2Dtronics: Spin and Charge transport in low-dimensional novel quantum materials

GRIEG: Polish-Norwegian research projects

Postdoc positions in theoretical condensed matter physics

ADAM MICKIEWICZ UNIVERSITY POZNAŃ

We seek outstanding candidates for 2 postdoc positions in theoretical condensed matter physics in the Department of Mesocsopic Physics, at the Faculty of Physics of Adam Mickiewicz University in Poznan, Poland.
The appointment will involve research under the supervision of Prof. UAM dr hab. Anna Dyrdał, and in direct collaboration with research partner QuSpin-NTNU, Norway (Dr. Alireza Qaiumzadech).
Postdocs will also get a mentoring from experts: Prof. dr hab. Józef Barnaś (AMU) and Prof. Arne Brataas (NTNU), and access to few-month research stays at NTNU and/or other research groups.
The position is covered within GRIEG project *2Dtronics* which is a part of the Basic Research Programme funded by the Norwegian Financial Mechanism and operated by the National Science Centre in Poland.

FORM OF EMPLOYMENT: full time contract

REMUNERATION: 10000 PLN (ca. 2325 EUR) per month

From the remuneration a contribution to the social insurance (ZUS) should be deducted.

TIMELINE: 3 years (36 months)

REQUIREMENTS:

- PhD degree in the theory of solid-state physics obtained within 7 years of joining the project (preferably in the issues related to spintronics, electron transport in nanosystems, magnetism)
- a solid background in theoretical physics (quantum transport, quantum field theory, many-body theory, and/or topological phases of matter).
- good written and oral English skills
- the candidate should be creative, independent, well organized and have a strong ability to work problem oriented

PREFERRED SELECTION CRITERIA:

- **Postdoc-1:** experience and well-documented achievements in the theory of electron and spin transport, and in spin phenomena in low-dimensional systems (semi-classical modeling, Green function formalism, field theory methods)
- **Postdoc-2:** well-documented experience in ab-initio modeling; knowledge of at least one of the commonly used simulation packages, such as Quantum Espresso, VASP, Quantum ATK + NEGF, elk, SIESTA. It is expected that this researcher will be able to take responsibility for ab-initio modeling and will advise PhD and master students dedicated to numerical simulations within the project.

SCOPE OF THE WORK:

Postdoc-1: The theoretical description of linear and non-linear transport phenomena in novel 2D materials. This researcher will be involved in the formulation of an adequate theoretical description of time-dependent transport through quantum materials.

Postdoc-2: Modeling of low-dimensional nanostructures: DFT, TB modeling of band structure and magnetism, numerical calculations of transport in 2D crystals, hybrid structures, and nano-devices.

HOW TO APPLY:

The application mast include:

- **CV, certificates and diploma**
- **Cover letter**
  (within you indicate preferable postdoc position: Postdoc-1 or Postdoc-2)
- **Two Reference Letters**
  (references should be sent directly to PI)
- **Academic works** (published or unpublished) that you would like to be considered in the assessment. If it is difficult to identify your contribution to joint works, you must attach a brief description of your participation
- **Consent to the processing of personal data** for the purposes of recruitment procedure

The documents should be sent directly to the project PI (Anna Dyrdał) via e-mail: adyrdal@amu.edu.pl

Application deadline: 18.08.2020 (we will contact only with selected candidates)

Questions about the project and positions can be directed to Anna Dyrdał: adyrdal@amu.edu.pl

Information about 2Dtronics: http://zfmezo.home.amu.edu.pl/GRIEG.php