

## Fabrication and spectroscopic properties of nanocrystalline $\text{La}_2\text{Hf}_2\text{O}_7:\text{Pr}$ .

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Radiation Measurements

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45

### Strony

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### Streszczenie

$\text{La}_2\text{Hf}_2\text{O}_7$  nanopowders doped with different Pr concentrations (0.05–10 mol.%) 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  $\text{La}_2\text{Hf}_2\text{O}_7:\text{Pr}$  produced a red emission resulting from the 4f–4f transitions of  $\text{Pr}^{3+}$  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  $\text{Pr}^{3+}$ .

### Słowa kluczowe

X-ray phosphor,  $\text{Pr}^{3+}$ , hafnates

### Adres publiczny

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