

MAR13-2012-020505

Abstract for an Invited Paper  
for the MAR13 Meeting of  
the American Physical Society

### **Graphene / Boron Nitride Heterostructures**

ROMAN GORBACHEV, University of Manchester

The talk is dedicated to multilayer boron nitride/graphene heterostructures. It will review several aspects of microfabrication of such structures as well as the transport experiments. Graphene placed on boron nitride and exhibiting nanometer-scale moiré patterns showing strong anomalies in the density of states which can be associated with new Dirac cones formed high up in graphene's original spectrum. We describe quantum transport in specially aligned graphene-on-hBN devices such that the DoS anomalies reproducibly appear within the Fermi energy range achievable in transport measurements. We report a strongly reconstructed graphene spectrum with new sharp neutrality points and extra sets of Landau levels and quantum Hall states. Different experiments done on multilayer structures containing two interacting graphene layers will be discussed.