

Abstract Submitted  
for the MAR06 Meeting of  
The American Physical Society

**Magnetism near the percolation transition in two-dimensional electron systems** KEIVAN ESFARJANI, MAHDI FAZELI, Department of Physics, Sharif University of Technology, Tehran, IRAN, BILAL TANATAR, Department of Physics, Bilkent University, Ankara, Turkey — Recent thermodynamic measurements on two-dimensional (2D) electron systems have found divergence in the magnetic susceptibility and appearance of ferromagnetism as the electron density is lowered. The critical density for these phenomena coincides with the metal-insulator transition (MIT) recorded in transport measurements. Based on density functional calculations within the local spin-density approximation, we have investigated the compressibility and magnetic susceptibility of a 2D electron gas in the presence of remote impurities. A correlation between the minimum in the inverse capacitance, which is identified with the percolation transition, and the maximum of magnetization and magnetic susceptibility was found. This is also coincident with the MIT point based on values we obtain for the inverse participation ratio.

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Date submitted: 20 Nov 2005

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