Academic Curriculum Vitæ

until 28th February 2026

Civil status

PEYRE Rémi (male)

French citizen

Born in 1985

Single, no children

Contact details

Email: remi.peyre@protonmail.com

Website: www.phare.normalesup.org/~rpeyre

Residence: Toulouse, France

Last academic situation

"Maitre de conférences" (≈ associate professor) at Univeristy of Lorraine (Nancy, France): research at *Institut Élie Cartan de Lorraine*; teaching at the school of engineering *École des Mines de Nancy*.

Since 1st March 2026, I am on a long sabbatical leave from my university position, in order to look for another career path. As this vitæ only deals with my academic career, I have stopped it at that date.

Curriculum

1991 – 2002: Pupil in some schools of Brive-la-Gaillarde, France. In 2002, got "baccalauréat série S" (≈ A-level, specialised in science) at G. Cabanis high school [with highest honours and jury's congratulations].

2002 – 04: "Classes préparatoires PCSI – PC*" (intensive course focused on physics and chemistry) in Pierre de Fermat Institute (Toulouse, France). In 2004, got admission at *École Normale Supérieure* [PC 2004 exam, rank 1], and got a formal diploma (120 ECTS level) in physics & chemistry from University of Toulouse III.

2004 – 07: Course "Fundamental Mathematics and Applications to Computer Science" at *École Normale Supérieure*. In 2007, got the corresponding diploma [with highest honours], with a memoir on *Large number of interacting particles: Fourier law and mean field Boltzmann's equation*; also got a formal diploma (300 ETCS) in mathematics from University Paris-Sud (speciality "Probability theory & statistics", variant "Probability") [highest honours].

2007 – 11: PhD in mathematics at *École Normale Supérieure de Lyon* (Lyon, France), advisor: Cédric Villani. The thesis' title was "Some questions in probability theory viewed with a physical twist", defended in November 2010 [with highest honours].

2011 – : "Maitre de conférences" (≈ associate professor) at Univeristy of Lorraine (Nancy, France): research at *Institut Élie Cartan de Lorraine*; teaching at the school of engineering *École des Mines de Nancy*.

2011 – 16: Holding a chair co-funded by CNRS (French main public research institute).

2016-17: (Year off University of Lorraine). Postdoctoral researcher at University of Vienna (Austria), collaborator of Pr. Walter Schachermayer.

2018 – 20 and 2021 – 25: Part-time work (between 50 % and 80 %, depending on years).

Autumn 2020: 6-month period as full-time researcher (paid by CNRS).

Autumn 2025: 6-month period as full-time researcher (paid by University of Lorraine).

Scientific publications

Published or accepted articles

1. R. Peyre – A probabilistic approach to Carne's bound. *Potential Analysis* 29 (2008), # 1, pp. 17 – 36.

2. R. Peyre – Some ideas about quantitative convergence of collision models to their mean field limit. *Journal of Statistical Physics* 136 (2009), # 6, pp. 1105 – 1130.

3. R. Peyre – Quelques problèmes d'inspiration physique en théorie des probabilités. Thèse de doctorat, École Normale Supérieure de Lyon (2010).

4. R. Peyre – Sharp equivalence between ρ- and τ-mixing coefficients. *Studia Mathematica* 216 (2013), # 3, pp. 245 – 270.

5. R. Peyre – Fractional Brownian motion satisfies two-way crossing. *Bernoulli* 23 (2017), # 4B, pp. 3571 – 3597.

6. R. Peyre – Comparison between W_2 distance and $\dot{H}^{-1}$ norm, and Localization of Wasserstein distance. *ESAIM: COCV* 24 (2018), # 4, pp. 1489 – 1501.

7. C. Czichowsky, R. Peyre, W. Schachermayer & J. Yang – Shadow prices, fractional Brownian motion, and portfolio optimisation under transaction costs. *Finance and Stochastics* 22 (2018), # 1, pp. 161 – 180.

Submitted papers and pre-publications

8. R. Peyre – Generalized tensorization of ρ-mixing. `hal-05508968`, 166 pp. A shortened version was submitted.

Noticeable contributions to others' research work

1. L. N. Hoang – Strategy-proofness of the randomized Condorcet voting system. 48-3 (2017), pp. 679 – 701.

2. P. Berger & J. Bochi – On emergence and complexity of ergodic decompositions. *Advances in Mathematics* 390-107904 (2021), 52 pp.

Invited speaker

Conferences

- Conference in honour of Cédric Villani, 24th November 2010, Lyon, France. (*Boltzmann: from discrete to continuous models*).
- Rhône-Alpes – Auvergne PDE days, 25th November 2010, Lyon, France. (*McKean–Vlasov buckling*).
- 92nd meeting between mathematicians and theoretical physicists, 26 September 2013, Strasbourg, France. (*Free energy functional in an optimal transportation setting*).
- Workshop on fractional Brownian motion and rough models, 8th June 2017, Barcelona, Spain (*Two-way crossing property for fBm*).
- Freibug-Wien-Zürich Workshop, 4th July 2018, Wolfgangsee, Austria. (*Where stochastic processes, fractal dimensions, numerical computations and quasi-stationary distributions meet*).

Selected talks in seminars

- Oct. 2008: University of Oxford (United Kingdom), Stochastic Analysis Seminar Series.
- Dec. 2009: University of Geneva (Switzerland), Seminar of physical mathematics.
- Feb. 2011: University of Cambridge (United Kingdom), Seminar of probability theory.
- Nov. 2015: ETH Zürich (Switzerland), ITS seminar on mathematical finance.
- Nov. 2016: Vienna University (Austria), Vienna Seminar in Mathematical Finance and Probability. (*Fractional Brownian motion, financial mathematics and stopping times*).
- Mar. 2017: Imperial College London (United Kingdom), Finance and Stochastics seminar. (*The amazing trading of fractional Brownian motion*).
- Feb. 2024: Calais (France), EMA team seminar. (*Random convex polytopes of* $\mathbb{R}^d$).
- Feb. 2024: Lille (France), Workshop on point processes & applications. (*Extreme voids for a Poisson point process*).

Teaching (since 2017)

- Lecturer "Monte Carlo methods" [4th year], 2018, 2020–2022, [teaching assistant in 2024], 2025.
- Lecturer "Statistical inference" [3rd year], 2017–2025.
- Teaching assistant "Data analysis" [4th year]: 2017.
- Lecturer "Topics in information theory" [5th year]: 2017–2023.
- Teaching assistant "Time series" [4th year]: 2017.
- Lecturer "Mathematical upgrading" [4th year], 2024.
- Teaching assistant "Introduction to machine learning" [4th year]: 2017.
- Supervising 4th year level school projects: "Simplied single Transferable Vote" (2017), "Devicing a Yahtzee-playing software" (2022).
- Supervising 5th year school projects: "Large deviations" (2011), "Fractional Brownian motion for financial processes" (2014), Numerical computation of optimal transportation distances (2015). Optimal trading in presence of transaction costs (2018), Electoral fraud? (2020), Estimating the game level of a chess player (2022), Portfolio theory (2023), Analysis and explanation of market impact (2024)
- Tutorial supervision of 3rd year students, of "engineer" final internships, of students studying temporarily outside the school.

Student internships

- Yassine Boucchareb: 3rd-year internship on "Introduction to electoral theory" (2012).
- Asmae Aqil: 4th-year research project on "Quasi-stationary distributions and Fleming-Viot process" (2019).
- Mai-Linh Tran Cong: 2nd-year research project "On construction of Appolinian squares" (2021).

Administrative responsibilities (since 2017)

- Elected member of the Council of IECL lab (2022–2023).
- Member of the human ressources commission at IECL (2018–2023).
- Member of the working group on voting methods for internal elections at IECL (2024–).
- Working groups at Mines Nancy: Evolution of pedagogy; Attractiveness of the school; Adapting to the new high school syllabus.
- Oral examinations in mathematics for the admission at Mines Nancy of students coming from university curricula (2019–24).

Popularisation and para-mathematical activities

- Writer and reviewer on the mathematical popularisation website "Images des Mathématiques". Published articles:
  - Trilogy "The mathematics of democracy" [in French]
    - I Democracy, a subject for mathematical analysis (2012)
    - II And the winner of the run-off vote is… (2012)
    - III The quest for the electoral Grail (2013)
- Plenary speaker at the 2014 Lorraine regional day of the Association of Mathematic Teachers in Public Education.
- Talk at a public event hosted by the French Academy of Sciences on Condorcet. (*Mathematics to improve democracy*).

Awards

Mathematics competitions

- Limousin Mathematics Tournament 1998, 8th grade: special jury's award.
- Limousin Mathematics Tournament 2021, 11th grade: jury's first prize (team with Olivier Boulaud).
- International Championship of Mathematical Games 2024 (top category):

  2024 National winner

  2025 National 3rd prize

Miscellaneous abilities

- Fluent written and oral English; intermediate German.
- Advanced LaTeX skills; programming in C/C++, Matlab/Scilab, *R*, Python; HTML programming; Unix/Linux systems user.
- Driving license.