Fabrication and spectroscopic properties of nanocrystalline $La_2Hf_2O_7$:Pr.

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Streszczenie

La2Hf2O7 nanopowders doped with different Pr concentrations (0.05–10mol.%) were synthesized by the Pechini method. XRD measurements confirmed the single crystalline phase formed already at 800°C and the structure was cubic pyrochlore. Luminescence excitation and emission as well as radioluminescence spectra were recorded for the materials. Both optical and X-ray excitation of La2Hf2O7:Pr produced a red emission resulting from the 4f–4f transitions of Pr3+ ions. Luminescence of materials synthesized at low temperatures was characterized by broadband glass-type emissions, while heat treatment at 1400°C led to spectra showing the typical for crystalline hosts narrow and intense 4f–4f transitions of Pr3+.

Słowa kluczowe

X-ray phosphor, Pr3+, hafnates

Adres publiczny

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