

Abstract Submitted
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Comparison of Epitaxial Graphene grown on SiC(0001) and SiC(000 $\bar{1}$)¹ NIKHIL SHARMA, TIANBO LI, JOANNA HASS, XUEBIN LI, MICHAEL SPRINKLE, CLAIRE BERGER, WALT DE HEER, PHILLIP FIRST, Georgia Institute of Technology — Epitaxial graphene (EG) has been grown on both the Si-terminated (0001) and C-terminated (000 $\bar{1}$) faces of 4H and 6H SiC. It has been shown that EG on the C-terminated face has substantially higher carrier mobility ($\sim 25,000\text{cm}^2/\text{V}\cdot\text{s}$), although EG on either face shows similar intrinsic carrier density and magnetoresistance (MR) characteristic of graphene [1,2]. In this work, we use STM, LEED and Auger spectroscopy to compare the different growth methods and resulting morphologies of EG grown on the silicon- and carbon-terminated faces of SiC. UHV sublimation of silicon from SiC(0001) results in controllable growth of 1-5 ML of EG, with the thickness determined predominantly by the growth temperature. EG growth on SiC(000 $\bar{1}$) via Si-sublimation is done in a low vacuum induction furnace, resulting in 5-30 ML thick films. Since MR results indicate that transport is dominated by an EG layer near the SiC interface [2], we will discuss methods to access the EG/SiC(000 $\bar{1}$) interface by STM. [1] C. Berger, et al., J. Phys. Chem. B 108,19912 (2004). [2] C. Berger, et al., Science 312, 1191 (2006)

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