



Otto Schott Institute of Materials Research
Professorship for Mechanics of Functional Materials
Faculty of Physics and Astronomy
Friedrich Schiller University Jena, Germany



PhD position

on “Sliding friction in liquid environments”

in collaboration with the group of Dr. Ronen Berkovich (Ben Gurion University of Negev, Israel).

Project summary:

Understanding the influence of the surrounding environment on the sliding friction between two solid surfaces in liquids is of utmost importance for applications to MEMS/NEMS or colloidal systems as well as to shed light on the dynamics of formation and rupture of single contact junctions. In this project we aim to perform an experimental investigation of the mechanical properties of contacts formed by sharp silicon tips on solid surfaces with different degrees of complexity using friction force microscopy. The sample surfaces will be exposed to electrolyte aqueous solutions and to polar and nonpolar solvents with varying viscosities. The different interaction potentials will be quantitatively reconstructed from the time variations of the friction forces acting on the tip with original numerical techniques. The results so obtained will be compared to complementary information obtained with dynamic AFM modes.

Requirements / expected profile:

- master degree in physics, materials science, or chemistry
- technical skills and interest in instrumental setups and/or computer modeling of natural phenomena
- knowledge of scanning probe microscopy and/or standard programming environments (C, Python, Matlab) is helpful but not mandatory
- excellent knowledge of the English language in speaking and writing

The position is part-time (50%), remunerated under the framework collective agreement for Federal States (TVL) according to E13 and first limited to a term of three years with the possibility of an extension.

Friedrich Schiller University and the Faculty of Physics and Astronomy aim to increase the percentage of females in research and therefore especially encourage female scientists to apply. Handicapped persons with equal aptitude, competence and qualification will be given preference.

Are you interested? Please contact Prof. Dr. Enrico Gnecco (enrico.gnecco@uni-jena.de) before July 31, 2020.