Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Edge states and transmission coefficients of monolayer-bilayer graphene zigzag interfaces WENXIN DING, NHMFL & Florida State University, ZI-XIANG HU, Asia Pacific Center for Theoretical Physics, Pohang, Gyeongbuk 790-784, Korea, OSKAR VAFEK, KUN YANG, NHMFL & Florida State University — We study the properties of a monolayer-bilayer graphene hybrid structure with a zigzag interface that preserves translational invariance in one direction. We first study the dispersion relations and edge states of the two different configurations of monolayer-bilayer graphene zigzag interfaces -that terminates at low energy sites (dangling sites) and at high energy sites (dimer sites), using both tight-binding model and continuum limit Hamiltonian. Then we calculate the reflection/transmission coefficients in the continuum limit. For both the dispersion and the reflection/transmission coefficients, prominent differences are observed between these two types of interfaces. For the high energy sites interface noticeable enhancement of reflection for states with energy below the interlayer coupling energy is found.

Wenxin Ding
NHMFL & Florida State University

Date submitted: 21 Dec 2009 Electronic form version 1.4