

Abstract Submitted  
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**GaMnAs-based Core-Shell Nanowires Grown by Molecular Beam Epitaxy**<sup>1</sup> R. PIMPINELLA, X. LIU, K. TIVAKORNSASITHORN, J.K. FURDYNA, M. DOBROWOLSKA, Department of Physics, University of Notre Dame, Notre Dame, IN 46556, USA, T. WOJTOWICZ, Institute of Physics, PAS, Al. Lotnikow 32/46, 02-668 Warsaw, Poland — We have successfully fabricated GaMnAs/GaAs core-shell nanowires (NWs) by molecular beam epitaxy (MBE), by first growing Au-assisted GaAs NWs, and subsequently depositing the GaMnAs shells on the GaAs NW side facets under low temperature conditions. Scanning electron microscopy (SEM) and scanning transmission electron microscopy (STEM) show that GaMnAs grows epitaxially on the GaAs NWs, retaining good crystalline quality. SQUID magnetometry shows that the shells obtained so far are ferromagnetic below 20 K. Studies by high resolution transmission electron microscopy (HRTEM) and energy-dispersive X-ray spectroscopy are planned for the future, in order to allow us to relate the observed magnetic properties of these one-dimensional magnetic wires to their chemical and structure profiles, in the hope of designing strategies for increasing the Curie temperature of the GaMnAs shells.

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Xinyu Liu  
University of Notre Dame

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