On-Surface Precise Chemistry

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The goal of modern synthetic chemistry is to develop ideal new reactions and new methods, to precisely control the chemical reactions and to find more accurate ways of material transformation. In recent years, the preparation of novel molecular materials has attracted much attention in surface science by constructing covalently linked molecular structures through on-surface chemistry. The surface, with its inherent characteristics such as spatial confinement and different adsorption sites, provides an excellent and unique platform for controlling the accuracy of chemical reactions. Here we will set out from a few examples to elucidate our understanding of surface chemical reactions and pathways which are different from conventional reactions [1-5]. Especially, we will discuss the mechanism how the surface causes the dissymmetry of molecules and thus induce the selective activities of chemical identical groups.

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