HASSEBI Khalil

Ph.D. Student – Sorbonne University

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https://khalilhas.github.io/home | **Date of birth:** 12/05/1998

EDUCATION:

M2: International Master in Applied Physics and Physics Engineering

Major: Nanophysics and Advanced Optics

Sept 2020 – to date University of Le Mans - FRANCE

Courses: Nanophysics, Spectroscopy, Ultrafast phenomena in condensed matter, Microscopy, Solid-state and surface physics, advanced diffraction and scattering techniques.

M1: International Master in Applied Physics and Physics Engineering

Major: Nanophysics and Advanced Optics

Sept 2019–July 2020 University of Moulay Ismail - MOROCCO

Courses: Nanomaterials, Spectroscopy, Nonlinear optics, Quantum mechanics, Solid State Physics, Crystallography.

B.Sc. in Physics

Major: Science of Physical Matter

Sept 2018–July 2019 University of Moulay Ismail - MOROCCO

Courses: Solid State Physics, Statistical Physics, Magnetism, Quantum Physics, Electronics.

AS. In Physics

Major: Science of Physical Matter

Sept 2015 - July 2018 University of Moulay Ismail - MOROCCO

Courses: Quantum Physics, Crystallography, Thermodynamics, Magnetism, Electronics, Mathematics.

PROFESSIONAL EXPERIENCE:

Ph.D.: Spectroscopy and quantification of lithium by X-ray microanalysis

Novembre 2021 – Current LCPMR Sorbonne Université - FRANCE

- Developing a new, efficient, accessible, and non-destructive method of quantifying the amount of lithium in solids in an electron probe microanalyzer (EPMA).
- Simulating and characterizing multilayers for the spectroscopy of Li K.
- **Developing quantification code** for Li K emission range.
- Communication: Conference presentations, scientific publications, technical reporting.

Internship: Electric field-assisted the growth of crystal phase quantum dots: an in situ TEM study

March 2021 – September 2021 C2N University Paris-Saclay

- Understanding the CPQD growth and phase switch
- Developing a model to determine E-field's effect on the growth of GaAs nanowires.
- **Coding an automated image-processing program** able to extract relevant geometric parameters including contact angle and width from NANO MAXTEM videos.
  Libraries: OpenCV, Qt, Matplotlib, Numpy, Scikit-image, Scipy…
- Developing software to control the experimental conditions in NANO MAXTEM using protocols such as GPIB.
  Libraries: PyVisa, Qt, Matplotlib, Numpy…

SKILLS AND INTERESTS:

Equipment & Techniques: SEM, EPMA, Profilometer, PECVD, ellipsometer, TEM, Lithography, XRR.
Programming & Simulation: Python, R, JavaScript (Node.js, react…), C, C++, Matlab, Bash, Assembly, Kotlin, Wien2k (DFT).
Software: Git, VScode, PyCharm, eclipse, Blender, Adobe Illustrator, Photoshop, L-Edit, Notion, Origin, Microsoft Office Pack.

Language skills:

	Listening	Reading	Speaking	Writing
English	**C2**	**C2**	**B2**	**C1**
French	**C1**	**C1**	**B1**	**B2**

RELATED TRAINING:

R Langage Training

May - June 2024 IFSeM Formation CNRS - FRANCE

- Data manipulation with dplyr and data.table packages, advanced statistical analysis, and dynamic report generation in multiple formats.
- Data visualization using ggplot2 for creating complex charts, including histograms, scatter plots, and faceting for multi-variate analysis.
- Managing entire data project workflows in RStudio, from data import and cleaning to final report production, emphasizing reproducibility and efficiency.

Introduction to Linux

2014 LinuxFoundationX – EDX.ORG

- Learned various tools and techniques commonly used by Linux system administrators.
- Mastered both the graphical interface and command line in all of the major Linux distributions.

PUBLICATIONS AND CONFERENCES:

Publications:

- Calculation of emission spectra of lithium compounds – K. Hassebi, K. Le Guen, N. Rividi, A. Verlaguet, P. Jonnard, X-ray Spectrometry.
  -2023, doi: https://doi.org/10.1002/xrs.3329

- Sc/SiC/Al multilayer optimization for Li K spectroscopy – K. Hassebi, E. Meltchakov, F. Delmotte, A. Giglia, P. Jonnard **– 2024**, doi: https://doi.org/10.3390/app14030956

- High-resolution X-ray emission spectrometry of lithium emission band – K. Hassebi, N. Rividi, M. Fialin, A. Verlaguet, M.C Lépy, J. Probst, H. Loechel, T. Krist, K. Le Guen, P. Jonnard
  Accepted - 2024

Conferences:

- European X-ray Spectrometry Conference – At Bruges, Belgium (Poster).
- IUMAS-8: 8th Meeting of the International Union of Microbeam Analysis Societies – At Banff, Canada (Oral).
- Groupement National de Microscopie Electronique A Balayage et de Microanalyses (GNMEBA) – At Rouen, France (Oral).
- International Workshop on the Characterization and Quantification of Lithium, from the Micro- to the Nano-Scale, from Mining to Energy (CQLMNS) – At Paris, France (Oral and Poster).