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Self-assembly of one-dimensional metal-organic nanoarchitectures on a surface MARTINA CAPSONI, AGUSTIN SCHIFFRIN, ADAM SHAW, SARAH BURKE, University of British Columbia — Supramolecular chemistry holds promise for designing low-dimensional nanostructures with predefined functionalities. In particular, the interface between metal-organic complexes and surfaces is relevant in applications such as photovoltaics, photocatalysis, molecular electronics, etc. The structural, chemical and electronic properties of these systems can be dramatically altered by the interaction with the underlying surface. It is therefore of great relevance to achieve morphological control of functional nano-assemblies on a substrate at the single molecule and atom level. Here, we investigate the *in situ* coordination of bisterpyridine molecules with transition metal adatoms on Ag(111), by means of low-temperature scanning tunneling microscopy. The bare ligand adsorbs following specific orientations with respect to the substrate atomic lattice. Ordered supramolecular domains emerge via parallel adjacent non-covalent binding of the molecules. Coordination between deposited iron adatoms and terpyridine ligands is activated at room temperature, likely mediated by an intramolecular conformational change of the pyridine groups. The resulting self-assembled one-dimensional nanostructures are described.

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