

Original Paper

Manipulating Transmission of a Two-Dimensional Electron Gas Modulated by Ferromagnetic and Schottky Metal Stripes

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Received: 30 October 2011 **Accepted:** 1 June 2012 **Published online:** 6 September 2012

Abstract

We study how the transmission properties of a two-dimensional electron gas, modulated by a ferromagnetic stripe and a Schottky metal (SM) stripe in a parallel configuration, can be modified by manipulating the voltage applied to the SM stripe. Both the transmission coefficient and conductance of the device are found to be strongly dependent on the electric-barrier height induced by an applied voltage under the SM stripe. Thus, transmission properties of electrons in the device can be conveniently tailored by means of tuning this applied voltage.

Keywords

Magnetic nanostructure – Electronic transport – Transmission coefficient – Ballistic conductance