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Imaging surface potential variations in graphene on Si-face SiC¹ ALEXANDRA CURTIN, MICHAEL S. FUHRER, Materials Research Science and Engineering Center and Center for Nanophysics and Advanced Materials, Department of Physics, University of Maryland, J. L. TEDESCO, R. L. MYERS-WARD, P. M. CAMPBELL, C. R. EDDY, D. K. GASKILL, U.S. Naval Research Laboratory, Code 6800, Washington, DC 20375 — Kelvin Probe Microscopy (KPM) is used to map the surface potential of graphene monolayers grown on the Si-face of SiC wafers. Variations in surface potential are observed which are not correlated to any topographical features on the graphene surface. The observed variation in surface potential has an RMS value of ~17 meV, and correspond to variations in carrier concentration on the order of 10^{10} - 10^{11} cm⁻². We will discuss the implications of these measurements on interpretation of transport data on ungated graphene on Si-face SiC.

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