Surface energy engineered, high-resolution micropatterning of chemically derived graphene thin films

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Micropatterning of graphene thin films has been explored recently for the application of graphene in the microelectronic and sensing devices. Here, we present a new facile technique for large-scale and high resolution micropatterns of reduced graphene oxide (rGO) thin films on various substrates. The highly defined micropatterns of rGO were obtained by modulating the work of adhesion between the rGO thin films and pre-patterned elastomeric stamps using oxygen plasma treatment. Applying this graphene patterning technique, we have successfully fabricated high performance flexible and transparent OFETs. This fabrication method of graphene micropatterns is fast and simple compared to other process.