Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

**Transport study of Berry's phase in Highly Oriented Pyrolytic Graphite** ARUNA N. RAMANAYAKA, RAMESH G. MANI, Georgia State University — Observation of a non-zero Berry's phase provides evidence for the existence of massless relativistic charge carriers in Graphene. Since stacked sheets of single layers of graphene with weak interlayer interactions is equivalent to Highly Oriented Pyrolytic Graphite (HOPG), it is of interest to look for a Berry's phase anomaly in HOPG. In this study, we report an experimental investigation of Berry's phase in graphite based on the analysis of Shubnikov-de Haas (SdH) oscillations of the diagonal magnetoresistance. Further, we compare the Berry's phase of graphite with the same for the other material systems such the GaAs/AlGaAs 2D electron system, n-GaAs epilayer, and bulk semiconducting Hg0.8Cd0.2Te. We conclude by reviewing the prospects for a Berry's phase anomaly in graphite.

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Date submitted: 20 Nov 2009 Electronic form version 1.4