

Selective thermal reduction of graphene oxide thin films by using microfluidic systems

김성태, 고영운, 최경순, 김수영, 장석태*
중앙대학교
(stchang@cau.ac.kr*)

Graphene as a form of nano/micro structures has a wide range of applications such as FETs, sensors, and actuators. Here, we report a selective thermal reduction of the chemically derived graphene oxide (GO) thin films for their micropatterns by using microfluidic-channel systems containing ionic liquids. Uniform GO thin films were fabricated on the glass substrate by using meniscus-dragging deposition (MDD) technique. AC electric fields were applied through the ionic liquid inside PDMS microchannel placed on the GO thin films. During the field application, the temperature inside the microchannel was reached over 100°C. Then, the GO thin films beneath the microchannels were reduced selectively. We characterized the rGO micropatterns by means of Raman and XPS spectra. This is a facile method and environment-friendly process.