Curriculum vitae

N. Raymond

Website : http://nraymond.perso.math.cnrs.fr/index.html

Academics

- **2018 – present**: Full Professor (Angers, LAREMA)
- **2022 – present**: Junior member of the Institut Universitaire de France (IUF)
- **2010 – 2018**: Maître de Conférences (Rennes 1, IRMAR)
- **2009 – 2010**: Post-Doc, Paris-Sud 11
- **2007 – 2009**: Ph. D., Paris-Sud 11
- **2006 – 2007**: Master 2, Paris-Sud 11
- **2005 – 2006**: ÉNS de Cachan. Agrégation de Mathématiques
- **2003 – 2005**: Licence and Master 1 of Mathematics, Paris-Sud 11

1 Research activities, publications

1.1 Research areas

Spectral theory, semiclassical analysis, normal forms, (linear and non linear) Schrödinger equation, Dirac operator, liquid crystals, superconductivity, waveguides.

1.2 Ph. D. supervisions

- **2023 – present**: F. Moncler (Magnetic tunneling effect in three dimensions, with F. Hérau, bourse CHL/UA)
- **2023 – present**: É. Vacelet (Semiclassical analysis of models with two bands, with C. Fermanian Kammerer, bourse ENS Paris-Saclay)
- **2022 – present**: L. Benedetto (Magnetic non-commutative wave packets, with C. Fermanian Kammerer, Caïman ENS Ulm)
- **2021 – present**: A. Duraffour (Tunneling effect and microlocal analysis, with Y. Guedes Bonthonneau and S. Vũ Ngọc, bourse Polytechnique)
- **2020 – 2023**: R. Fahs (Influence of the Robin boundary conditions on the magnetic spectrum, with A. Kachmar ; 2 years post-doc in Toulouse)
- **2019 – 2023**: E. Bon-Lavigne (Spectrum of the Dirichlet-Pauli operator, with L. Le Treust ; 1 year ATER ; high school teacher)
- **2018 – 2021**: L. Morin (Magnetic Laplacians in large dimensions, with S. Vũ Ngọc ; 2 years post-doc in Aarhus ; 1 year post-doc in Copenhagen)

- **2016 – 2019**: T. Nguyen (Classical and semiclassical analyis with magnetic fields in two dimensions, with S. Vũ Ngọc ; 3 years post-doc in Prague)
- **2015 – 2018**: P. Keraval (Pseudo-differential calculus and magnetic eigenvalues, with K. Pravda-Starov)
- **2013 – 2016**: J-P. Miqueu (Schrödinger with vanishing magnetic fields, with M. Dauge ; 2 years post-doc in Aarhus ; high school teacher)
- **2011 – 2014**: T. Ourmières-Bonafos (Quantum waveguides, with M. Dauge ; 5 years post-doc in Bilbao, Orsay, Paris ; Maître de Conférences)

1.3 Books

- *Bound States of the Magnetic Schrödinger Operator* (EMS Tracts (27) (2017)),
- *A Guide to Spectral Theory. Applications and Exercises* (Birkhäuser Advanced Texts: Basler Lehrbücher. Birkhäuser/Springer, Cham, [2021], with C. Cheverry),

1.4 Articles

1.4.1 Magnetic Laplacian

- *Boundary states of the magnetic Robin Laplacian* (with R. Fahs, L. Le Treust and S. Vũ Ngọc, preprint)
- *Purely magnetic tunneling between radial magnetic wells* (with S. Fournais and L. Morin, preprint),
- *Spectral asymptotics of the Neumann Laplacian with variable magnetic field on a smooth bounded domain in three dimensions* (with M. Aafarani, K. Abou Alfa and F. Hérau, preprint),
- Discrete spectrum of the magnetic Laplacian on perturbed half-planes (with V. Bonnaillie-Noël, S. Fournais and A. Kachmar, preprint)
- *Effective operators on an attractive magnetic edge* (J. Éc. polytech. Math. 10 (2023), 917–944, with S. Fournais, B. Helffer and A. Kachmar),
- *On Duclos-Exner's conjecture about waveguides in strong uniform magnetic fields* (Forum Math. Sigma 11 (2023), Paper No. 11, with E. Bon-Lavigne, L. Le Treust and J. Royer),
- *Semiclassical spectral gaps of the 3D Neumann Laplacian with constant magnetic field* (to appear in Annales de l'Institut Fourier, with F. Hérau),
- *Magnetic quantum currents in the presence of a Neumann wall* (J. Math. Phys. 64, No. 7 (2023), with É. Soccorsi),
- *Eigenvalue asymptotics for confining magnetic Schrödinger operators with complex potentials* (to appear in Int. Math. Res. Not., with L. Morin and S. Vũ Ngọc),
- *Magnetic WKB Constructions on Surfaces* (Rev. Math. Phys. 33 (2021), no. 7, 41 pp. , with Y. Guedes Bonthonneau, T. Nguyen and S. Vũ Ngọc),
- *Purely magnetic tunneling effect in two dimensions* (Invent. Math. 227 (2022), no. 2, 745–793, with V. Bonnaillie-Noël and F. Hérau)
- *Exponential localization in 2D pure magnetic wells* (Ark. Mat. 59 (2021), no. 1, 53–85, with Y. Guedes Bonthonneau and S. Vũ Ngọc),

- *Absence of embedded eigenvalues for translationally invariant magnetic Laplacians* (J. Math. Phys. 60 (2019), with J. Royer),
- *On the semiclassical Laplacian with magnetic field having self-intersecting zero set* (J. Spectr. Theory 10 (2020), no. 4, 1211–1252, with M. Dauge and J-P. Miqueu),
- *Boundary effects on the magnetic Hamiltonian dynamics in two dimensions* (Enseign. Math. 64 (2018), no. 3-4, 353-369, with T. Nguyen and S. Vũ Ngọc),
- *On the stability of the Schwartz class under the magnetic Schrödinger flow* (Math. Res. Lett. 27 (2020), no. 1, 1-18, with G. Boil and S. Vũ Ngọc),
- *WKB constructions in bidimensional magnetic wells* (Math. Res. Lett. 27 (2020), no. 3, 647-663, with Y. Guedes Bonthonneau),
- *Tunnel effect in a shrinking shell enlacing a magnetic field* (Rev. Mat. Iberoam. 35 (7)(2019), 2053-2070, with A. Kachmar),
- *Holomorphic extension of the de Gennes function* (Ann. Math. Blaise Pascal 24 (2)(2017), with V. Bonnaillie-Noël and F. Hérau),
- *Magnetic wells in dimension three* (Analysis and PDE. 9 (7)(2016), with B. Helffer, Y. Korduykov and S. Vũ Ngọc),
- *Magnetic WKB constructions* (Arch. Ration. Mech. Anal. 221 (2)(2016), 817-891, with V. Bonnaillie-Noël and F. Hérau),
- *Semiclassical tunnelling and magnetic flux effects on the circle* (J. Spectr. Theory 7 (2017), no. 3, 771-796, with V. Bonnaillie-Noël, F. Hérau),
- *Geometry and spectrum in 2D magnetic wells* (Annales de l'Institut Fourier 65 (1)(2015), 137-169, with S. Vũ Ngọc),
- *Magnetic Neumann Laplacian on a sharp cone* (Calc. Var. Partial Differential Equations 53 (1-2)(2015), 125-147, with V. Bonnaillie-Noël),
- *Breaking a magnetic zero locus: asymptotic analysis* (Math. Models Methods Appl. Sci. 24 (15), 2785-2817, (2014)),
- *Breaking a magnetic zero locus: model operators and numerical approach* (Z. Angew. Math. Mech. (2013), with V. Bonnaillie-Noël),
- *Peak power in the 3D magnetic Schrödinger equation* (J. Funct. Anal. 265 (8), 1579-1614, (2013), with V. Bonnaillie-Noël),
- *When the 3D Magnetic Laplacian meets a curved edge in the semiclassical limit* (SIAM J. Math. Anal. 45 (4), 2354-2395, (2013), with N. Popoff),
- *Semiclassical Analysis with Vanishing Magnetic Fields* (Journal of Spectral Theory 3(3), (2013), with N. Dombrowski),
- *From the Laplacian with variable magnetic field to the electric Laplacian in the semiclassical limit* (Analysis and PDE. 6 (6), 1289-1326, (2013)),
- *Semiclassical 3D Neumann Laplacian with variable magnetic field: a toy model* (Comm. Partial Differential Equations. 37 (9) (2012), 1528-1552),
- *On the semi-classical 3D Neumann Laplacian with variable magnetic field* (Asymptotic Analysis. 68(1-2), 1-40, (2010)),

- *Sharp asymptotics for the Neumann Laplacian with variable magnetic field in dimension 2* (Annales Henri Poincaré, 10(1), 95-122, (2009)),
- *Uniform spectral estimates for families of Schrödinger operators with magnetic field of constant intensity and applications* (Cubo, 12(1), 67-81, (2010)).

1.4.2 Dirac operators

- *The Dirac bag model in strong magnetic fields* (Pure and Applied Analysis, (5-3):643–727, 2023, with J-M. Barbaroux, L. Le Treust, and E. Stockmeyer)
- *The MIT bag model as an infinite mass limit* (J. Éc. polytech. Math. Tome 6 (2019), p. 329-365, with N. Arrizabalaga, L. Le Treust, and A. Mas),
- *On the semiclassical spectrum of the Dirichlet-Pauli operator* (J. Eur. Math. Soc. (JEMS) 23 (2021), no. 10, 3279–3321, with J-M. Barbaroux, L. Le Treust, and E. Stockmeyer),
- *Extension operator for the MIT bag model* (Ann. Fac. Sci. Toulouse Math. (6) 29 (2020), no. 1, 135–147, with N. Arrizabalaga and L. Le Treust),
- *On the MIT bag model in the non-relativistic limit* (Comm. Math. Phys. 354 (2) (2017), 641-669, with N. Arrizabalaga and L. Le Treust),

1.4.3 Quantum confinements

- Stark-localization as a probe of nanostructure geometry (New J. Phys. 24 (2022), September, Paper No. 093005, with T. G. Pedersen, H. Cornean, D. Krejčiřík, E. Stockmeyer),
- On the two-dimensional quantum confined Stark effect in strong electric fields (SIAM J. Math. Anal. 54 (2022), no. 2, 2114–2127, with H. Cornean, D. Krejčiřík, T. G. Pedersen, E. Stockmeyer),
- *Magnetic confinement for the 3D Robin Laplacian* (Pure Appl. Funct. Anal. 7 (2022), no. 2, 601–639, with B. Helffer and A. Kachmar),
- *Reduction of dimension as a consequence of norm-resolvent convergence and applications* (Mathematika 64 (2)(2018), with D. Krejčiřík, J. Royer and P. Siegl),
- *Spectral asymptotics for the Schrödinger operator on the line with spreading and oscillating potentials* (Doc. Math. 23 (2018), with V. Duchêne),
- *Non-accretive Schrödinger operators and exponential decay of their eigenfunctions* (Israel J. Math. 221 (2017), no. 2, 779-802, with D. Krejčiřík, J. Royer and P. Siegl),
- *Weyl formulae for the Robin Laplacian in the semiclassical limit* (Confluentes Mathematici 8 (2)(2016), with A. Kachmar and P. Keraval),
- *Tunneling for the semiclassical Robin Laplacian in smooth planar domains* (Commun. Contemp. Math. 19 (1)(2017), with B. Helffer and A. Kachmar),
- *Band functions in presence of magnetic steps* (Math. Models Methods Appl. Sci. 16 (1)(2016), 161-184, with P. Hislop, M. Persson, N. Popoff),
- *On the spectrum of conical waveguides* (Commun. Pure Appl. Anal. 14 (3)(2015), 1239-1258, with M. Dauge, T. Ourmières-Bonafos),
- *The magnetic Laplacian in shrinking tubular neighbourhoods of hypersurfaces* (Journal of Geometric Analysis 25 (4)(2015), 2546-2564, with D. Krejčiřík, M. Tušek),

- *Spectral asymptotics of a broken δ-interaction* (J. Phys. A. 47 (15), (2014), with V. Duchêne),
- *Magnetic effects in curved quantum waveguides* (Ann. Henri Poincaré. 15 (10), 1993-2024 (2014), with D. Krejčiřík),
- *Plane waveguides with corners in the small angle limit* (J. Math. Phys. 53 (2012), with M. Dauge),
- *Discrete spectrum of a model Schrödinger operator on the half-plane with Neumann conditions* (Z. Angew. Math. Phys. 63 (2), 203-231 (2012), with V. Bonnaillie-Noël, M. Dauge, N. Popoff).

1.4.4 Nonlinear analysis

- *Semiclassical Sobolev constants for the electro-magnetic Robin Laplacian* (J. Math. Soc. Japan 69 (2017), no. 4, 1667-1714, with L. Le Treust, S. Fournais and J. Van Schaftingen),
- *Strong confinement limit for the nonlinear Schrödinger equation constrained on a curve* (Ann. Henri Poincaré 18 (1), 281-306 (2017), with F. Méhats),
- *Optimal magnetic Sobolev constants in the semiclassical limit* (Ann. Inst. H. Poincaré Anal. Non Linéaire 33 (5), 1199-1222 (2016), with S. Fournais),
- *Contribution to the asymptotic analysis of the Landau-de Gennes functional* (Advances in Differential Equations, 15 (1-2), 159-180, (2010)).

1.4.5 Other topics related to spectral theory

- A constrained singular value decomposition method to integrate sparsity and orthogonality (PLOS ONE (2019), with V. Guillemot, D. Beaton, A. Gloaguen, T. Löfstedt, B. Levine, *, A. Tenenhaus, H. Abdi),
- *A general multiblock method for structured variable selection* (with T. Löfstedt, F. Hadj-Selem, V. Guillemot, C. Philippe, *, E. Duchesney, V. Frouin and A. Tenenhaus, unpublished),
- *Some remarks about flows of Hilbert-Schmidt operators* (J. Evol. Equ. 17, 805-826 (2017), with B. Boutin).

1.4.6 Editorial activities

- **Editor** (and co-founder) of the Annales Henri Lebesgue. More details here!
- Various talks about the AHL: Journées de la Science Ouverte (French Ministry of Research, 2018), Commission Recherche Univ. Angers (2020), Table ronde Science Ouverte (Univ. Angers, 2023)

1.5 Thesis and Habilitation

- *Geometry and Bound States of the Magnetic Schrödinger Operator*. Habilitation. Université de Rennes 1 (2014),
- *Méthodes spectrales et théorie des cristaux liquides*. Thèse de doctorat, Université Paris-Sud 11 (2009),

1.6 Other publications

- Une matrice angevine (Gaz. Math. No. 174 (2022) , with C. Fermanian Kammerer, B. Schapira, S. Zimmermann)
- Effet tunnel magnétique (Actualités scientifiques de l'INSMI (2021), with V. Bonnaillie-Noël and F. Hérau),
- *Annales Henri Lebesgue* (Gaz. Math. No. 155 (2018), 73-76, with X. Caruso, D. Cerveau, S. Gouëzel, X. Lachambre, S. Vũ Ngọc),
- *Curvature induced magnetic bound states: towards the magnetic tunneling effect* (J. É. D. P. (2016), Exposé No. III, with V. Bonnaillie-Noël and F. Hérau),
- *Diagonalisation asymptotique d'opérateurs de Hilbert-Schmidt* (CANUM, 2016, poster, with B. Boutin),
- *Magnetic Laplacian in sharp three dimensional cones* (Proceedings of the Conference Spectral Theory and Mathematical Physics, Santiago 2014, in the series Operator Theory Advances and Application (2015), with V. Bonnaillie-Noël, M. Dauge, N. Popoff),
- *Sur le laplacien de Neumann semi-classique avec champ magnétique variable* (Séminaire Équations aux dérivées partielles (Polytechnique) (2009-2010), Exp. No. 3),
- *Eigenpairs of a Model Schrödinger Operator with Neumann Boundary Conditions* (Waves 2011, with V. Bonnaillie-Noël, M. Dauge, N. Popoff),
- *Une excursion semi-classique dans l'univers des guides d'ondes* (Gaz. Math. No. 131 (2012), 5-15),
- *Quantum waveguides with corners* (Proceedings de la SMAI 2011, with M. Dauge, Y. Lafranche).

1.7 Scientific (co-)organizations

- **2024**: **Lectures Sophie Kowalevski** (04/06-06/06, Angers), **Workshop on quantum dynamics** (19-23/02, Angers, 20 participants)
- **2023**: **Gabarre semiclassique 1** (14/04, Orléans, 20 participants; traveling semiclassical seminar **O**rléans-**T**ours-**A**ngers-**N**antes), **Lectures Sophie Kowalevski** (31/05-2/06, Angers, 55 participants), **High Frequency Analysis: from operator theory to PDEs** (28/08-01/09, Angers, 20 participants), **Gabarre semiclassique 2** (10/11, Angers, 20 participants), groupe de travail semiclassique (4 one-hour sessions)
- **21-25/11/2022**: member of the scientific committee of the school "Spectral Theory, Control and Inverse Problems" (CIRM)
- **2022**: **Lectures Sophie Kowalevski** (30/05-1/06, Angers, 50 participants)
- **2021**: Conference **Multi-scale Problems in Mathematical Physics** (in the frame of the Henri Lebesgue Center, 14-18/06/2021, Angers, 40 participants, organised twice...), **Lectures Sophie Kowalevski** (31/05-2/06, Angers, 50 participants, organised twice...), **Journée magnétique impromptue** (22/11, Nantes, 20 participants)
- **23-26/04/2019**: Conference in the honor of Bernard Helffer
- **2019–2022**: séminaire EDP et Théorie Spectrale d'Angers (metamorphosed into "séminaire Probabilités, Physique Mathématique et Analyse" aka 2PMA)
- **03/2018**: launching conference of the "Annales Henri Lebesgue"

- **04/2016**: Conference in the honor of Dimitri Yafaev (Rennes)
- **05/2015**: Conference “Magnetic Fields and Semi-Classical Analysis” (Rennes)
- **2014–2017**: PDE seminar of the IRMAR
- **9-11/04/2014**: Conference of the ANR NOSEVOL (Rennes)
- **2011**: PDE day of the IRMAR, Waveguides Workshop (Rennes)
- **2009**: Liquid Crystals Day (Orsay)

1.8 Invited talks

- **2024**: talk at the CIRM* (Spectral Analysis for Quantum Hamiltonians), PDE & Math. Phys. seminar (Bordeaux)
- **2023**: talk at the CIRM* (Analysis of Relativistic Quantum Systems), seminar (Lund), seminar (Orléans), (web)seminar (Aalborg), Analysis seminar (Copenhagen), seminar at Nantes, seminar at the university Paris-Nord, seminar at the Centre de Physique Théorique (Marseille/Toulon)
- **2022**: annual conference of the GDR Dynqua*, workshop ”PDEs and Relativistic Quantum Mechanics” in Nice, ”Milan Quantum Meetings”*, Analysis seminar (Copenhagen)
- **2021**: talk at the CIRM* (Mathematical Aspects of Physics with Non-Self-Adjoint Operators: 10 years After), (web)talk at the CAMS conference ”Mathematics of Condensed Matter and Beyond” (Lebanon)*, (web)seminar at Bath
- **2020**: (web)talk at the Aarhus-Munich-Santiago seminar
- **2019**: talk at the Mittag-Leffler Institute*, PDE seminar in Rennes, seminar at the LMU (Munich), talk at ICIAM 2019 (Valencia)*, talk at QMATH14 (Aarhus)*, talk at the conference ”Spectral Theory and Geometry” (Seillac), talk at the French-German conference Aspect19 (Orsay)*, talk in Marseille
- **2018**: Seminar at Orsay, seminar at Nantes, seminar at Bordeaux, seminar at Pontificia Universidad Católica de Chile (Departamento de Física), seminar at Angers, seminar at Tours, talk at Nantes (Fédération de Recherche Mathématique des Pays de la Loire), semiclassical analysis seminar at Köln, seminar at Université Libre de Bruxelles
- **2017**: Phase Transitions Models (BIRS Workshop, Canada)*, conference in the honor of M. Dauge*, seminar at the university of Dijon, conference at the CIRM (about non-self-adjoint operators)*, seminar at the Centre de Physique Théorique (Marseille), seminar ”Spectral Problems in Mathematical Physics” at the Institut Henri Poincaré, seminar at the ENS Rennes, talk at the annual IPSO meeting (Saint-Malo)
- **2016**: Workshop at the BCAM (Bilbao)*, conference in the honor of D. Yafaev (Rennes)*, seminar at the LMU (Munich), seminar at the IMT (Toulouse)
- **2015**: Seminar at the university of Paris-Nord, seminar at the Catholic University of Louvain
- **2014**: Spectral Days (Marseille), mathematical physics days Aalborg-Aarhus*, Oberwolfach
- **2013**: Seminar at the university of Bordeaux, summer school in Lausanne*, seminar at the Institut Fourier (Grenoble)
- **2012**: Rennes-Nantes days, Waveguides days in Marseille, math-phys. seminar at Paris-Sud, ANR NOSEVOL #1, WIAS (Berlin)*, Mittag-Leffler Institute*
- **2011**: Conference in Aarhus*, Nuclear Physics Institute of Prague

- **2010**: Seminar at the university of Rennes, seminar at the university of Nantes, GDR Quantum Dynamics, INSA (Toulouse), seminar at the university of Cergy-Pontoise, seminars at Aarhus, seminar at the university of Nice, seminar at the university of Lille

- **2009**: Seminar at the Center of Theoretical Physics (Marseille), seminar at the university of Bordeaux, seminar X-EDP, PDE day in Orsay, conference in the honor of Bernard Helffer*, talks at the Schrödinger Institute

- **2008**: Seminar at the Institut Henri Poincaré, seminar at Chevaleret, seminar at the Institut Fourier (Grenoble), math-phys. seminar at Paris-Sud.

***international conference**

1.9 Research stays

- **2024**: CIRM (1 week, January), University of Bath (1 week), Ludwig-Maximilians-Universität (2 weeks, April), Copenhagen university (2 weeks, June, TBC)

- **2023**: CIRM (1 week, January), Lund university (1 week, March), CIRM (1 week, May), Copenhagen university (2 weeks, June), ENS Ulm (1 week, November)

- **2022**: Ludwig-Maximilians-Universität (2 weeks, April), Oberwolfach (1 week, October), Copenhagen university (1 week, November), CIRM (1 week, November)

- **2021**: CIRM (2 weeks, June), CIRM (1 week, December)

- **2020**: Ludwig-Maximilians-Universität (2 weeks, April, corona-cancelled), Aarhus university (2 weeks, May, corona-cancelled), CIRM (1 week, October)

- **2019**: Fellowship at the Mittag-Leffler Institute (2 months, January-February), Fellowship at the Center for Advanced Studies (Munich, 1 month, May), Research in pairs (CIRM) (2 weeks, November)

- **2018**: Centre de Physique Théorique (1 week, January), Pontificia Universidad Católica de Chile (2 weeks, March)

- **2017**: Research in Paris (IHP)(1 week, March), Aarhus University (2 weeks, May), CIRM and Centre de Physique Théorique (2 weeks, June), Institut de Mathématiques de Toulouse (1 week, October)

- **2016**: Centre de Physique Théorique (1 week, April), Ludwig-Maximilians-Universität (2 weeks, May), Institut de Mathématiques de Toulouse (1 week, June), Research in pairs (CIRM) (2 weeks, August)

- **2015**: Aarhus University (1 month, June)

- **2014**: Centre de Physique Théorique (1 week, April), Aarhus University (2 months, September-October)

- **09-12/2012**: Fellowship at the Mittag-Leffler Institute (3 months)

- **05/2011**: Aarhus University (1 month)

- **02/2010**: Aarhus University (1 month)

- **05-06/2009**: Fellowship at the Schrödinger Institute (2 months)

The various stays at the Centre International de Rencontres Mathématiques (CIRM) are workshops (not in the frame of a conference and often funded by various projects).

1.10 Research funds

- **2022**: regional project Connect'Talent (5 years, local coordinator, $\simeq$1M euros, project leader: C. Fermanian Kammerer),
- **2021**: CNRS project "International Research Network", Spectral Analysis of Dirac Operators (5 years, 15 participants, 7k euros per year, cowriter with the project leader L. Le Treust),
- **2018**: Défi Rennes 1, Microlocal confinements (1 year, 7 participants, 3k euros, leader),
- **2017**: CIMI project in the frame work of the Toulouse Labex (2 years, 5 participants, 10k euros, contributor)

1.11 Theses jurys, hiring committees

— **2024**: president of a hiring committee (Professor position in Angers)

— **2023**: T. Normand (Ph.D., president of the jury)

— **2023**: D. Périce (Ph.D., referee)

— **2023**: member of a hiring committee (temporary teaching position in Nantes)

— **2023**: H. Boumaza (Habilitation, member of the jury)

— **2022**: member of a hiring committee (MCF position in Angers)

— **2020**: M. Aafarani (Ph.D., member of the jury)

— **2020**: member of a hiring committee (Maître de Conférences position in Marseille)

— **2018**: G. Boil (Ph.D., president of the jury)

— **2015**: K. Attar (Ph.D., member of the jury)

1.12 Popularization

- **Fall 2023**: Co-organization of a **Mathematics/Art Residence** (Angers, 2 weeks, two mathematicians: A. Panati and C. Rojas-Molina; theater play, exhibition, discussions with high school classes),
- **2017 – 2022**: Pint of science, presentations in high schools (Angers: Lycée Saint-Aubin La Salle ; Rennes: Lycée Pierre Mendès-France), popularization talks at the university, Nuit Européenne des Chercheurs.

2 Teaching

2.1 Teaching

- **2023 – 2024**: 70h (IUF), M1-Hilbert Spaces (course and exercises)
- **2022 – 2023**: 76h (IUF), M1-Hilbert Spaces (course and exercises), preparation to the Agrégation
- **2021 – 2022**: 192h, L2-Analysis (course and exercises), M1-Hilbert Spaces (course and exercises), preparation to the CAPES and the Agrégation
- **2020 – 2021**: 194h (including 28h for heading the math. dpt), L1-Analysis (course and exercises), L2-Analysis (first semester, exercises), L2-Analysis (second semester, course), M2-Spectral Theory (course), preparation to the Agrégation

- **2019 – 2020**: 222h (including 28h for heading the math. dpt), L1-Analysis (course and exercises), L2-Analysis (first semester, exercises), L2-Analysis (second semester, course), M2-Spectral Theory (course), preparation to the Agrégation, L1-Calculus (at Polytech'Angers), Master class of the Henri Lebesgue Center
- **2018 – 2019**: 96h (délégation CNRS: long stays at the Mittag-Leffler Institute and the Center for Advanced Studies of Munich), L1-Analysis (course and exercises), L2-Analysis (exercises), preparation to the Agrégation
- **2017 – 2018**: 192h (including 51h "décharge PEDR" to launch the Annales Henri Lebesgue), L1-Analysis (course and exercises, coordinator), M2-Spectral Theory (course), preparation to the Agrégation
- **2016 – 2017**: 204h, L1-Arithmetic (course and exercises), L1-Analysis (course and exercises), L3-Differential Calculus (course)
- **2015 – 2016**: 192h, L1-Arithmetic (course and exercises), L3-Differential Calculus (course and exercises), M1-Complements, preparation to the CAPES
- **2014 – 2015**: 96h (délégation CNRS: research stay in Danemark, habilitation), L3-Differential Calculus (course), M2-Spectral Theory of the Schrödinger Operator (course), preparation to the CAPES
- **2013 – 2014**: 192h, L2-Linear Algebra (course), L3-Differential Calculus (course and exercises), M2-Spectral Theory of the Schrödinger Operator (course), preparation to the CAPES
- **2012 – 2013**: 96h (délégation CNRS: semester at the Mittag-Leffler Institute), L3-Differential Calculus (course and exercises), preparation to the Agrégation
- **2011 – 2012**: 144h (décharge Rennes 1), L2-Differential Equations (course and exercises), L3-Topologie (course and exercises), preparation to the Agrégation
- **2010 – 2011**: 144h (décharge Rennes 1), L2-Differential Equations (course and exercises), L3-Topologie (course and exercises), preparation to the Agrégation

2.2 M2 thesis supervision

- **2023**: F. Moncler (Boundary effects on the magnetic Schrödinger equation in three dimensions, with F. Hérau)
- **2023**: É. Vacelet (Edge state dynamics for Dirac operators, with C. Fermanian Kammerer)
- **2021**: A. Duraffour (Tunelling effect and microlocal analysis, with S. Vũ Ngọc)
- **2020**: R. Fahs (Magnetic Laplacian with Robin boundary condition)
- **2019**: E. Lavigne (Spectrum of the Dirichlet-Pauli operator)
- **2018**: L. Morin (Birkhoff normal form in one dimension)
- **2016**: T. Nguyen (Dynamics in strong magnetic fields, with S. Vũ Ngọc)
- **2015**: R. Ghssoub (Semiclassical magnetic Sobolev embeddings, with L. Le Treust)
- **2015**: P. Keraval (Pseudo-differential calculus and eigenvalues counting, with F. Hérau)
- **2013**: J-P. Miqueu (Schrödinger equation with vanishing magnetic fields)
- **2011**: T. Ourmières-Bonafos (Quantum Waveguides)

2.3 Doctoral courses

- **jan. 2021**: Master class at the CAMS (Lebanon, online, on the spectral measure, 3 days, 2 hours a day)
- **dec. 2019**: Master class of the Henri Lebesgue Center (on the two-terms Weyl formula for the Dirichlet Laplacian, 3 days, 3h a day)
- **jun. 2016**: Ludwig-Maximilians-Universität München (on the spectral theory of Schrödinger operators, 2 weeks, 2h a day)
- **sept. 2012**: Summer school in Tunisia, Hammamet (on the magnetic Laplacian, 1 week)

3 Administrative duties

- **2024 – 2028**: elected member of the scientific council of the INSMI (CNRS)
- **2023**: member of an HCERES evaluation committee (CEREMADE, Paris-Dauphine)
- **2023:** member of the local committee for the bonus allocation ”RIPEC C3”
- **2022 – present**: Member of the council of the doctoral school MaSTIC
- **2019 – 2023**: Member of the CNU (25, group A)
- **2019 – 2021**: Head of the Mathematics department of Angers
- **2019 – present**: Elected member of the LAREMA council
- **2018 – present**: Member of the scientific council of the Henri Lebesgue Center
- **2019**: Member of the teaching duties committee of the Math. department
- **2018**: President of a Baccalauréat jury
- **2015 – 2018**: Member of the CNU (25, group B)
- **2012 – 2016**: Elected member of the IRMAR council
- **2012 – 2016**: Member of the scientific council of the Mathematics department of the university
- **2012 – 2016**: Elected member of the academic council (CFVU) of the university

Miscellaneous

- 2012–2027: Prime d’Encadrement Doctoral et de Recherche
- 2011: Recipient of the scientific installation allowance of Rennes Métropole (10k euros)