Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Observation of ferromagnetic behaviors in doped and undoped TiO_2 and ZnO P.V. WADEKAR, Q.Y. CHEN*, P.V. CHINTA, O. LOZANO, Z.H. ZHANG, W.K. CHU, Dept. of Physics and TcSUH,University of Houston, TX, H.W. SEO, Dept.of Physics, University of Arkansas,AR, C.P. SUN, C.C. CHOU, H.D. YANG, L.W. TU, Y.L. CHENG, M.Z. HSU, Dept. of Physics and Center for Nanoscience and Nanotechnology, National Sun Yat-Sen University NSYSU, Kaohsiung, Taiwan — Transition-metal doping has been widely used to produce ferromagnetic oxides such as TiO_2 & ZnO for use as a diluted magnetic semiconductor. Recently, however, undoped samples were also found to be ferromagnetic. We have studied the ferromagnetic behaviors of ZnO and TiO_2 single crystals and powders annealed both in vacuum and in flowing oxygen at various temperatures. In order to understand the observed ferromagnetism, we have used X-ray photoemission and electron spin resonance spectrometry to characterize the possible valance states or chemical bonding variation to study the roles that oxygen vacancies may have played in the occurrence of ferromagnetism. Comparisons on the doped and pure samples will be discussed.* Also with NSYSU .

P.V. Wadekar
Dept. of Physics and TcSUH,University of Houston, TX

Date submitted: 04 Dec 2006 Electronic form version 1.4