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Magnetoresistance in ferromagnetic metal/ferromagnetic semiconductor micro-structures TAYLOR REID, Miami University, ANDREI SOKOLOV, University of Nebraska-Lincoln, ROBERT TOLLEY, JUSTIN GUENTHER, Miami University, XINYU LIU, JACEK FURDYNA, University of Notre Dame, KHALID EID, Miami University — We use SQUID magnetometry and circular contacts to study the magnetoresistance in GaMnAs/Py bilayer structures. Our magnetization hysteresis loops show that there is no measurable coupling between the two ferromagnetic layers, even though they are not separated by any nanomagnetic spacer layers. Furthermore, the field-dependent magnetization shows a rich behavior that depends on the width of the GaMnAs in the circular structures. Samples with the narrowest gaps show a magnetoresistance effect that seems to be due to the tunneling magnetoresistance at the interface between py and GaMnAs.

Khalid Eid
Miami University

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