

Abstract Submitted
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Magnetoresistance in Lateral GaMnAs devices with Nano-constrictions BHIM PAUDEL, GRANT RILEY, Miami University, LEONIDAS OCOLA, Argonne National Lab, XINYU LIU, JACEK FURDYNA, University of Notre Dame, KHALID EID, Miami University — Mn-doped GaAs (or GaMnAs) offers opportunities to demonstrate both new device concepts with added functionality and new phenomena in condensed matter physics, since it is both a ferromagnet and a semiconductor. We will present our recent results on fabricating and characterizing GaMnAs-based nano- devices. The resistance of these deep-nanoscale devices can be manipulated either by varying the applied voltage or via an external magnetic field. The nano-devices were prepared using electron-beam lithography and wet chemical etching. The magnetoresistance of the devices was as high as 50% at 4.2k and the behavior was different from previous results reported in literature.

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