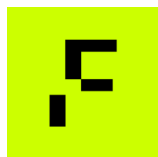


Freie Universität Berlin - Department of Physics



The Mueller group studies nanoscale light-matter coupling phenomena in quantum materials. We use polaritons to shrink light to the nanoscale and employ ultrafast nonlinear optical techniques to bridge phenomena in the typically separate mid-infrared and visible spectral ranges. We aim to advance the understanding of 2D quantum materials, activate new coupling channels to convert light between different spectral ranges, and engineer materials through hybrid light-matter states. Our group is funded by the Emmy Noether Programme of the German Research Foundation (DFG). More about the group: www.physik.fu-berlin.de/en/einrichtungen/ag/ag-mueller/ The position is part of the Collaborative Research Centre CRC 1772 "mol2Dmat", which studies collective states and quantum phenomena in heterostructures of molecules and two-dimensional materials. 2D materials are atomically thin crystals that can be stacked into heterostructures with entirely new properties. CRC 1772 goes a step further by combining them with organic and inorganic molecules. The consortium brings together 20 physics and chemistry groups from Freie Universität Berlin, Humboldt-Universität zu Berlin, and Technische Universität Berlin. More about CRC 1772: www.crc1772.de

Research assistant (praedoc) (f/m/d) (DM-PHY-968)

Department: Department of Physics contract duration: limited until 30.06.2029 Salary / pay grade: E 13 TV-L FU Working hours: 75 % Requisition ID: 968 Application deadline: 09.11.2026

City: Berlin; Starting date (earliest): At the earliest possible; Duration: limited until 30.06.2029; Remuneration: E 13 TV-L FU; Reference number: 968; Closing date: 09/11/26

Tasks

As a PhD student, you will work on the CRC project "Nonlinear imaging of structural order and symmetry breaking in mol2Dmat heterostructures" under the supervision of Dr. Niclas Mueller, starting as soon as possible. Specifically, you will:

- investigate how molecules self-assemble into ordered 2D lattices on van der Waals materials, and how collective excitonic states emerge in these heterostructures
- help build a new sum-frequency generation (SFG) microscope that combines ultrafast mid-infrared and visible lasers
- use nonlinear optical and photoluminescence microscopy to link the structural order of molecular lattices to the crystal structure of the underlying 2D material
- develop ways to tune the nonlinear optical response of these heterostructures through molecular charge transfer and electric fields
- collaborate closely with partner groups in the CRC, present your work at international conferences, and publish in leading journals

Requirements

Key Requirements

Master's degree in Physics, Physical Chemistry, or a related discipline, completed by the

start of the position.

Desirable

Research experience, for example from your Master's thesis, in at least one of these areas: nonlinear optics, 2D materials, organic semiconductors, or solid-state physics.

Hands-on experience with experimental work, ideally optical setups

Python programming skills, ideally including lab instrument automation

Excellent command of written and spoken English; experience with scientific communication in English.

Enthusiasm for teamwork and strong motivation to work on open scientific questions.

We are committed to building a diverse research community and particularly encourage members of underrepresented groups to apply.

What we offer

- The structured, interdisciplinary graduate program of CRC 1772, with tailored training, workshops, retreats, and funding for conference travel
- A newly built, state-of-the-art nonlinear- and nano-optics laboratory
- Close, hands-on supervision in a young and growing group
- A large scientific network across Berlin's three major universities

Application

Have we sparked your interest?

Then we look forward to receiving your application documents:

- A motivation letter explaining your interest in the project and relevant experience, as well as your earliest possible start date
- Your CV
- Certificates including transcripts of records from your Bachelor's and Master's studies. If you have not yet completed your Master's degree, please submit a current transcript of records and indicate when you expect to complete your degree.

Please submit your application exclusively via our career portal by clicking the "Apply now" button. Applications submitted by post or by e-mail unfortunately cannot be considered.

For further information, please contact Dr. Niclas Mueller (niclas.mueller@fu-berlin.de).

Please note

Freie Universität Berlin is an equal opportunity employer.

More information at <https://stellenticket.de/208153/BUA/>

Offer visible until 09/11/26

