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Negative Differential Conductance Observed in a Lateral Double Constriction  
Device

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Abstract

Lateral double point contact devices were fabricated using a split-gate high electron mobility transistor. The low-temperature source-drain characteristics show pronounced S-shaped negative differential conductance that can be independently controlled by an applied gate bias. The mechanism for the observed switching behavior is believed to be similar to that proposed for heterostructure hot electron diodes.