

Self-assembled Nanomaterials on the Polymeric Nanopatterns

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The development of methods for patterning and immobilizing active moieties with micrometer and nanometerscale control has proven integral to a range of applications in components in molecular electronic and optical devices. For the fabrication of the required patterns, traditional microcontact printing of low-molecular-mass compounds has widely used. However, it may suffer from drawbacks such as limitation in the amount of loading material and the critical length scales. Also, polymeric thin film with functional groups has been shown to possess a number of important advantages compared to self-assembled monolayer based systems. Here, we fabricated various chitosan patterns over large area and investigated the capabilities of the pattern to immobilize guest molecules such as DNA, SWNT and graphene derivatives. The assembly strategy employing chitosan patterns will provide opportunities to realize the fabrication of electronic devices as well as biofabrication of device-biology interface.