Abstract Submitted
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Nanocomposite for radiation detection SUNIL SAHI, University of Texas at Arlington — Cerium fluoride is among the widely studied inorganic scintillators for radiation detection, because of its high light output and high stopping power. Herein, platelets shape CeF_3 nanoparticles for radiation detection was synthesis by bisolvent solvothermal method. The characterization of nanoprticles was done by photoluminescence, XRD and SEM measurement. The synthesized CeF_3 nanoparticles have broad emission peak around 330 nm. ZnO is a semiconductor scintillator, having fast decay time. ZnO nanoparticles were synthesized using solvothermal method and UV-Vis, photoluminescence and SEM measurement were done for their characterization. The absorption spectrum of the ZnO nanoparticles is dependent on the size of the nanoparticles. By changing the temperature and the concentration of zinc salt and surfactant, ZnO with absorption spectra overlapping with the emission spectra of CeF_3were made for the purpose of creating nanocomposites, with improved scintillation properties. The energy transfer between two nanoparticles was also studied and the changes in Photoluminescence intensity of the nanocomposites were described.

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