Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Structure analysis and Physical property of Multiferroic $LuFe_2O_4$ Thin films MINHWA JUNG, SANGYOUN PARK, YOONHEE JEONG, POSTECH, Pohang, 790-784, S. Korea — Multi-ferroic materials have stimulated considerable interest because of technical applications in modern electronic devices such as memory elements and switch devices. $LuFe_2O_4$ was reported to have both ferrimagnetism and charge-ordering-induced ferroelectricity with the charge and spin frustrations. Since the material must be grown in thin film form before one would utilize the physical phenomena in practical applications, we have attempted to grow thin films of $LuFe_2O_4$. We have successfully obtained $LuFe_2O_4$ thin films on sapphire (0001) substrates by the PLD method. Through XRD and PPMS measurements, their structure and magnetic property were characterized. In pole figure result, it showed 6 fold symmetry and there was a 30 degree rotation between the in-plane film and substrate direction. As for magnetic properties, we ascertained that the critical temperature was near 250K and it was identical to that of the bulk system.

Minhwa Jung
POSTECH, Pohang, 790-784, S. Korea

Date submitted: 25 Nov 2008 Electronic form version 1.4