

Bi-component self-assembly on Au(111) from non-specific bonding

Molecular self-assembly on solid surfaces has been a topic of interest for many years. Recently, research in this area has been progressing from single component assembly to multi-component assembly. When two or more molecular species are deposited onto a solid surface, regular two-dimensional structures are usually created using specific bonding such as hydrogen-bonding, metal-ligand coordination or dipolar interaction. If non-specific bonding such as van der Waals interactions is exploited as the driving force for multicomponent assembly, one faces an increased level of complexity and unpredictability. This talk focuses at bi-component assembly where van der Waals interaction plays a dominant role. I will discuss regular 2D structures formed on the Au(111) surface from octanethiol/C₆₀, decanethiol/C₆₀ and decanethiol/C₇₀. Formation of regular 2D structures of the above systems relies on the collective interaction of many molecules instead of the well-defined pairwise interaction found in systems with specific bonding.