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Role of self-assembled monolayers in carbon nanomaterial; Synthesis, hybrid materials and device application

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Abstract

Self-assembly is a promising technology for creating reliable functional films on substrate and nanomaterials. Self-assembled monolayers (SAMs) play an important role in modifying the substrate or nanomaterials interfaces which is applicable to stabilize metallic nanoparticle for CNTs synthesis, fabrication for hybrid materials and device application. Carbon nanomaterials, especially carbon nanotubes and graphene, have attracted intense interest in recent years due to their remarkable physicochemical properties. The arrangement of the advantages of both SAMs and carbon nanomaterials has been opening up a flourishingresearch field. The unique role of SAMs acting as active layers in carbon nanomaterials, controlling the carrier type and even installing new functionalities could be incorporate diverse molecular functionalities into nanocircuits that might be useful to fabricate devices in future.