Abstract Submitted
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High resolution ion milling of single layer graphene for electronic devices[1] ADAM RONDINONE, Center for Nanophase Materials Sciences at Oak Ridge National Laboratory, EDWARD KINTZEL, ALLISON LINN, Western Kentucky University, BRAD MATOLA, Center for Nanophase Materials Sciences at Oak Ridge National Laboratory — Graphene is a potential replacement for silicon in microelectronics but still faces significant hurdles in implementation. The helium-ion microscope is a potential route to the fabrication of graphene-based electronic circuits. Here we will discuss the recent commissioning of a third-generation helium-ion microscope at the Center for Nanophase Materials Sciences and recent results in high-resolution ion milling of electronic structures from single-layer graphene on insulating SiO_2. Scattered ions during the milling process create a damage margin around ion-milled areas, which impact electrical conductivity and place a lower limit on the width of conducting graphene structures.

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