

Institution:

Nicolaus Copernicus University in Toruń, Poland
Faculty of Physics, Astronomy and Informatics

Research field: Condensed Matter Physics

Project title: Twistronics - research on new quantum simulators

(grant within National Science Centre Poland)

Scholarship amount: 4000 PLN/month

Position: PhD student

Posted: 01 August 2023

Application deadline: 20.09.2023

Position starts earliest on: 1.10.2023

Offer description:

PhD student will work with the project leader dr Pawel Potasz on electronic properties of moire superlattices which are new quantum simulators. The project involves analysis of current experimental results and designing magnetic and correlated phases in topologically trivial and nontrivial flat bands. The student will focus first on implementation of single particle models, real space tight-binding model, together with a reciprocal space model and next on analysis of many-body physics.

Selection process/Required documents:

- Curriculum vitae
- statement of the candidate's research interests, experience, and skills (in English)
- min. 1 letter of reference

Skills/Qualifications:

1. Fundamental knowledge about quantum physics.
2. Fundamental knowledge about solid state physics.
3. Skills in computer programming (C, python, Matlab, or Fortran)
4. Communication skills and ability for working in a team
5. Basic experience in interacting systems in quantum mechanics
6. Basic knowledge about quantum mechanical lattice models

Benefits:

The position is funded for 15 months with optional extension. We offer a scholarship of 4000 PLN per month. In addition, the position has fundings available for participation in conferences. PhD student will work in a friendly environment, with other group members, and will be involved in projects realized with foreign collaborators from Canada, Turkey or USA.

Offer Requirements:

- MSc in physics or related sciences
- English in speaking and writing (basic)

Additional information: Documents should be submitted to dr Pawel Potasz: ppotas@umk.pl before 20th of September 2023.