



### Empa - the place where innovation starts

Empa is the research institute for materials science and technology of the ETH Domain and conducts cutting-edge research for the benefit of industry and the well-being of society.

The nanotech@surfaces Laboratory is offering a

## PhD position in the field of Atomic Quantum Emitters in 2D Materials

We are looking for a highly motivated candidate with a strong experimental background in Solid State Physics, Surface Science or Quantum Nanoscience who wants to pursue cutting-edge research at a world-class level. In this project, you will study atomic quantum emitters in 2D materials with a new type of scanning probe microscope (SPM) that allows for simultaneous atomic spatial and sub-picosecond time resolution – a new research frontier in Quantum Nanoscience.

You will study single atomic defects or dopants in 2D transition metal dichalcogenides by exploring their discrete electronic defect states, image their orbitals and probe optical transitions. Together with our experienced team you will combine an optical setup, generating phase-stable THz probe-pulses, with a low-temperature SPM. Using this set-up, it will be possible to measure the dynamics of electronic, spin and optical excitations at unparalleled resolution in space and time.

The successful candidate will be integrated in the PhD Program of the Department of Information Technology and Electrical Engineering at ETH Zurich.

**Required qualifications** include a Master's Degree in Physics, Materials Science, Electrical Engineering or equivalent with a strong background in Nanoscience. Prior experience with scanning probe microscopy, ultra-high vacuum, 2D materials, or programming in Python/LabVIEW are advantageous but not strictly required. We are looking for a highly motivated team player that is curious to learn new things, and has excellent English communication skills.

Join our world-class team to explore atomic-scale quantum systems with a global network of collaborators where you can build a competitive research portfolio. Located in the Zurich Area, the Swiss Federal Laboratories for Materials Science and Technologies (Empa) offers outstanding infrastructure, a broad interdisciplinary environment and competitive salaries. Empa is proud to be an equal opportunity employer, committed to creating an inclusive environment for all employees.

The position is available starting January 2022 or upon agreement, with a planned duration of three to four years.

**For further information** about the position please contact Dr Bruno Schuler [bruno.schuler@empa.ch](mailto:bruno.schuler@empa.ch) and visit our website [www.empa.ch/web/s205](http://www.empa.ch/web/s205) and [Empa-Video](#)

**We look forward** to receiving your online application including a motivation letter, CV, diplomas with transcripts and contact details of two referees. Please upload the requested documents through our webpage. Applications via email will not be considered.

Empa, Cristina Marinoni, Human Resources, Ueberlandstrasse 129, 8600 Dübendorf, Switzerland.

Apply now

