**Structural and electronic characterizations of NiHITP metal-organic framework on surface**

Metal−organic frameworks (MOFs), crystalline materials formed by self-assembly of metal ions and organic ligands, allow for precise design of their crystal structures and sophisticated tuning of Coulombic interaction or magnetic coupling among lattice sites. Such atomic-level designability combined with high crystallinity and versatile types of lattices (e.g., kagome and honeycomb lattices) render MOFs as a great platform to investigate strong correlated physics. In this talk, we introduce MBE synthesis of kagome NiHITP MOF on Au(111) in ultrahigh vacuum and characterized the structural and electronic properties by STM at 13 K. Electron orbital mappings and quasiparticle interference patterns at different energies of NiHITP are studied. Charge density waves modulated by periodic porosity at NiHITP/Au(111) interface are discussed. We highlight the great potential of MOFs as quantum materials and necessity of in-depth physical characterizations to reveal the nature of emergent physics in MOFs.