

## Magnetocapacitance In A Metal–Oxide–Metal Junction System

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Motivated by recent observation of the enhanced magnetocapacitance (MC) in Pd-AlO<sub>2</sub>-Al junction system[Ref1], we have investigated the effects of the exchange splitting and the band-width change on the (MC) employing the generalized model proposed by Hirsch[Ref2], For a metal-oxide-metal junction [paramagnetic] system, we have obtained the quadratic dependence of the MC on the magnetic field, and found that the effects of the band-width change can be substantial near the phase boundary between the paramagnetic and ferromagnetic phases. Numerical results for a few model DOS systems will be discussed.

Ref1: K. T. McCarthy, A. F. Hebard, and S. B. Arnason,  
Phys. Rev. Lett. 90, 117201 (2003)

Ref2: J. E. Hirsch, Phys. Rev. B. 59, 6256 (1999)