

Abstract Submitted
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Studies of Zero-resistance States by Dichromatic Microwaves M.A. ZUDOV^{1,2}, R.R. DU¹, L.N. PFEIFFER³, K.W. WEST³ — ¹Dept. of Physics, University of Utah, Salt Lake City, UT 84112, ²School of Physics and Astronomy, University of Minnesota, Minneapolis, MN 55455, ³Bell Laboratories, Lucent Technologies, Murray Hill, NJ 07974 — We have explored experimentally dichromatic (frequencies ω_1 and ω_2) photoresistance of a two-dimensional electron system in the regimes of microwave-induced resistance oscillations and zero-resistance states. We have found that dichromatic resistance is closely replicated by a linear superposition of ω_1 and ω_2 components, provided that both monochromatic resistances are positive. In contrast, if a zero-resistance state is to be formed by one of the frequencies, such superposition relation becomes invalid. More specifically, dichromatic resistance is suppressed in this regime. This finding can be explained by taking into account the absolute negative resistance and the formation of domains, as suggested by current theoretical models.

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