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## Optical analysis using effective medium theory and finite element method to study the enhanced light absorption in porous $\text{BaMgAl}_{10}\text{O}_{17}:\text{Eu}^{2+}$ phosphor

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The main objective of this paper is to reveal the mechanism of enhanced excitation light absorption in nano-pores structure  $\text{BaMgAl}_{10}\text{O}_{17}:\text{Eu}^{2+}$  (BAM) phosphor by optical analysis. The optical refractive index of the BAM was calculated from the reflectance spectra by Kramers–Kronig dispersion relation. And based on the effective medium theory, the anisotropic optical properties of porous BAM layer and its relations of absorption enhancement with porosity and thickness were investigated. A finite element simulation model was used for study the influence of pores size on optical properties. All the numerically evaluated results were match the experimental data.

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