



**Opening of PhD and postdoctoral positions  
on SNFS-GAČR project  
“Nanoscale friction control of layered  
transition metal dichalcogenides”**



**Czech Technical University in Prague, Czech Republic  
University of Basel, Switzerland**

### **Job description**

Applications are invited for 1 PhD student and 1 postdoctoral researcher in the [Advanced Materials Group \(AMG\)](#) at the Czech Technical University in Prague (Czech Republic), and for 1 PhD student and 1 postdoctoral researcher in the [Nanolino](#) group at the University of Basel (Switzerland), to work on the SNFS-GAČR funded project “**Nanoscale friction control of layered transition metal dichalcogenides**”. The goal of the project is to develop a deep theoretical and experimental knowledge for “on-demand” control of nanoscale friction in transition metal dichalcogenides (TMDs), and to individuate optimal electrostatic and electromagnetic stimuli to be used as external “knobs” at user’s disposal.

### **Positions at Czech Technical University in Prague (CTU)**

PhD and postdoctoral fellows at CTU will deal with the development of quantum mechanical models based on Density Functional Theory, under the supervision of Assoc. Prof. Antonio Cammarata. The research will be carried out thanks to the access to High Performance Computing (HPC) centers.

### **Job requirements**

Essential: Successful candidates must have a background in Physics, Chemistry, Materials Science or closely related disciplines. A strong background in solid-state density functional theory is mandatory. Experience in using large-scaling DFT methods represents a great advantage. Excellent oral and written communication skills in English are mandatory.

Desirable: Programming experience in widely-used scientific languages (Fortran, C, C++) together with knowledge of shell scripting in a UNIX environment. Ability to perform calculations on Linux-based HPC architectures.

### **Contract details**

The PhD position is funded for 4 years.

The postdoctoral position is funded for 2 years, with 1-year extension offered based on the performance. The salary is based on the guidelines and rules for employees in GAČR-funded projects.

**How to apply:** <https://nano.cvut.cz/jobs-opportunities>

The call is open immediately and applications are received until positions are filled. The expected starting date is 1.1.2024, but we can also accept later starts. Your application must include a cover letter including motivation (up to 2 pages) and a structured CV including the following: list of publications, reference contacts, and proof of completed MSc (for PhD applicants) or PhD (for postdoctoral applicants). Please direct all correspondence to Antonio Cammarata [cammaant@fel.cvut.cz](mailto:cammaant@fel.cvut.cz) with email subject “[SNFS-GACR] application for XXX position”, where “XXX” will be “PhD” or “postdoc” according to your application.

### **Positions at University of Basel (UNIBA)**

PhD and postdoctoral fellows at UNIBA will deal with the preparation of 2D MoSe<sub>2</sub>, MoS<sub>2</sub> and other transition metal dichalcogenides in a ultrahigh vacuum environment and the analysis by high resolution atomic force microscopy (AFM) under the supervision of PD. Dr. Thilo Glatzel. In the home-built AFM non-contact and contact measurements with atomic resolution will allow to investigate and control the friction and dissipation processes on the 2D materials and their defects.

### **Job requirements**

Essential: Successful candidates must have a background in Physics, Chemistry, Materials Science or closely related disciplines. A strong background in surface science is mandatory. Experience with ultrahigh vacuum equipment and atomic force microscopy is a great advantage. Excellent oral and written communication skills in English are mandatory.

Desirable: Technical skills and experience with vacuum components. Knowledge on scanning probe techniques and surface preparation as well as handling chemicals.

**Contract details**

The PhD position is funded for 3 years with the possibility to extend to four years. The postdoctoral position is funded for 2 years. The salary is based on the guidelines and rules for employees in SNSF-funded projects.

**How to apply:** <https://nanolino.physik.unibas.ch/en/open-positions>

The call is open immediately and applications are received until positions are filled. The expected starting date is 1.1.2024, but we can also accept later starts. Your application must include in a single pdf file a cover letter including motivation (up to 2 pages) and a structured CV including the following: list of publications, reference contacts, and proof of completed MSc (for PhD applicants) or PhD (for postdoctoral applicants). Please direct all correspondence to Thilo Glatzel [thilo.glatzel@unibas.ch](mailto:thilo.glatzel@unibas.ch) with email subject “[SNFS-GACR] application for XXX position”, where “XXX” will be “PhD” or “postdoc” according to your application.