Jean Cazalis

PhD in mathematical physics

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28 ans

Education

2018 – 2022 **Doctor of Sciences Degree**, Université Paris-Dauphine, Paris.
- Dissertation title: « Nonlinear quantum systems at dissociation: the example of graphene »
- Dissertation advisor: Mathieu Lewin
- Manuscript link: tel-03726340

2017 – 2018 **Master of Research Degree**, *Mathematics and Applications*, Sorbonne Université, Paris.
- Major: control, optimization, variational calculus
- Awarded with highest honour

2017 **Agrégation externe de mathématiques**, *Admitted (Rank* 38/457*)*.
Highest competitive examination for civil service in the French public education system

2016 – 2017 **Master of Education Degree**, *Mathematics*, Université Paris-Saclay, Paris.
Awarded with high honours

2014 – 2015 **Bachelor's Degree**, *Mathematics*, École Normale Supérieure de Cachan, Cachan.

2014 – 2018 **Student at the École Normale Supérieure de Cachan**.

Scientific articles

[2] Jean Cazalis. Dirac cones for a mean-field model of graphene. ArXiv e-prints. 2022. Submitted. (arXiv:2207.09893)

[1] Jean Cazalis. The diatomic Hartree model at dissociation. 2022 *Nonlinearity* **35** 2633. (arXiv:2109.14940) (doi:10.1088/1361-6544/ac665a)

Other scientific productions

[1] Mirella Aoun, Clément Berger, Jean Cazalis, Thierry Gonon, David Lassounon. Characterization of the fluctuations of an ultrasonic wave passing through a complex environment in order to simplify the modeling. 2022. Report from SEME in Paris. (hal-03607816)

Contributed talks

June 14th 2022 **Mathematical Challenges in Quantum Mechanics**, *Università degli Studi dell'Insubria*, Dipartimento di Scienza ed Alta Tecnologia.
Dirac points in reduced Hartree-Fock theory of graphene.

November 4th 2021 **CEREMADE Young Researchers' Seminar**, *Université Paris-Dauphine*, CEREMADE.
Quantum mechanics and the stability of matter.

July 20th 2021 **Summer School on Current Topics in Mathematical Physics**, *Universität Zürich*, Institut für Mathematik.
The diatomic Hartree Model at Dissociation.

November 26th 2020 **2nd Meeting ERC MDFT**, *Université Paris-Dauphine*, CEREMADE.
The diatomic Hartree Model at Dissociation.

Research internships

2018 **Master research internship**, *Chair of Analysis and Applied Mathematics*, École Polytechnique Fédérale de Lausanne, Lausanne.
- Dissertation title: « Null controllability for the heat equation via backstepping approach »
- Dissertation advisor: Hoài-Minh Nguyên

2016 **Master research internship**, *Institut de Mathématiques de Bordeaux*, Université de Bordeaux, Bordeaux.
- Dissertation title: « Inverse problems and sparse approximation »
- Dissertation advisor: Charles Dossal

2015 **Bachelor research internship**, *Centre de Mathématiques et de Leurs Applications*, École Normale Supérieure of Cachan, Cachan.
- Dissertation title: « Construction and analysis of molecular dynamical signatures in molecular dynamics simulation »
- Dissertation advisors: Alain Trouvé and Luba Tchertanov

Teaching

2020 – 2021 **Tutorials classes**, *Université Paris-Dauphine*, Paris.
Tutorial classes in analysis (second year)

2019 – 2020 **Tutorials classes**, *Université Paris-Dauphine*, Paris.
Tutorial classes in probability (first year), practical work on computer using Python in numerical analysis (second year), tutorial classes and practical work on computer using Python in optimization (third year)

2018 – 2019 **Tutorials classes**, *Université Paris-Dauphine*, Paris.
Tutorial classes in analysis (first year) and practical work on computer using Python in numerical analysis (second year)

2017 – 2018 **"Colleur"**.
Examiner for weekly oral interrogations in the preparatory classes for the "Grandes Écoles"
- First undergraduate year at Saint-Louis high-school, Paris, France
- Second undergraduate year at Michelet high-school, Vanves, France

Languages

French	read, written, spoken	*Native*
English	read, written, spoken	*Upper-intermediate (B2)*

Technical skills

Systems	Linux, Windows XP/Seven/8/10	*Proficient*
Languages	Python, LaTeX	*Expert*
	Mathematica, Excel	*Proficient*
	MUPAD, Matlab, Scilab, OCaml, Maple	*Novice*

Activities and interests

2022 – ... Volunteer for *The Shifters* association

2019 – 2021 Co-organizer of the CEREMADE young researchers' seminar

2015 President of the ENS Cachan rugby association

Sports Climbing (bouldering and rope), road biking, rugby

Culture Cinema, literature, electronic music