

GUILLAUME THÉMÈZE

Ph.D. in Quantum Physics

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Paris, France

THEMEZE



RESEARCH EXPERIENCE

Ph.D. Research / Doctoral Researcher

Institut d'Optique Graduate School (IOGS) / Charles Fabry Laboratory (LCF)

2022–2025

Palaiseau

- Out-of-equilibrium quantum gases: combined theoretical, numerical and experimental work. Development of models, simulations, and local density measurements.

Master 2 Internship / Research Intern (IOGS)/ (LCF)

2022

Palaiseau

- Dynamics of a one-dimensional bosonic gas. Theoretical modeling, simulations, and experimental measurements.

Master 1 Internship / Research Intern Université Paris-Saclay

2020

Orsay

- Bibliographic and numerical project: maximal expansion of Schwarzschild and Kerr black holes. Theoretical and numerical analysis during COVID lockdown.

Bachelor Internship / Research Intern l'École Polytechnique (l'X) / Plasma Physics Laboratory (LPP)

2019

Palaiseau

- Study of electric discharges in plasma. Theoretical and numerical modeling.

TEACHING EXPERIENCE

Teaching Assistant / TD/TP Instructor

Institut Polytechnique de Paris (IP Paris) / (IOGS)
/SupOptique & Polytech

2023–2025

Palaiseau/Orsay

- Tutorials in Quantum Mechanics and Signal Processing at SupOptique (BSc level).
- Practical classes in lasers at Polytech (MSc level).
- Over 150 hours of teaching experience.

EDUCATION

Ph.D. in Quantum Physics

Institut d'Optique Graduate School (IOGS) / Charles Fabry Laboratory (LCF)

2022–2025

Palaiseau

Thesis on the out-of-equilibrium dynamics of one-dimensional bosonic gases.

M.Sc. Research-Oriented Master 2 Quantum, Light, Matter, Nanoscience (QLMN)

(IOGS) / Université Paris-Saclay

2021–2022

Palaiseau

M.Sc. Teacher-Oriented Master 2 Métiers de l'enseignement, de l'éducation et de la formation (MEEF) Physics-Chemistry

École Normale Supérieure (ENS) Ulm & Université Paris-Saclay

2020–2021

Paris/Montrouge

Teacher Training and Agrégation Preparation. Specialized program in pedagogy and preparation for the French national competitive exam (agrégation de physique-chimie). This year also validated the Magistère's MSc requirement (M2 in Fundamental Physics).

B.Sc. & M.Sc. Research-Oriented Magistère in Fundamental Physics (L3–M2)

Université Paris-Sud

2018–2021

Orsay

Selective Excellence Program. Intensive training in theoretical and experimental physics, research internships, and complementary courses (languages, computing, management).

Preparatory Classes (MPSI/MP)

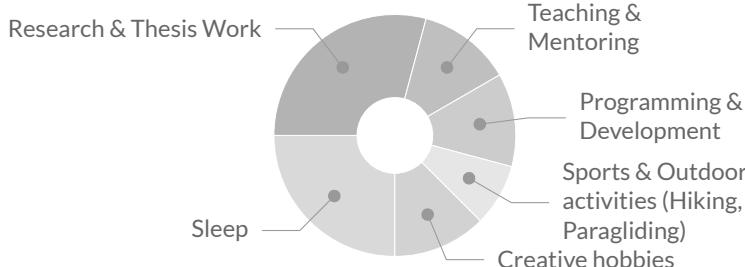
Lycée Leconte de Lisle (Réunion) & Lycée La Martinière (Lyon)

2015–2018

Lyon & Réunion

Intensive training in Math and Physics.

A DAY OF MY LIFE



MOST PROUD OF

Research Contribution

Co-author of a Physical Review Letters article on 1D quantum gases, highlighting both theoretical and experimental expertise.

Teaching Experience

Over 150 hours of tutorials and practicals in quantum mechanics, signal processing, and laser physics at SupOptique and Polytech Paris.

Interdisciplinary Skills

Bridging physics, mathematics, and software development: numerical simulations, AI, and collaborative research projects.

International Collaboration

Active participation in seminars, conferences, and teamwork in leading research groups on quantum gases.

STRENGTHS

Physics & Research: Mathematics Pure mathematics (analysis, algebra, geometry, mathematical elegance); applied mathematics for physics (modeling, optimization, statistics).

Theoretical Physics quantum mechanics and quantum gases; quantum field theory; statistical field theory; statistical physics; general relativity; personal interest in string theory, M-theory, supersymmetry, and quantum gravity.

Experimental Physics laser physics, optics, and measurements on 1D bosonic gases.

Teaching mathematics and physics tutorials, practicals, and lectures.

Programming: Python, Julia, C++, L^AT_EX/TikZ numerical simulations, optimization

AI & Data: Machine Learning & Deep Learning

algorithm optimization, data analysis

Software Development: Django (Python)

Flutter (mobile apps), Web (HTML, CSS, JavaScript)

Languages: French (native), English (scientific writing)

Personal interests: Portrait drawing, Photography

Drone videography, Hiking, Paragliding

DIY computing (Raspberry Pi, NAS)

MY LIFE PHILOSOPHY

"Seeking elegance in both physics and mathematics, while turning complexity into clarity."

"Exploring the unknown with rigor, passion, and creativity."

LANGUAGES

French



English



Réunionnais



PUBLICATIONS

Journal Articles

- L. Dubois, G. Thémèze, F. Nogrette, J. Dubail, and I. Bouchoule, "Probing the local rapidity distribution of a one-dimensional bose gas," *Physical Review Letters*, vol. 133, no. 11, Sep. 2024, ISSN: 1079-7114. DOI: 10.1103/physrevlett.133.113402.

Preprints

- L. Dubois, G. Thémèze, J. Dubail, and I. Bouchoule, *Experimental investigation of a bipartite quench in a 1d bose gas*, 2025. arXiv: 2505.05839 [cond-mat.quant-gas]. [Online]. Available: <https://arxiv.org/abs/2505.05839>.

Conference Proceedings

- G. Thémèze, "Seminar: Study of the out-of-equilibrium dynamics of one-dimensional bose gases," Talk at Institut d'Optique Graduate School, Palaiseau, 11 April 2024, 13:15, Auditorium. Quantum Gases Group, Charles Fabry Laboratory, Apr. 2024.

REFEREES

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