

Abstract Submitted  
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**Photoemission Spectroscopic Study on the Epitaxial Graphene Oxide Layer Produced by a Dry Process** GWANG-EUN YANG, CHANYONG HWANG, Korea Research Institute of Standards and Science, M. ZAHIR IQBAL, JONGHWA EOM, SUKLYUN HONG, Department of Physics, Sejong University, BYEONG-GYU PARK, Pohang Accelerator Laboratory, WONDONG KIM, Korea Research Institute of Standards and Science — Recently, graphene oxide layers have been studied intensively because various kinds of chemically modified graphene layers can be massively produced from functionalization of graphene oxide layers. Conventional methods to produce graphene oxides are based on the wet chemistry such as a modified Hummber method, but the lack of selectivity in oxidizing the graphene layers have been considered as the limit of the wet-chemistry based method. In this study, we report by a simple dry process to produce graphene oxides layer from the epitaxial graphene by irradiation of deep UV light under the flow of dry oxygen gas. From the careful investigation by using photoemission spectroscopy, we could identify that the oxidized epitaxial graphene layers have the energy gaps between 1.6 and 2.0 eV, and they were thermally stable up to 700 K. We also examined the possibility of selective oxidization based on this dry process by using a photomask.

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