

Mohcine Laarraj

Education

- March 2016** **Ph.D (joint supervision). Physics**, Neel Institute, Joseph Fourier University, Grenoble, France.
Hassan II Mohammedia University, Faculty of Science Ben m'sik, Casablanca, Morocco.
- July 2011** **Master's degree in physics, matter and radiation**, Hassan II Mohammedia University, Faculty of Science Ben M'sik, Casablanca, Morocco.
- July 2009** **Bachelor's degree in physics**, Hassan II Mohammedia University Faculty of Science Ben M'sik , Casablanca, Morocco.

Experiences

2022 : **Voluntary association ,constant and variable .**

12/2021-4/2022: data analysis training

2017-2018 : **Post-Doctoral at Henri Becquerel National Laboratory, CEA (Saclay), France.**

Research topic: **Development of gold nanofoam for Q spectrometry of actinides with magnetic calorimeters.**

2012-2016: **Ph.D researcher, Neel Institute, Joseph Fourier University, Grenoble, France.**

Hassan II Mohammedia University, Faculty of Science Ben m'sik, Casablanca, Morocco.

Thesis Topic: Highly sensitive dynamic nanocalorimeter for the study of the glass transition.

Supervisors: Prof .Rahma Adhiri , Dr. Jean-Luc Garden research engineer.

2011: **Master 2, Research Internship (3 months), Neel Institute, Grenoble, France**

Project topic: Microfabrication techniques of thermal sensors.

Skills & Projects

- Cryogenics, Low Temperature Physics.
- Development of sensor for thermal measurements.
- Simulations of the passage of particles through matter (Geant4).
- Metallic magnetic calorimeter detector.
- The study of radioactive decay (alpha particles).
- Ac-calorimetric measurements.
- Development of Nano-porous gold (absorber) for spectrometry Q.
- Manufacture of radioactive sources (Plutonium).

- Micro-fabrication, Clean room.
- Deposition of thin films using magnetron sputtering.
- 3D Mechanical Design.
- Nuclear physics , Radiation protection.
- Thermodynamic study of the glass transition (polyvinyl acetate).
- MatLab, Linux, Origin, Geant4, SolidWorks, Labview. .
- Electroplating, SEM (Scanning Electron Microscopy).

Publications, patents and oral communications

- **Process for manufacturing an absorber and associated spectrometry process.**
Inventor : Mohcine LAARRAJ, Matias RODRIGUES, , Valerie LOURENCO (FR3105839A1) 2022.
[FR3105839A1 - Process for manufacturing an absorber and associated spectrometry process - Google Patents](#)
- **Preparation of Drop-Deposited Sources in 4π Absorbers for Total Decay Energy Spectrometry**
Rodrigues Matias; Laarraj Mohcine; Loidl Martin; Navick Xavier-François; Ferlazzo Laurence
Journal of Low Temperature Physics, Volume 199, Issue 1-2, p.461-466, February 2020.
<https://link.springer.com/article/10.1007%2Fs10909-020-02410-9>
- **Development of total decay energy spectrometry of emitting radionuclides using Metallic Magnetic Calorimeters.** M. Rodrigues, M. Laarraj, M. Loidl ,X.-F. Navick ,R. Mariam, **2018.**
Journal of Low Temperature Physics. <https://doi.org/10.1007/s10909-018-2008-y>
- **Very Sensitive Nanocalorimetry of Small Mass Systems and Glassy Materials,**
Garden, J.-L., Tavakoli, A., Nguyen-Duc, T., Frydman, A., Laarraj, M., Richard, J., Bourgeois, O, **2016.** in: Bonča, J., Kruchinin, S. (Eds.), *Nanomaterials for Security. Springer Netherlands, Dordrecht*, pp. 35–44.
https://doi.org/10.1007/978-94-017-7593-9_4
- **Highly sensitive pseudo-differential ac-nanocalorimeter for the study of the glass transition.**
Laarraj, M., Adhiri, R., Ouaskit, S., Moussetad, M., Guttin, C., Richard, J., Garden, J.-L., **2015.**
Review of Scientific Instruments 86, 115110. <https://doi.org/10.1063/1.4935491>
- **Preparation of drop deposited sources in 4π absorbers for total decay energy spectrometry.**
Matias RODRIGUES1 • Mohcine LAARRAJ1 • Martin LOIDL1 • Xavier- François NAVICK2 • Laurence FERLAZZO3 (Low Temperature Detectors (LTD) 2019).
- **Highly sensitive dynamic nanocalorimeter for the study of the glass transition (communication, JCAT Montpellier 2015).**

Languages & cultures:

- English: professional working proficiency
- French : bilingual
- Arabic : mother tongue
- German : beginner

Hobbies :

- Football.
- Jogging.
- Basketball.

References

- **Rodrigues Matias, PhD** **matias.rodrigues@cea.fr**
Research scientist , Laboratoire national Henri Becquerel (LNHB) - CEA Saclay. France.
- **LOIDL Martin, PhD** **Martin.LOIDL@cea.fr**
Research scientist , Laboratoire national Henri Becquerel (LNHB) - CEA Saclay. France.
- **Jean-Luc Garden, PhD** **Jean-Luc.Garden@neel.cnrs.fr**
Research engineer, Head of the Thermometry and Calorimetry group, Neel Institute, Grenoble, France.