Abstract:

Bottom-up assembly of functional molecules on solid surface has received much attention as a potential application toward molecular devices. A combination of self-assembled monolayer (SAM) and layer-by-layer (LbL) growth by coordination bonding of functional molecular units makes it possible to construct well-defined coordination networks such as surface metal-organic frameworks or 3D layered films on a solid surface. We have developed novel chemical functionalities such as molecular memory and sequence programmed rectification in multilayer films by a judicious selection of redox-active Ru/Os complexes bearing multipod phosphonic acids as a molecular unit, which will be discussed.