

Title: Understanding and Tuning Friction through nanostructure Manipulation UTFROM

Source of funding: MIUR

Scientific funding program: PRIN 2017

Project coordinator: Prof. Riccardo Ferrando (UNIGE)

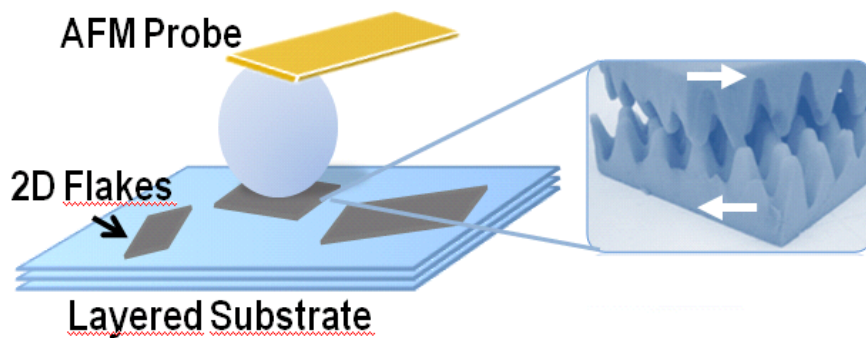
SPIN coordinator: Dr. Renato Buzio

Other partners: UNIGE, UNIMI, UNIRM, UNIPD, CNR-IOM, CNR-NANO

Project objectives:

Via modeling, numerical simulations and experiments, the project UTFROM focuses on different aspects of condensed matter physics and non-equilibrium statistical mechanics, specifically underlying the nature of friction and interface dissipation from nano to mesoscale. By looking at the structure and dynamics of surface deposited nano-objects and confined systems under shear, the investigation explores phenomena occurring both under dry and lubricated conditions.

CNR-SPIN is involved in Work Package WP3, that provides a computational and experimental ground for the systematic study of superlubricity in mesoscale contact junctions based on 3D/2D layered materials. Specifically CNR-SPIN implements novel colloidal-probe-AFM methods, with the aims to study the emergence and robustness of commensurate-incommensurate phenomena (friction anisotropy) at the mesoscale.



Mesoscale tribosystem based on 2D/3D layered materials. The AFM colloidal probe provides a simple tool to interrogate mechanical dissipation for such system.