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Experimental investigation of localization in antidot lattices HONG CHEN, J.A. PETERS, J.J. HEREMANS, Dept. of Physics and Astronomy, Ohio University, Athens, OH, N. GOEL, S.J. CHUNG, M.B. SANTOS, Dept. of Physics and Astronomy, The University of Oklahoma, Norman, OK — We investigate magnetotransport properties of both square and hexagonal antidot lattices fabricated on high-mobility InSb/InAlSb heterostructures. The magnetoresistance shows a strong localization peak at zero magnetic field as well as ballistic peaks due to the antidot lattice. The strength of the localization peak decreases exponentially, with a characteristic temperature of $\sim$ 25 K, as temperature increases from 0.4 K to 50 K. The exponential behavior and high characteristic temperature can be explained by classical scattering in chaotic systems. The localization and ballistic features are compared with results of antidot lattices made on other semiconductor heterostructures. (NSF DMR-0094055, DMR- 0080054, DMR-0209371)

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