Abstract Submitted
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Gating in ferromagnetic semiconductor[1] F. ALTOMARE, A. M. CHANG, Department of Physics, Duke University, Durham, NC 27708, Y. J. CHO, X. LIU, J. K. FURDYNA, Department of Physics, University of Notre Dame, Notre Dame, IN 46556 — Ferromagnetic semiconductors have the potential of revolutionizing the way current electronic devices work: more so, because they are compatible with current fabrication lines and can easily be integrated with today technology. Particular interest lies in III-V Diluted Magnetic Semiconductor (DMS), where the ferromagnetism is hole-mediated and the Curie temperature can therefore be tuned by changing the concentration of free carriers[2]. In these systems, most of the effort is currently applied toward the fabrication of devices working at room-temperature: this implies high carrier density accompanied by low mobility and short mean free path. We will report our results in exploring devices with low hole concentration and Curie temperature ($\sim$ 4 K) and we will discuss the effect of local gating[3] in light of possible applications to the fabrication of ferromagnetic quantum dots.

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[2]T. Dietl *et al.*, Phys. Rev. B **63**, 195205 (2001)
[3]H. Ohno *et al.*, Nature **408**, 944 (2000)

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