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研究论文

SO_4^{2-}对Mn掺杂硫磷酸盐玻璃结构和发光性能的影响

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摘要: 采用高温熔融法制备了Mn掺杂P2O5--ZnO--ZnSO4--Na2O硫磷酸盐玻璃, 研究了不同SO42-含量下玻璃结构的变化以及Mn离子的发光性能。结果表明: 在409 nm光激发下, Mn离子掺杂硫磷酸盐玻璃可产生500 nm到750 nm的宽带发射, SO42-的引入改变了Mn2+周围的配位场, 使Mn2+发光强度和发光峰半高宽增加。

关键词: 无机非金属材料 发光 硫磷酸盐玻璃 Mn

Effect of SO^{2-}_4 on the Structure and Luminescence Properties of Manganese-doped Sulfophosphate Glasses

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Abstract: Manganese-doped sulfophosphate glasses (P2O5–ZnO–ZnSO4–Na2O) were synthesized by traditional melting–quenching method. The structure and luminescence properties of the glasses with varying SO2−4 content were studied. The results revealed that a broad emission band of Mn2+ from 500 to 750 nm excited by a 409 nm laser was observed. With the introduction of SO2−4 , the ligand field around Mn2+ was affected, resulting in the increasing of the luminescence intensity and full width at half maximum (FWHM) of Mn2+ emission.

Keywords: inorganic non-metallic materials luminescence properties sulfophosphate glass Mn

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