
NEAR-INFRARED EMISSION AND ENERGY TRANSFER OF Bi⁺–Er³⁺ CO-DOPED IN ALUMINOSILICATE GLASSES

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Abstract

In this topic, we report near-infrared (NIR) emission and energy transfer of Bi⁺–Er³⁺ co-doped in aluminosilicate glasses. The aluminosilicate glasses with main compositions of SiO₂–AlF₃–BaF₂–BaO₃ (SABB) were prepared using the conventional melting method. A broadband NIR emission of Bi⁺–Er³⁺ co-doped extending from 1000 nm to 1700 nm with a full-width at half-maximum (FWHM) of ~450 nm which covered the whole O-, E-, S-, C-, and L bands was observed. The materials in this study (the Bi⁺–Er³⁺ co-doped in SABB glasses) can be developed and applied to optical amplifiers such as EDFA, TDFA. In addition, we will discuss a possible mechanism for energy transfer between Bi-related centers and Er³⁺ ions.
