

Abstract Submitted
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Geometric manipulation of transport in Graphene monolayer with antidots¹ TIMIR DATTA, LEI WANG, Department of Physics and Astronomy, University of South Carolina, MING YIN, Department of Physics and Engineering, Benedict College, Columbia, SC, EUN SANG CHOI, JAN JAROSZYNSKI, National High Magnetic Field Laboratory, Tallahassee, FL, BOCHEN ZHONG, Department of Physics and Astronomy, University of South Carolina — We report magneto transport studies of CVD monolayer graphene on SiO₂/Si substrate with hexagonal arrays of antidots, up to 32 Tesla with temperature from 200mK to 50K. Weak localization is observed below 0.5T. Above 10T, prominent Shubnikov-de Haas oscillations are noticed. In the intermediate magnetic fields, some commensurability peaks are also observed due to cyclotron motion of carriers. From the temperature dependent amplitude of SdH oscillation and Dingle plot, the effective mass of electron is estimated as 0.0786m_e, and quantum scattering time 0.016ps. Effect of antidot geometry with different radii from 50nm to 200nm and with different shapes will be reported.

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