

Abstract Submitted
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Investigation of Electrochemical Gate Controlled Charge Transport in Large Area Boron-Nitrogen Doped Graphene SUJOY GHOSH, Southern Illinois University, Carbondale, SWASTIK KAR, Northeastern University, Boston, ZHENG LIU, ROBERT VAJTAI, PULICKEL AJAYAN, Rice University, Houston, SAIKAT TALAPATRA, Southern Illinois University, Carbondale, SOUTHERN ILLINOIS UNIVERSITY COLLABORATION, NORTHEASTERN UNIVERSITY COLLABORATION, RICE UNIVERSITY COLLABORATION — We report on the investigation of charge transport measurements of B and N doped graphene C (B,N) under the influence of an electrochemical gate. These C (B,N) systems are expected to have unique electronic properties due to the combination of impurities including both atomistically separated B and N species, as well as hexagonal boron nitride (h -BN) units within the graphitic C lattice. Investigations were performed on large area BN doped graphene devices fabricated with different BN doping levels. The electrochemically gate controlled interfacial capacitance and quantum capacitance of BN doped graphene devices were measured. The effect of doping on the quantum capacitance and electron mobility will be discussed.

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