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AB-Stacked Multilayer Graphene Synthesized via Chemical Vapor Deposition: A Characterization by Hot Carrier Transport

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We report the synthesis of AB-stacked multilayer graphene via ambient pressure chemical vapor deposition on Cu foils, and demonstrate a method to construct suspended multilayer graphene devices. In four-terminal geometry, such devices were characterized by hot carrier transport at temperatures down to 240 mK and in magnetic fields up to 14 T. The differential conductance (dI/dV) shows a characteristic dip at longitudinal voltage bias V=0 at low temperatures, indicating the presence of hot electron effect due to a weak electron-phonon coupling. Under magnetic fields, the magnitude of the dI/dV dip diminishes through the enhanced intra-Landau level cyclotron phonon scattering. Our results provide new perspectives in obtaining and understanding AB-stacked multilayer graphene, important for future graphene-based applications. (Ref: ACS Nano, Vol 6, p. 1142, 2012)

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