DS 46: Invited – Bell

Time: Thursday 14:00–14:45 Location: GER 37

Invited Talk DS 46.1 Thu 14:00 GER 37

Structuring Graphene with He Ions — •David C. Bell — School of Engineering and Applied Sciences and Center for Nanoscale Systems, Harvard University, USA

Helium Ion Microscopy (HeIM) has been introduced as an ultra high-resolution imaging technology for a variety of materials applications, with a probe size in the order of 0.5 nm. However, being a charged ion beam instrument it is also possible to perform milling and sputtering tasks similar to conventional gallium ion beam systems (FIB). The combination of these features has the capability to make this instrument one of the most precise direct fabrication tools currently available for materials. We demonstrate etching of graphene devices with a helium ion beam, including in situ electrical measurement during lithography. The etching process can be used to nanostructure and electrically isolate different regions in a graphene device, as demonstrated by etching gaps of about 10 nm into graphene devices. Graphene on silicon dioxide (SiO_2) substrates etches with considerably lower He ion doses compared to suspended graphene.