

O 22: Overview Talk: Nian Lin

Time: Tuesday 9:30–10:15

Location: HE 101

Invited Talk

O 22.1 Tue 9:30 HE 101

Metal-organic coordination on surfaces: towards complexity and functionality — •NIAN LIN — Department of Physics, The Hong Kong University of Science and Technology

When multiple binding modes are present simultaneously in the metal-organic coordination self-assembly, the outcome becomes less predictable and novel phases may emerge. Here I discuss two examples. The first system is co-existing two-fold and three-fold modes of pyridyl-Cu coordination result in a demi-regular lattice which features local dodecagonal symmetry on a Cu(111) surface. This structure is ther-

modynamically robust and emerges solely when the molecular density is at a critical value. The second system involves Eu-carbonitrile coordination. Depending on ligand/metal stoichiometry, three-fold, four-fold, five-fold and six-fold coordination motifs can be formed on a Au(111) surface, resulting in various structures exhibiting irregular pores, square lattice, five-fold snub-square nodes structures, and hexagonal lattice. At a specific stoichiometry, the prevailing expression of five-fold and six-fold coordination nodes yields quasicrystalline tessellation. I will also discuss our recent efforts of synthesizing a pi-conjugated metal-organic system exhibiting a non-trivial topological band structure.