

Abstract Submitted
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Graphene Transistor fabricated by Helium Ion Milling KAIWEN ZHANG, XIANGMING ZHAO, XIANGFAN XU, VISWANATHAN VIGNESH, BAOWEN LI, DANIEL PICKARD, BARBAROS ÖZYILMAZ, National University of Singapore, DEPARTMENT OF PHYSICS, NATIONAL UNIVERSITY OF SINGAPORE TEAM, DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING, NATIONAL UNIVERSITY OF SINGAPORE TEAM, ENANOCORE, NATIONAL UNIVERSITY OF SINGAPORE TEAM — We report the direct patterning of graphene for various nano-device applications. The Helium Ion Microscope (HIM), able to resolve nano-scale features on solid samples with an edge resolution of a mere 0.25 nm, has a number of attributes which make it attractive for the imaging of graphene structures. Even more compelling is the ability to directly modify graphene, through surface sputtering, enabling direct pattern transfer for the fabrication of graphene devices. The integration of the HIM with a vector pattern generator (Nano Pattern Generation System, NPGS), provides the capability to directly pattern graphene into nano-ribbons. We have successfully fabricated sub-100nm graphene nano-ribbon devices on Si/SiO₂ substrate. Resistance measurement has been made as a function of temperature.

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