

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Graphene/substrate charge transfer characterized by inverse photoelectron spectroscopy LINGMEI KONG, Department of Physics, University of Nebraska-Lincoln, Lincoln, NE USA, CAMERON BJELKEVIG, SNEHA GADDAM, MI ZHOU, Department of Chemistry, University of North Texas, Denton, TX USA, YOUNGHEE LEE, GANGHEE HAN, Department of Physics, Department of Energy Science, Sungkyunkwan University, Suwon, Korea, HAEKYUNG JEONG, Department of Physics, Daegu University, Gyeongsan, Korea, NING WU, ZHENGZHENG ZHANG, JIE XIAO, PETER DOWBEN, Department of Physics, University of Nebraska-Lincoln, Lincoln, NE USA, JEFFRY KELBER, Department of Chemistry, University of North Texas, Denton, TX USA — Wave vector-resolved inverse photoelectron spectroscopy (IPES) measurements demonstrate that there is a large variation of interfacial charge transfer between graphene and various substrates. IPES measurements of CVD single layer graphene on BN(0001)/Ru(0001), Ru, Ni(poly), and Cu(poly) indicate a substrate-to-graphene charge transfer of approximately 0.07, 0.06, 0.03 e- per carbon atom respectively and a charge transfer of 0.02 e- from graphene to the MgO substrate per carbon atom. IPES and photoemission data also indicate that graphene/MgO(111) has a band gap. These data demonstrate that IPES is an effective method for precise measurement of substrate/graphene charge transfer due to the extreme surface sensitivity of IPES.

Lingmei Kong
University of Nebraska-Lincoln

Date submitted: 16 Dec 2010

Electronic form version 1.4