

Abstract Submitted
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Giant negative magnetoresistance in irradiated two-dimensional electron systems M.A. ZUDOV, Q. SHI, P.D. MARTIN, Q.A. EBNER, School of Physics and Astronomy, University of Minnesota, Minneapolis, Minnesota 55455, USA, J.L. RENO, Sandia National Laboratories, Albuquerque, New Mexico 87185, USA, L.N. PFEIFFER, K.W. WEST, Department of Electrical Engineering, Princeton University, Princeton, New Jersey 08544, USA — Several recent magnetotransport studies in high-mobility two-dimensional electron systems reported very strong negative magnetoresistance whose origin remains unclear. In an attempt to advance our understanding of this phenomenon, we have performed measurements on microwave-irradiated GaAs/AlGaAs heterostructures and quantum wells exhibiting giant magnetoresistance. We have found that microwave photoresistance is usually positive over a wide range of magnetic fields indicating that negative magnetoresistance is suppressed by microwave radiation. This suppression, however, is too strong to be attributed solely to radiation-induced heating of electrons.

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