

On-surface synthesis of cyclic and open-chain carbon-based nanomaterials

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The synthesis of extended carbon-based nanostructures on surfaces has attracted much attention as a versatile approach for the functionalization of interfaces and the preparation of new materials. In this contribution, examples for the on-surface synthesis of novel conjugated hydrocarbon and nitrogen-doped materials, organometallic compounds, and metal complexes with cyclic and open-chain topology will be discussed. Unusual regioselectivity of C-C coupling reactions achieved by selective aromatic C-H activation will be explained on the basis of a detailed discussion of the relevant reaction mechanisms.