

Abstract Submitted
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Magnetic field dependence of a resonant tunneling diode based in the GaMnAs/AlGaAs material system. EDWARD LIKOVICH, KASEY RUSSELL, WEI YI, VENKATESH NARAYANAMURTI, Harvard University, KEH-CHIANG KU¹, NITIN SAMARTH, Penn State University, NARAYANAMURTI TEAM, SAMARTH TEAM — A resonant tunneling diode was fabricated with magnetic GaMnAs emitter and quantum well regions and a nonmagnetic p-GaAs collector. At 4K, below the Curie temperature for GaMnAs, negative differential resistance (NDR) associated with resonant tunneling of holes was observed. Both the magnitude of NDR as well as its associated bias were found to be dependent on magnetic field. If the device bias is held constant and the magnetic field is swept, our device exhibits either positive or negative tunneling magnetoresistance (TMR) up to several tens of percent, depending on the device bias.

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