

Abstract Submitted
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Atomic Hydrogen Adsorption in Multi-Layer Graphene¹

ALESSANDRO R. MAZZA, ALEXANDER A. DAYKIN, SUDHIR RAVULA, Univ of Missouri - Columbia, MATTHEW CONRAD, Georgia Institute of Technology, TRAVIS TUMLIN, BROCK SUMMERS, DEEPAK K. SINGH, JIAN LIN, Univ of Missouri - Columbia, EDWARD H. CONRAD, Georgia Institute of Technology, GARY A. BAKER, SUCHI GUHA, PAUL F. MICELI, Univ of Missouri - Columbia — Chemisorbed hydrogen is known to modify the electronic structure of graphene as well as induce magnetism. Here we investigate the adsorption behavior of atomic hydrogen in multi-layer graphene. X-ray reflectivity was measured on epitaxial graphene (~ 25 layers) on C-face SiC over an extended range that includes three orders of Bragg reflections from the graphene layers. Pristine samples exhibit interlayer strain and a distribution of graphene island heights, with an interfacial roughness which derives from the growth process. Raman scattering shows reversible adsorption of hydrogen and results will be presented for epitaxial graphene, CVD-grown graphene and chemically-reduced graphene. The structural and electronic consequences of hydrogen chemisorption will be discussed.

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