

A CORE-SHELL NANOPARTICLE AND METHOD OF GENERATING AN OPTICAL SIGNAL USING THE SAME

5

ABSTRACT

A core-shell nanoparticle is provided. The core-shell nanoparticle has a core comprising a metal fluoride doped with a first sensitizer and a shell surrounding the core, wherein the shell comprises a first layer comprising the metal fluoride doped with a second sensitizer and a first activator, and a second layer comprising the metal fluoride doped with a third sensitizer and a second activator, wherein the first activator and the second activator are different, and each is independently selected from the group consisting of Tm^{3+} , Ho^{3+} , and combinations thereof. A method of generating an optical signal using the core-shell nanoparticle and a method of preparing the core-shell nanoparticle is also provided.

15

FIG. 1