

Open Ph.D. Position and Postdoc Position

Advanced quantum simulations for nanoscale devices and energy materials discovery

We invite applications for **(01)** Postdoc position and two **(02)** fully funded PhD positions in first-principles modeling of **quantum materials and nanoscale devices** at “**Laboratoire de Physique des Matériaux et Composants à Semi-Conducteurs (LPMCS)**”, Quantum Simulations Group, of the University of Lomé (Togo).

The research topics can focus on quantum interferences and mechanosensitivity in molecular junctions, current-induced forces, molecular plasmonics, halide perovskites materials for energy applications, phonon drags in molecules, materials discovery with machine learning, depending on the background of the candidate and the research interests.

The project belongs to a five (05)-years programme **QSim-MD: Quantum Simulations and Materials Discovery** and benefits from collaborations with international experimental groups. The **QSim-MD** project is set through the African Research Initiative for Scientific Excellence (ARISE) programme, funded by the European Union - African Union, and implemented through the African Academy of Sciences (AAS) with the European Commission and the African Union Commission as strategic oversight partners.

Requirement for PhD:

- a Master's degree in Physics/Quantum Physics, Chemistry, Material Science, Machine Learning or a related field;

Requirement for Postdoc:

- a Ph.D. in Physics/Quantum Physics, Chemistry, Material Science, Machine Learning or a related field;

Qualifications required:

- a solid background in computational/theoretical material science and/or Theoretical Physics
- strong programming skills in C++/Fortran/ Python/parallel computing (MPI, SMP) is needed
- previous experience in using electronic structure methods / machine learning / deep learning is an advantage;
- the ability to work independently and productively;
- excellent writing and oral communication skills in English. Basic knowledge of French an advantage;
- the motivation to work in an ambitious, multidisciplinary and international research team.

We offer:

- embedding in a dynamic african based research group. The research activity will be conducted in synergy with other Researchers from the Institute and from our wide international network;
- a flexible starting date, with a preference for starting in fall 2022. Please note that review and interviews of candidates will start immediately and continue until the position is filled;
- fully funded position for 03 years for PhD students.
- The Postdoc salary will be based on the University of Lome payscale (ATEN). The position is initially for 01 year, renewable based on performance and mutual agreement.

How to apply:

send your **CV + transcripts + motivation letter** for PhD students,

send your **CV + motivation letter + recommendation letter** for Postdoc,

via email to kbeltako@gmail.com with the subject "PhD/Postdoc Quantum Simulations 2022"

Application deadline: 31 August 2022

