

Abstract Submitted  
for the MAR09 Meeting of  
The American Physical Society

**Thermo-spin effects in quantum dots connected to ferromagnetic leads**<sup>1</sup> YONATAN DUBI, MASSIMILIANO DI VENTRA, University of California - San Diego — We study a system composed of a quantum dot in contact with ferromagnetic leads held at different temperatures, which we suggest can be used as a source of spin-voltage. Spin analogs to the thermopower and thermoelectric figure of merit are defined and studied as a function of junction parameters. It is shown that in contrast to bulk ferromagnets, the spin thermopower coefficient in a junction can be as large as the Seebeck coefficient, resulting in a large spin figure of merit. In addition, it is demonstrated that the junction can be tuned to supply only spin current but no charge current. We also discuss experimental systems where our predictions can be verified.

<sup>1</sup>This work is supported by the DOE.

Yonatan Dubi  
University of California - San Diego

Date submitted: 13 Nov 2008

Electronic form version 1.4