

Experience

PhD : "Measurement of equilibrium supercurrent noise in a superconductor-normal ring and current-phase relation of helical hinge states of tungsten ditelluride"

Orsay, France

UNDER THE GUIDANCE OF MEYDI FERRIER AND HÉLÈNE BOUCHIAT, MESOSCOPIC PHYSICS GROUP, LABORATOIRE DE PHYSIQUE DES SOLIDES, UNIVERSITÉ PARIS-SACLAY

Oct. 2020 - Dec. 2023

- Pushing the measurement of the linear response by the verification of the fluctuation-dissipation theorem for a hybrid superconducting structure at high frequency.
- Understanding the observed hinge states of the topological material WTe_2 , by measuring the current-phase relation of a WTe_2 -based Josephson junction.
- From the conception of the samples to the measurement and the analysis of the data.
- Teaching mission, 192 hours in 2 years : Classical mechanics, electromagnetism, practicals...
- Visitor for 6 months at Reulat Lab, at Université de Sherbrooke, Québec.

Master thesis : "Dynamics of Andreev bound states in graphene"

Orsay, France

UNDER THE GUIDANCE OF MEYDI FERRIER, MESOSCOPIC PHYSICS GROUP, LABORATOIRE DE PHYSIQUE DES SOLIDES, UNIVERSITÉ PARIS-SACLAY

Apr. 2020 - Jun. 2020

- At home intership.
- Numerical simulations to understand transport properties of a graphene-based Josephson junction under microwave irradiations.

Internship : "Improving neutronic and thermomechanic modelization for pressurized water reactor calculations."

Saclay, France

UNDER THE GUIDANCE OF KARIM AMMAR, CEA SACLAY

Apr. 2019 - Aug. 2019

- Development of more efficient models and simpler codes for PWR to be used on CEA computation codes.

Internship : "L'électromagnétisme dans les thèses d'ingénieur-docteur au XXe siècle"

Orsay, France

UNDER THE GUIDANCE OF VIRGINIE FONTENEAU, GROUP OF *Histoire et Diffusion des Sciences d'Orsay*

Jun. 2018 - Jul. 2018

- Undergraduate internship : discover research in a different domain.
- Linking geopolitical and natural environments to the specialization of engineers and researchers at the beginning of the XXth century with the exemple of Grenoble.

Education

PhD in Condensed Matter Physics

Paris, France

UNIVERSITÉ PARIS-SACLAY

Oct. 2020- Dec. 2023

Magistère of Fundamental Physics

Orsay, France

UNIVERSITÉ PARIS-SACLAY

Sep. 2017 - Aug. 2020

3 years diploma from last year of bachelor to end of master. Additional advanced lectures in physics and English.
Mention bien (French merits, between 14/20 and 16/20)

Master's degree of Fundamental Physics, specialized in Condensed Matter Physics.

Paris, France

INTERNATIONAL CENTER FOR FUNDAMENTAL PHYSICS - UNIVERSITÉ PARIS-SACLAY & OTHERS

Sep. 2019 - Aug. 2020

Lectures in advanced statistical physics, condensed matter theory, mesoscopic physics and quantum transport, topology in condensed matter, ...
Mention bien (French merits, between 14/20 and 16/20)

Bachelor's degree of Fundamental Physics

Orsay, France

UNIVERSITÉ PARIS-SUD

Sep. 2017 - Aug. 2018

Lectures in quantum mechanics, statistical mechanics, electromagnetism, analytical mechanics, numerical physics, ...
Mention assez bien (French merits, between 12/20 and 14/20)

Lycée International François 1er

Fontainebleau, France

CLASSE PRÉPARATOIRE AUX GRANDES ÉCOLES

Sep. 2015 - Aug. 2017

Specialized in mathematics and physics, additional lectures in engineering, numerics

Publications

Supercurrent Noise in a Phase-Biased Superconductor-Normal Ring in Thermal Equilibrium

ZIWEI DOU, XAVIER BALLU, QUAN DONG, YONG JIN, RICHARD DEBLOCK, SANDRINE AUTIER-LAURENT, SOPHIE GUÉRON,
HÉLÈNE BOUCHIAT, MEYDI FERRIER

*To be published in Physical Review
Research.*

Probing the ballisticity of the hinge states of the topological material WTe_2

XAVIER BALLU, ZIWEI DOU, RAPHAËLLE DELAGRANGE, RICHARD DEBLOCK, SANDRINE AUTIER-LAURENT, SOPHIE GUÉRON,
HÉLÈNE BOUCHIAT, MEYDI FERRIER

In Prep.

Skills

Data analysis Python, IgorPro

Fabrication e-beam lithography, photolithography, evaporation, sputtering, exfoliation...

Languages French (native), English (C1), Spanish (advanced), Italian (learning)

Other softwares Usual office softwares

Miscellaneous

Non-permanents representative

LABORATOIRE DE PHYSIQUE DES SOLIDES

Lab council, organization of events

Orsay, France

2021 - 2023

Paris, 23/01/2023