Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Hall devices based on transfer print of CVD graphene onto 75μm-thick PVC film via lamination UGUR INKAYA, AHMET ORAL, Middle East Tech University — Having high mobility even for low density of charge carriers and large tensile strength, graphene is a favorable material for the fabrication of flexible Hall sensors. Laminating graphene obtained on 20μm-thick Cu foil via atmospheric-pressure CVD with 75μm-thick PVC film, we developed a simple and low-cost scheme for manufacturing graphene-based flexible Hall devices, without resorting to metallization techniques such as evaporation or sputtering. Instead of these techniques, electrical contacts are provided by the pieces of copper foils preserved during the chemical etching with an aqueous solution of ferric chloride. By using this scheme, we manufactured 95μm-thick flexible Hall sensors with resistances and Hall coefficients of the order of 1 kΩ and 100 Ω/T. Moreover, we made Hall devices by iterating our manufacture scheme multiple times, thereby forming few- or multi-layer graphene and hence we were able to both observe the dependence of the characteristics of the Hall sensors upon the number of graphene layers and characterize the resulting graphene structures. The fabrication and the characterization of the 95μm-thick flexible Hall sensors, and the characterization of the multi-layer graphene will be presented.

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Date submitted: 06 Jan 2017 Electronic form version 1.4