



共沉淀法合成 $\text{Cr}^{3+}:\text{Al}_2\text{O}_3$ 纳米粉体及其发光性能研究 Preparation and Luminescent Properties of $\text{Cr}^{3+}:\text{Al}_2\text{O}_3$ Powders by Precipitation Method

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中文关键词: $\text{Cr}^{3+}:\text{Al}_2\text{O}_3$; 共沉淀法; 纳米粉体; 发光

英文关键词: $\text{Cr}^{3+}:\text{Al}_2\text{O}_3$; co-precipitation method; nano-powders; luminescence

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中文摘要:

英文摘要:

$\text{NH}_4\text{MO}(\text{OH})\text{HCO}_3$ ($\text{M}=\text{Al}^{3+}, \text{Cr}^{3+}$) precursors were synthesized by a co-precipitation method with the solutions of mixed nitrates as starting materials and ammonium bicarbonate as precipitator. The precursors and powders sintered at various temperatures were characterized by thermogravimetry/differential thermal analysis(TG/DTA), infrared spectroscopy(IR), X-ray diffractometry(XRD), transmission electron microscopy(TEM). The luminescent spectra of $\text{Cr}^{3+}:\text{Al}_2\text{O}_3$ nano-powder was measured. The XRD results show that the pure- $\alpha\text{-Al}_2\text{O}_3$ phase can be obtained at 1 200 °C. TEM analysis indicates that the nano-powders about 20~30 nm are well-dispersed and less-aggregated. Spectral analysis demonstrates that the sample has good photoluminescence.

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