

Abstract Submitted
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Geometric patterning with HIM at CNMS¹ ALLISON LINN, Western Kentucky University, ADAM RONDINONE, Center for Nanophase Materials Science at Oak Ridge National Laboratory, EDWARD KINTZEL, Western Kentucky University — Electron microscopy is one of the most used analytical techniques available for materials science and nanoscience research. Recent technical advances in these areas have exposed the need for enhanced spatial resolution and depth-of-field. The helium-ion-microscope (HIM) is an instrument designed to answer these and other materials needs. The Center for Nanophase Materials Sciences (CNMS) located at Oak Ridge National Laboratory is commissioning the world's first helium-ion microscope tailored specifically for imaging, nanopatterning, and nanofabrication. In the present survey study, our group sought to develop the parameters necessary to pattern a variety of geometric shapes into single-layer graphene on a SiO₂ substrate utilizing the HIM at the CNMS. The uses for graphene are still being explored, and as such have become important recently for its use in nanoelectronics. Employing the patterning software in the HIM, we used a combination of dose and dwell time to pattern the graphene. Future studies will seek to refine the patterning process for graphene and other technical relevant materials.

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