Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Nanocomposite materials for radiation detection SUNIL SAHI, University of Texas at Arlington — Colloidal quantum dots (CdTe, CdSe, and ZnO) have attracted tremendous interest in wide range of application from biological imaging, biosensing, solar cells to optoelectronic devices. However very few published reports on the radiation detection based on colloidal quantum dots. Quantum dots based nanocomposite materials could be a promising material for radiation detection because of their short luminescence life time and high quantum efficiencies as a consequence of quantum size confinement. However stopping power of most quantum dots is low and their scintillation luminescence is very weak. The combination of high stopping power of inorganic scintillator (CeF_3LaF_3: Ce, YAG:Ce) and high efficiency of quantum dot could potentially lead to a new class of scintillator. We have studied the nanocomposite of inorganic scintillator and quantum dot based on energy transfer principle and investigate the scintillation properties of nanocomposite scintillator.

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Date submitted: 18 Nov 2012 Electronic form version 1.4