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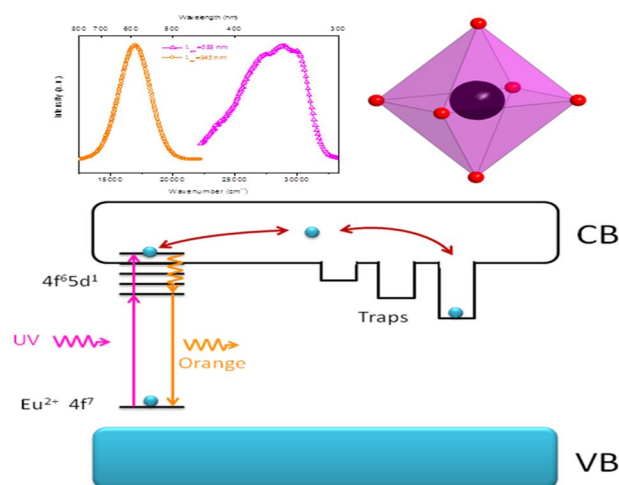
Tb³⁺ induced orange persistent luminescence in Cs₂CaP₂O₇:Eu²⁺: the role of the auxiliary codopant

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Graphical abstract



Highlights

The orange persistent luminescence of Cs₂CaP₂O₇:Eu²⁺,Tb³⁺ was first reported.

The role of Tb³⁺ was discussed.

The TL curve reveals there are two traps responsible for the persistent luminescence.

Abstract

This study reports an orange emitting persistent phosphor Cs₂CaP₂O₇:Eu²⁺,Tb³⁺. The material was synthesized by solid state reaction method in a reducing atmosphere. The persistent phosphor was characterized in detail by X-ray powder diffraction, photoluminescence, persistent luminescence and thermoluminescence spectra. After UV irradiation, Cs₂CaP₂O₇:Eu²⁺,Tb³⁺ phosphor shows an orange persistent luminescence (~590 nm) at room temperature, whereas only photoluminescence is observed in Eu²⁺ singly doped samples. Both of the photoluminescence and persistent

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