Sébastien LUCAS

ESPCI Engineer / quantum physicist from ICFP master

CONTACT

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LANGUAGES

- French: native speaker
- English: fluent
  TOEIC (990/990 in 2022)
- Spanish: intermediate (B2)
- Latin: basic

SOFTWARE

- Matlab : advanced
- Python : advanced
- LaTeX : advanced
- SQL : intermediate
- Qiskit : beginner
- C : beginner
- Arduino : beginner
- Office : advanced

EXTRACURRICULAR

- Treasurer of the student's sustainable development association (2021)
- Tutoring (highschool & undergraduate students)
- Swimming: 12 years
- Drawing: 6 years
- Running

REFERENCES

Pr Stefan Rotter – TU Wien
stefan.rotter@tuwien.ac.at
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Dr Stéphane Amiel - Safran Tech
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Pr Emmanuel Fort - Institut Langevin
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EDUCATION

2022 – 2023 | ENS | Master 2 ICFP, Quantum Physics
Disordered media and localisation phenomena, Computational and data-driven physics, Advanced Statistical Physics, Advanced Quantum Mechanics, Quantum Information, Quantum Metrology, Quantum Optics, Ultra Cold Atoms, Circuit QED, Optomechanics
GPA: 15.3/20.

2019 – 2022 | ESPCI Paris – PSL | MS, Engineering Physics.
Ranked **1st/90** for 4/6 semesters - GPA: 4.0/4.0
Waves in complex media, light-matter interaction, quantum & relativistic engineering, advanced condensed matter physics, statistical physics, statistical learning.

2017 – 2019 | CPGE PCSI-PC* | Lycée Hoche, Versailles France

2014 – 2017 | St François d'Assise High School, Montigny-le-Bretonneux
Scientific baccalaureate with high honors - GPA: 18.4/20

EXPERIENCE

April – Oct 2023 | Research internship – ETHZ, Zürich, Switzerland
Experimental and theoretical study of a new detection scheme for levitated optomechanics in the group of Lukas Novotny, Photonics Laboratory at ETH Zürich. Investigated nonlinear dynamics of an electrically and parametrically driven particle.

May – Sept 2022 | Research internship – TU Wien, Vienna, Austria
Worked in the field of light scattering and wavefront shaping in Stefan Rotter's group in the Institute of Theoretical Physics - Technical University of Vienna.

- Studied an invariance property of the quantum Fisher information in disordered media using finite elements simulations.

Achievement: Due to the results of my research, I was invited to Sylvain Gigan's group in Laboratoire Kastler Brossel to present them.

Jul – Dec 2021 | Engineering internship – Safran Tech, Châteaufort, France
Optimisation of infrared thermography methods for non-destructive testing.

- IR thermography experiments with laser, induction excitation and design of signal processing algorithms to determine materials' local thermal properties.
- Implemented a heat equation inversion with regularisation to detect subsurface defects

Achievement: All algorithms I designed were successfully validated on samples.

Jul – Aug 2020 | Facultative research internship – Atomic Energy Commission (CEA), Saclay
Ultrasonic echography for non-destructive test. Realized experiments and numerically validated a semi-analytical model for wave propagation and diffraction in solids.

AWARDS & SOCIAL PROJECTS

Sept 2020 - Jul 2021 | French Physicists' Tournament (FPT) – ESPCI, Paris
Investigated the branching of a wave propagating through a weakly disordered medium using a laser beam. Reproduced it with hydrodynamic waves in a disordered electrical potential. Supervised by Pr Fort.
Achievement: Silver medal as a team - National tournament

2019-2020 | Solidarity project – E. Pailleron Middle school, Paris
'Space exploration at the service of social inclusion' - Assisted physics teachers of a middle school in a priority education area. Interacted with the students during class, helped for the design and organized practical work sessions.