Ayoub Dhibi

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Objective

My goal is to integrate the Master 2 ICFP at ENS Paris to gain specialized training in condensed matter physics and quantum technologies. This program will provide me with the advanced theoretical and experimental knowledge required for my intended PhD in condensed matter physics, along with opportunities to bridge research and technological applications.

Experience

- **Laboratory Internship: Laboratoire National des Champs Magnétiques Intenses (LNCMI) [🌐]** *April 2025 - July 2025*
  Final-year M1 internship Toulouse, France
  - At the end of my M1, I will conduct an internship at LNCMI under the supervision of Dr. Paulina Plochocka. This project will immerse me in the fascinating world of excitons—fundamental quasi-particles in semiconductor physics—within novel two-dimensional structures known as transition metal dichalcogenides (TMDs). These materials, often described as atomic-scale "Lego bricks," pave the way for the exploration of exotic and still largely unknown physical phenomena. My work will focus on a new class of interlayer excitons, investigating how layer stacking and doping influence their unique low-temperature properties.
- **Laboratory Internship: ENS Paris, Kastler-Brossel Laboratory (LKB) [🌐]** *May 2024 - July 2024*
  Final-year L3 internship Paris, France
  - I had the opportunity to work with Drs. Hilton, Gentner, and Lorenzo Valzania within the Complex Media Optics team. Over three months, I contributed to the development of a technique for detecting anomalous chemical species in samples analyzed using compressed Raman spectrometers—a novel class of "ultra-fast" and cost-effective Raman spectrometers. Additionally, my interest in scientific valorization and entrepreneurship was reinforced, as the team I joined is actively working on a start-up project centered around Raman technology.
  - Keywords: Raman spectroscopy, compressive sensing, supervised learning
- **Campus Creation Program: CELS [🌐]** *September 2023 - April 2024*
  Entrepreneurship Program Lyon, France
  - Alongside my third-year undergraduate studies, I participated in the Campus Creation program, where I immersed myself in the world of entrepreneurship and innovation. This program enabled me to develop practical skills in business creation, project management, and strategic planning, while being part of a dynamic ecosystem of entrepreneurs and experts. My objective was to transform innovative ideas into concrete projects while learning to tackle the challenges associated with launching a start-up.
  - Keywords: coaching, business plan, management
- **Mathematics Tutor : Colleur au lycée du Parc [🌐]** *September 2024 - Present*
  Scientific student job Lyon, France
  - Provided tutoring to high-achieving students in preparation for their mathematics exams, focusing on strengthening problem-solving skills, reinforcing theoretical concepts, and conducting mock examinations to improve performance under exam conditions.

Education

- **Master of Physics: ENS de Lyon** *2024 - Present*
  Matter Sciences Program - Major in Physics Lyon, France
  - Currently in my first year of the Master's in Physics at ENS Lyon, a selective program combining academic rigour, advanced research, and interdisciplinarity. This curriculum allows me to deepen my knowledge in theoretical and experimental physics. The curriculum is based on a strong proximity with researchers and laboratories.
  - Non exhaustive list of selected M1 courses: Green's functions, Quantum Optics, Advanced Quantum Mechanics, Advanced Statistical Physics and Thermodynamics, Superconductivity, Superfluidity and Magnetism, Machine Learning, Lasers and Matter, Differential Geometry, Numerical Methods.

  Sciences
- **Final year of undergraduate studies in Physics: ENS de Lyon (Normalien étudiant, L3)** *2023-2024*
  Matter Sciences Program - Major in Physics Lyon, France
  - Non exhaustive list of selected L3 courses: Quantum Mechanics, Analytical Mechanics, Thermodynamics and Statistical Physics, Light-Matter Interactions, Mathematical Methods
- **Preparatory Classes: Fermat PC*** *2020-2023*
  Excellence undergraduate scientific training, specializing in physics and chemistry Toulouse, France
  - A demanding program that provided me with rigor, excellent foundations in physics, chemistry, mathematics, and computer science, as well as broadening my mind through French and English courses.
  - Ranked in the top 5% throughout the year and at the end of the exams.

Specific Skills

- **Languages :** French (Fluent), English (C1), Spanish (B2), Italian (A1)
- **Programming Tools :** Python, MATLAB, Git, GitHub, LaTeX, SQL
- **Programming Skills :** Image processing, Computational physics, Signal processing, Machine learning

Volunteer Experience

- **Voluntary Tutoring** *September 2023 - May 2024*
  Student Association: ENSeigner [🌐]
  - Intensive teaching for small groups of high school students
  - Support for students to help them succeed in their academic program
  - Development of better teaching methods and overall improvement of my communication skills
- **Partnerships and organization of the gala for the student union** *January 2024 - Present*
  BDE ENS de Lyon [🌐]
  - Active involvement in student life as a member of the Student Union
  - Organization of large-scale events bringing together more than 500 participants
  - Management of external communications and partnerships with companies

References

1. **Prof. Benjamin Huard**
   Director of the QUANTUM CIRCUIT group at ENS de Lyon
   Email: benjamin.huard@ens-lyon.fr
   Relationship: academic mentor, former teacher
2. **Prof. Tommaso Roscilde**
   Theorist in quantum matter at ENS de Lyon
   Email: tommaso.roscilde@ens-lyon.fr
   Relationship: teacher
3. **Prof. Hilton B. de Aguiar**
   COMPLEX MEDIA OPTICS team
   Kastler-Brossel Laboratory (LKB), ENS Paris
   Email: h.aguiar@lkb.ens.fr
   Relationship: former internship supervisor