

Abstract Submitted
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Visualizing graphene grown by chemical vapor deposition on metal substrates at the atomic scale LIUYAN ZHAO, KWANG RIM, CHRISTOPHER GUTIERREZ, RUI HE, KEUNSOO KIM, HUI ZHOU, TONY HEINZ, PHILIP KIM, ARON PINCZUK, GEORGE FLYNN, ABHAY PASUPATHY, Columbia University — We present an atomic-scale scanning tunneling microscopy (STM) study of large-area graphene films grown by chemical vapor deposition (CVD) on metal substrates. We will first describe experiments where pristine graphene is grown in UHV conditions on single crystal Cu(111) and Cu(100) surfaces. We will compare this with graphene grown on copper foils and thin films in a typical low-pressure tube furnace. We will describe the effect of substrate quality and orientation on the quality and electronic structure of the graphene film produced. Finally, we will describe experiments where the graphene film is doped by nitrogen during growth. We will describe the bonding environment and the local electronic structure caused by the incorporation of nitrogen atoms into the graphene lattice.

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