

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Evidence for Superhydrogenic Ce Doping of Lu₂O₃ Films S.M. SOLOMON, NanoCore, IIT Kanpur, G. BASKARAN, IMSC, J. FREEMAN, H.O. EVERET, US Army, S.H. LIM, S.L. RIBA, UMD, R.K. SAHU, A. ROY BURMAN, S. DHAR, G. XIONG, A. RUSIDY, A. ARIANDO, T. VENKATESAN, NanoCore, NANOCORE NUS SINGAPORE TEAM, IIT KANPUR COLLABORATION, IMSC COLLABORATION, US ARMY COLLABORATION, UMD COLLABORATION — In the last decade oxides have exhibited a surprising number of unexpected, novel properties rousing the interest of the research community. One of the unusual property of oxides is their manifesting large dielectric constants as a consequence of which the hydrogenic radii of dopants would be quite large leading to overlap of their orbitals at concentration levels of a few percent. Midgap states formed by such “superhydrogenic dopants” may have unusual properties such as antiferromagnetism or ferromagnetism. In this paper we show evidence for the formation of such large Bohr radii dopants by looking at fluorescence quenching in Ce doped Lu₂O₃, where by 2% doping all the sharp Lu line features are quenched which can be explained by the formation of large Rydberg radius for the Ce ions in this host. . .

S.M. Solomon
NanoCore, IIT Kanpur

Date submitted: 29 Dec 2009

Electronic form version 1.4