

Abstract Submitted  
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**Experimental analysis of tunneling from a two-dimensional electron gas into the bulk in the presence of strong scattering.** KASEY RUSSELL, VENKATESH NARAYANAMURTI, FEDERICO CAPASSO, Harvard University, JOSHUA ZIDE, ARTHUR GOSSARD, Univ. California, Santa Barbara, NARAYANAMURTI TEAM, GOSSARD TEAM — An asymmetric double-barrier heterostructure of InGaAs/InAlAs was grown lattice-matched to InP, and electrical contact was made to the InGaAs quantum well layer as well as both bulk InGaAs regions. The tunnel current out of the quantum well across one barrier was monitored while varying the electric field across the other (thicker) barrier. This measurement yielded the dependence of the tunnel current on the carrier concentration in the quantum well. Samples with ErAs dot scattering centers within the quantum well were measured and compared with device simulations to confirm the impact of scattering on tunneling out of a quantum well.

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