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Electrical characterization of CVD graphene YARELY DÁVILA, NICHOLAS PINTO, University of Puerto Rico - Humacao, ZHENG TANG LUO, ALAN JOHNSON JR., University of Pennsylvania — Graphene is a one atom thick carbon sheet that can be obtained via exfoliation of graphite or via chemical vapor deposition (CVD). By using a very simple shadow masking technique, gold contact pads were evaporated over the graphene thereby eliminating chemical etching that is required when using photolithography and often leads to sample contamination. CVD graphene was electrically characterized in a FET configuration under different experimental conditions that include UV exposure, gas sensing and temperature. Our measurements yielded a carrier mobility of up to $3000 \text{ cm}^2/\text{V}\cdot\text{s}$ for some devices. Exposure to UV dopes graphene in a controlled manner. The doping level could be maintained indefinitely in vacuum or could be completely reversed by slight heating in air without loss of device performance. The FET's were also tested at different temperatures with little change in the transconductance response. Exposure to ammonia gas *n*-doped graphene while exposure to NO_2 *p*-doped it.

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