

FZU – Institute of Physics of the Czech Academy of Sciences is a leading public research institution located in Prague, Czechia. FZU is the largest institute of the Czech Academy of Sciences with more than 1100 employees. FZU pursues high-quality, innovative, and ground-breaking fundamental and applied research. Our researchers try to understand and explain the basic phenomena and processes of this world and respond to the current scientific and technical challenges of society.

[Light and matter theory group](#) at the Institute of Physics (FZU) of the Czech Academy of Sciences (CAS) in Prague invites applications for the position:

PhD student in theoretical atomic-scale optics of nanostructures

The successful candidate (m/f/d) will join a recently established research team lead by [Tomáš Neuman](#) that investigates atomic-scale optical properties of molecules and low dimensional materials, particularly in the context of scanning probe microscopy and spectroscopy.

What you will do:

- Investigate transport and optical properties of nanomaterials (2D materials, molecules...)
- Integrate results of ab-initio calculations into models addressing light-matter interaction in atomic-scale optical environments (light emission in scanning tunneling microscopy – STML, tip-enhanced photoluminescence – TEPL, and beyond)
- Develop models to address the dynamics of electron transport, excitons, and photons in atomic-scale optical environments (e.g., quantum master equation, Lindblad formalism)
- Participate in group meetings, preparation of manuscripts and dissemination of results at conferences
- Work in an international environment in the heart of Europe and collaborate with our international partners in Europe and beyond

Required qualifications:

- MSc. degree in physics, chemistry, or related field
- Fluent in English (written and spoken)

Beneficial qualifications:

- Experience with methods to address excitations in nanomaterials (Quantum chemistry or computational solid-state physics software)
- Knowledge of theory of plasmonics and nanophotonics and methods used therein
- Modelling of scanning-tunneling microscopy and related phenomena

Terms of employment:

- Start of employment in 2024 (as soon as possible), depending on the availability of the applicant
- Full-time job with flexible hours, extended vacations, work from home, and [a wide range of other benefits](#)

Application procedure:

- Please send your CV and motivation letter, including the publication record to the email address below: Monika Svobodová, Email: kariera@fzu.cz.
- For further information please contact Tomáš Neuman: neuman@fzu.cz - Head of Working Group

Information regarding personal data processing and access to personal data at the Institute of Physics of the Czech Academy of Sciences:

<https://www.fzu.cz/en/about-fzu/official-noticeboard/processing-of-personal-data>