 2016/–: Member of the “Commission Recherche” of the University of Cergy.
- Nov. 2015/–: Alternate member of the Conseil National des Universités (Section “Mathematics”).
- June 2011/Aug. 2015: Vice-Director of the Maths Département at the University of Cergy.
- 2010/–: Member of the AGM laboratory board.
- 2008/–: Member of the board of the Maths Département of the University of Cergy.
- Member of the hiring committee for a Maitre de Conférence position at the University of Toulon in 2009 and of two hiring committees for a CNRS chaire and a Maitre de Conférence position at the University of Cergy-Pontoise in 2010.
- Referee for various journals.
- Expert for the French ANR (Agence Nationale de la Recherche), expert for the KIL-LAM research fellowships (Canada).