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Born: 07 September 1976, Lille, France
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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

Sept. 2017- Aug. 2018: CNRS researcher, Montreal UMI, McGill University.
Sept. 2009-Feb. 2010: CNRS researcher, at the University of Cergy-Pontoise.
Since Sept. 2007: **Maître de Conférence (associate professor)** at the University of Cergy-Pontoise.
Sept. 2006-Aug. 2007: **ATER(teaching assistant)** at the University of Cergy-Pontoise.
Sept. 2005-Aug. 2006: **ATER(teaching assistant)** at the University of Toulon.
Sept. 2004-Aug. 2005: **ATER(teaching assistant)** at the University of Grenoble.
Summer 2004: Invited at the CRM, Montreal.
Jan. 2003-May 2004: **Post-doctoral** fellow at Warsaw University.
Fall 2002: **ATER (teaching assistant)** at the University of Lille.

Awards

Prime d'Excellence Scientifique of the University of Cergy: 2009/2013, 2013/2017, 2017/2021, 2023/2025.

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 Univeristy of Lille.

Publications

Published or accepted papers

[20] T. Benoist, L. Bruneau, V. Jakšić, A. Panati, C.-A. Pillet. *A note on two-times measurement entropy production and modular theory.* **Lett. Math. Phys.** 114, issue 1, 32 (2024).

[19] J.-F. Bougron, L. Bruneau. *Linear response theory and entropic fluctuation in repeated interaction quantum systems.* **J. Stat. Phys.** 181, vol 5, 1636-1677 (2020).

[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).

Preprints

[b] T. Benoist, L. Bruneau, C. Pellegrini. *Quantum trajectory of the one atom maser.*, Soumis. Preprint arXiv 2403.20094

[a] T. Benoist, L. Bruneau, V. Jakšić, A. Panati, C.-A. Pillet. *On the thermodynamic limit of two-times measurement entropy production.*, Soumis. Preprint arXiv 2402.09380

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:

March 2024	Conference *Excursions en Physique Mathématique: allers-retours classique-quantique*, Metz.
March 2024	Conference *Open quantum systems*, Toulouse.
June 2023	Workshop *Frontiers in mathematical physics*, Cergy.
Oct. 2022	Workshop *EDP et Probabilités*, Bordeaux.
June 2022	Workshop *Beyond Gibbsianity*, Toulon.
May 2022	Workshop *Estimation and control of open quantum systems*, IHP Paris.
Oct. 2021	Fall school *Quantum trajectories*, Toulouse.
Sept. 2019	Workshop *ANR NonStops opening workshop*, Cergy.
Sept. 2018	Workshop *Quantum information, communication and computing*, Cergy.
Feb. 2017	Meeting of the GDR *Quantum Dynamics*, Toulon.
May 2016	Workshop *Open Quantum Systems*, Grenoble.
July 2014	Mini-course in the summer program *Current Topics in Mathematical Physics*, Montreal.
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.
Aug. 2012	*Franco-Romanian workshop on Applied Mathematics*, Bucarest.
July 2011	mini-course at the summer school *Non-equilibrium Statistical Mechanics*, Montreal.
Dec. 2010	Journées *Modèles mathématiques de la théorie quantique des champs*, École Polytechnique.
Nov. 2010	Meeting *Open Quantum Systems*, Grenoble.
Nov. 2009	Workshop *Open Quantum Systems*, Cergy.
April 2009	Workshop *Mathematical aspects of quantum field theory*, Bordeaux.
Jan. 2009	Workshop *Resonances in Mathematical Physics*, Marseille.
Feb. 2008	Workshop *Systèmes ouverts et hors équilibre*, Orléans.
June 2007	Workshop *Large quantum systems*, Warwick.
Jan. 2007	Workshop *Inhomogeneous random systems*, Paris.
Nov. 2006	Workshop *Open systems days*, Marseille.

March 2006	Meeting of the GDRE *Mathematics and quantum physics*, Bologne.
April 2005	Meeting of the european network *Analysis and large quantum systems*, Munich.
Sept. 2004	Conference *Qmath 9*, Giens.
Aug. 2004	Workshop *Dynamical systems in statistical mechanics*, Montreal.
Dec. 2003	Meeting of the european network *Analysis and large quantum systems*, Vienna.
Jan. 2001	*Journées semi-classique*, Paris 13.

Seminars:

Aarhus, Bordeaux (2), Cergy-Pontoise (4), Ecole des Ponts et Chaussées, Grenoble (5), Lille (3), Lyon (2), Marseille -CPT (2), McGill-Montreal (5), Nantes, Paris-IHP (2), Orsay (3), Paris 7 (2), Paris 13, Rennes, Toulouse (3), Warsaw (3).

Organization of events

Conferences

Jan. 2024	Annual meeting of the GDR *DynQua* at the University of Cergy (with L. Garrigue, C. Rojas-Molina, A. Shirikyan et M. Wrochna).
Jan. 2022	ANR Nonstops workshop at the University of Cergy (with V. Jakšić).
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).
Summer 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 honnor 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 Departement (with M. Lewin).
Jan. 2008	Conference *Spectral Problems in Mathematical Physics* at the University of Cergy (with F. Germinet and M. Lewin).

Seminars

2007 / 2017	"Mathematical Physics" seminar at the University of Cergy-Pontoise (with M. Lewin).
2005 / 2006	"Rigorous Statistical Mechanics and non-equilibrium phenomena" working group at CPT (with C.A. Pillet and P. Briet).

NetWorks and Projects

- Coordinator, with T. Daudé and A. Shirikyan, of the project "Structural properties of non-equilibrium steady states in statistical mechanics : an international collaboration with McGill University" (financed by the ISITE project Paris-Seine, 2017/2021).
- Member of the ANR project "Nonstops" (Oct. 2017 - Sept. 2021).
- Member of the GDR project "Quantum Dynamics" (2009/2021).
- Member of the ANR project "Ham-Mark" (Sept. 2009 - Aug. 2013).
- Former member of the GDRE project "Mathematics and Quantum Physics" (2000/2008).

Students

PhD
- Jean-François Bougron: Defended in 2021.
- Thibault Ebroussard: Defended in 2018.

Master
F. Labchir, (Master 2, 2023), M. Koresski (Master 1, 2021), R. Becquet (Master 1, 2019), P. Gatelier (Master 1, 2019), L. Renaut (Master 1, 2017), F. Papanatsios (Master 2, 2014), D. Vanzo (Master 1, 2014), A. Turgis (Master 1, 2014), J. Fishera (Master 1, 2012), T. Dumas (Master 1, 2012), I. Letombe (Master 1, 2011).

Others
- Co-advisor with V. Jakšić of H. Gervais (2010) and M.-A. Mandich (2013), undergraduate students at McGill.
- Undergraduate students: Xavier Duchateau (2008), Alexis Auvray (2011), Yves Lesage (2014).

Comitees and referee duties

Member of PhD commitees (* = as a referee)

- H/ Bringuier* (June 2018, Univ. Toulouse III, advisors: P. Cattiaux and C. Pellegrini).
- 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).

Hiring committees
University of Cergy-Pontoise: 2010 (2 positions), 2018.
University of Toulon: 2009.

Refereing duties
HCERES (2022)
ANR (French Agence Nationale de la Recherche 2013, 2014, 2020)
KILLAM research fellowships (Canada, 2014)
ECOS (France-Amérique du Sud, 2008 et 2020)
Referee for the journals: Inventiones, Commun. Math. Phys., Ann. Henri Poincaré, J. Stat. Phys., J. Math. Phys., Rev. Math. Phys., Lett. Math. Phys., Ann. Inst. Fourier, Ann. Math. Québec, SIAM J. Math. Anal., J. Phys. A., Contemp. Maths., Adv. in Math. Phys., Journal of Physics: Conference Series.

Other duties

2023 / 2027	Member of the Conseil National des Université (Section "Mathematics"). Member of the board.
2019 / 2023	Member of the Conseil National des Université (Section "Mathematics").
2016 / 2020	Member of the "Commission Recherche" of the University of Cergy.
2015 / 2019	Alternate member of the Conseil National des Université (Section "Mathematics").
2011 / 2015	Vice-Chair of the Maths Departement at the University of Cergy.
2010 / –	Member of the board of the Maths laboratory of the University of Cergy.
2008 / –	Member of the board of the Maths Departement of the University of Cergy.