Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

On the Electric-Field-Controlled Surface Ferromagnetic Transition in Metals[1] IGOR V. OVCHINNIKOV, KANG L. WANG, UCLA, E&E DEPT., DRL TEAM — It is widely believed that in metals, unlike in the dilute magnetic semiconductors, the control of the ferromagnetic ordering by an external voltage is hardly achievable. We compare the two materials and show that there is no obvious reason why metals are less preferable for this phenomenon. Similar effect in metals, however, has a different physical picture and should be identified as a voltage-induced surface ferromagnetic transition. We study its properties within the theory of the surface critical phenomena and discuss possible difficulties on the way to its experimental realization.

[1]The work was supported in part by Western Institute of Nanoelectronics at UCLA.

Igor V. Ovchinnikov
UCLA

Date submitted: 22 Nov 2008 Electronic form version 1.4