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Spin polarized tunneling at finite bias SERGIO O. VALENZUELA, D.J. MONSMA, C.M. MARCUS, V. NARAYANAMURTI, M. TINKHAM, Physics Department, Harvard University — We fabricated mesoscopic lateral-spin-valves [1] with spin transresistances as high as 2.5 Ohm. We employed these devices to measure the bias dependence of the polarization of the electrons tunneling *from* and *into* a ferromagnet. Our measurements show an intrinsic asymmetry between these two processes. Using a free-electron model, we found that the polarization is strongly suppressed for electrons tunneling *into* the ferromagnet due to the reduced polarization for hot electron states and a spin-dependent wave-vector matching effect through the tunnel barrier. [1] M. Johnson and R. H. Silsbee, Phys. Rev. Lett. **55**, 1790 (1985); F.J. Jedema et al., Nature **416**, 713 (2002).

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