Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Exchange Bias and Large Vertical Magnetization Shift in FM/V_2O_3 Interfaces[1] JOSE DE LA VENTA, MIKHAIL EREKHINSKY, SIMING WANG, IVAN K. SCHULLER, Univ of California - San Diego, RAFAEL MORALES, Universidad del País Vasco and IKERBASQUE — We have investigated exchange bias in different combinations of V_2O_3 thin films with ferromagnetic layers. The exchange bias is accompanied by a large vertical shift in the magnetization. These effects are only observed when V_2O_3 is grown on top of $Ni_{80}Fe_{20}$ permalloy (Py). The magnitude of the vertical shift is as large as 60% of the total magnetization which has never been reported in any system. The exchange bias and the vertical shift are related to the formation of a Fe_3O_4 interlayer. We will show evidence that the Fe_3O_4 Verwey transition is responsible for the appearance of the exchange bias and the vertical shift in the magnetization.

[1]This work has been supported by the US Department of Energy, Office of Basic Energy Sciences, Division of Materials Sciences under Award FG03-87ER-45332 and Spanish MICINN and IKERBASQUE.

Jose de la Venta
Univ of California - San Diego

Date submitted: 05 Dec 2011 Electronic form version 1.4