

Abstract Submitted  
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**Temperature Dependent Electrical Characterization of Graphene Flakes Synthesized Using Liquid Phase Exfoliation** BALEESWARAIAH MUCHHARLA, MITCHELL CONNOLLY, ANDREW WINCHESTER, SUJOY GHOSH, Southern Illinois University Carbondale, SWASTIK KAR, Northeastern University, SAIKAT TALAPATRA, Southern Illinois University Carbondale, SOUTHERN ILLINOIS UNIVERSITY CARBONDALE TEAM, NORTHEASTERN UNIVERSITY COLLABORATION — We will report the synthesis and electrical transport properties of graphene flakes synthesized by exfoliating the bulk graphite in isopropyl alcohol. Temperature dependence of the electrical resistivity of thin films made from exfoliated graphene flakes has been studied over a wide range ( $10\text{K} < T < 300\text{K}$ ) of temperature. Temperature dependence of resistance shows a slow linear increase in resistance with decrease in temperature. Electric field effects on charge transport properties e.g. temperature ( $220\text{K} < T < 275\text{K}$ ) dependence of carrier mobilities etc. of exfoliated graphene thin film devices under electrochemically gated environment will also be presented and discussed.

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