Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Magnetic Properties and Electronic Structure in Transition Metal Doped $La_{0.5}Ca_{0.5}MnO_3$ K.K. YU, S.J. JUN, J.S. PARK, J.Y. KIM, Y.P. LEE, q-Psi and Dept. of Physics, Hanyang University, Seoul, Korea, K.H. HAN, Proton Engineering Frontier Project, Korea Atomic Energy Research Institute, Dejeon, Korea, Y.S. LEE, Division of information Communication and Computer Engineering, Hanbat National University, Daejeon, Korea, J.-H. KANG, Department Nano and Electronic Physics, Kookmin University, Korea — The magnetic properties of $La_{0.5}Ca_{0.5}Mn_{0.98}TM_{0.02}O_3$ (TM = Cr, Ti) perovskites were studied by using the temperature dependences of magnetization and coercive field. The transition-metal doping like $La_{0.5}Ca_{0.5}Mn_{1-y}TM_yO_3$ (TM = transition metal) can alter the Mn^{3+}/Mn^{4+}ratio, and lead to significant modifications in the magnetic properties. The observed reductions of Curie temperature and magnetization are interpreted with the calculated ratio of Mn^{3+}/Mn^{4+}according to the Curie- Wiess law. The value is determined to be 0.48 for the TM-doped samples. The Mn L- and O K-edge were also measured by x-ray absorption fine-structure spectroscopy. The domain-wall pinning was investigated, as well, with the temperature dependence on coercivity at a constant field.

K.K. Yu
q-Psi and Dept. of Physics, Hanyang University, Seoul, Korea

Date submitted: 03 Dec 2005 Electronic form version 1.4