

Abstract Submitted
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Photonic Band Gap Enhanced Energy Transfer in Eu^{3+} Doped TbPO_4 Inverse Opal JI ZHOU, ZHENWEN YANG, Dept. Mat. Sci. & Engin., Tsinghua University, DEPT. MAT. SCI. & ENGIN., TSINGHUA UNIVERSITY TEAM — Photoluminescence (PL) of Eu^{3+} doped TbPO_4 ($\text{TbPO}_4:\text{Eu}$) inverse opal photonic crystals was investigated. The results showed that the energy transfer from the donor Tb^{3+} to the acceptor Eu^{3+} can be enhanced effectively by the photonic bandgaps in the photonic crystals. When the fluorescence emission wavelength of the donor Tb^{3+} overlapped the photonic band gap, the fluorescence intensity of the donor was suppressed, while the fluorescence intensity of the acceptor Eu^{3+} was obviously enhanced. This enhancement can be attributed to the inhibition of radiative emission of donor in the inverse opal photonic crystals.

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