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# Co-doping effect of $\text{Ca}^{2+}$ on luminescent properties of $\text{BaAl}_2\text{O}_4$ :

## $\text{Eu}^{3+}$ phosphors

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### Highlights

- *The effect of the Ca substitution on the luminescent properties was studied.*
- *The samples were excited with monochromatic X-rays from synchrotron radiation.*
- *The XEOL spectra of all samples exhibit characteristic  $\text{Eu}^{2+}$  or  $\text{Eu}^{3+}$  emissions.*
- *The total area under the XEOL spectra increases as the energy of the X-rays photon increases.*

### Abstract

A series of  $\text{Eu}^{3+}$  and  $\text{Ca}^{2+}$  doped/co-doped  $\text{BaAl}_2\text{O}_4$  phosphors were synthesized via a proteic sol-gel route. The effects of the co-dopant  $\text{Ca}^{2+}$  on the luminescent properties of  $\text{BaAl}_2\text{O}_4:\text{Eu}^{3+}$  phosphors were systematically investigated. The samples were excited with monochromatic X-rays from synchrotron radiation. The XEOL (X-ray excited optical

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