

Abstract Submitted
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Local surface potential variations and charge puddling in graphene on SiC(0001)¹ A.E. CURTIN, W.G. CULLEN, M.S. FUHRER, Materials Research Science and Engineering Center and Center for Nanophysics and Advanced Materials, Department of Physics, University of Maryland, R.L. MYERSWARD, L.O. NYAKITI, V.D. WHEELER, D.K. GASKILL, U.S. Naval Research Laboratory, Code 6800, Washington, DC 20375 — We performed Kelvin probe microscopy in ultra-high vacuum on epitaxial graphene grown on SiC(0001). In agreement with previous work, we see discrete surface potentials corresponding to interface layer and monolayer regions separated by steps of ~ 100 mV. We used the step width to determine the spatial resolution of the probe to be approximately 20 nm. Within a monolayer area we see smaller fluctuations in surface potential of only a few mV. The data set limits on the scale of possible electron/hole puddles in monolayer graphene on SiC(0001).

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