Low temperature synthesis of YAG:Eu spheroidal monocrystalline submicron-sized particles.

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Streszczenie

Yttrium aluminum garnet, $Y_3Al_5O_{12}$, (YAG), doped with Eu (0–4%) was synthesized reacting appropriate metal nitrates in $NaNO_2$–KNO_2 eutectic mixture. Pure cubic garnet phase was formed upon heating for a few hours at temperature as low as 470 °C. The particle sizes of the powders were mostly in the range of 200–300 nm, but a small fraction of material crystallized in particles of about 20–40 nm. Selected area electron diffraction patterns proved that the larger particles are monocrystalline. Excitation and emission spectra of the Eu-doped powders are characteristic for Eu^{3+} in an oxide host. The most intense luminescence lines are located around 590 nm.

Adres publiczny

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