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**Spin blockade at semiconductor/ferromagnet junctions**[1] MASSIMILIANO DI VENTRA, YURIY PERSHIN, Department of Physics, University of California, San Diego, La Jolla, California 92093-0319, USA — We study theoretically extraction of spin-polarized electrons at nonmagnetic semiconductor/perfect ferromagnet junctions. The outflow of majority-spin electrons from the semiconductor into the ferromagnet leaves a cloud of minority-spin electrons in the semiconductor region near the junction, forming a local spin-dipole configuration at the semiconductor/ferromagnet interface. This minority-spin cloud can limit the majority-spin current through the junction, creating a pronounced spin blockade at a critical current. We calculate the critical spin-blockade current in both planar and cylindrical geometries and discuss possible experimental tests of our predictions. [1] Yu. V. Pershin and M. Di Ventra, Phys. Rev. B **75**, 193301 (2007). [2] Yu. V. Pershin and M. Di Ventra, arXiv:0707.4475.

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