Speaker: Adina LUICAN-MAYER (University of Ottawa, Canada)

Title: **Scanning tunneling microscopy of twisted TMD homobilayers– from controlling ferroelectric domains at marginal twist to flat bands at antiparallel twist**

Abstract: In this talk, I will discuss scanning tunneling microscopy experiments of WS_2 bilayers with parallel and antiparallel twist.

For marginally twisted layers, we reveal reconstruction domains and show that by tuning the electric field under a scanning tunneling miscroscpe, one can achieve local control of the ferroelectric domains at room temperature. We discuss their reversible evolution using a string-like model of the domain wall network (DWN).

For the antiparallel regime, we study a WS_2 bilayer twisted approximately 3° off the antiparallel alignment. Scanning tunneling spectroscopy reveals localized states in the vicinity of the valence band onset. Their spatial distribution across the high symmetry regions reveals the role played by lattice relaxation in such moire systems.