

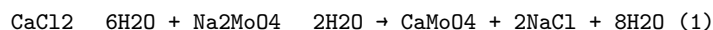


Contribution ID: 208

Type: Oral

## LUMINESCENCE PROPERTIES OF CaMoO<sub>4</sub> DOPED Dy<sup>3+</sup>

Material Physics focuses on synthesis and characterization of materials for different applications, such like tunable color illuminants, LED applications, construction, and even medicine. Keeping this in mind, the incorporation of rare earths as crystal impurities in the host material is quite important, because it could change the electrical and optical properties in order to favor its emission. In particular, Dy<sup>3+</sup> doped materials have been studied and proposed for modulable white LED applications, among these, CaMoO<sub>4</sub>: Dy has become of interest for many researchers due to its luminescence and thermoluminescence properties. This work shows the synthesis and spectroscopic characterization of CaMoO<sub>4</sub> doped with different molar concentrations of Dy<sup>3+</sup>, in order to determine which, one gives the best emission. The synthesis was performed by the solvent evaporation technique from appropriate solution of calcium chloride hexahydrate and sodium molybdate dihydrate, using deionized water as solvent, according to equation (1):



The solution was heated and stirred simultaneously at a temperature of 80 °C for 1 hour until the solvent was evaporated, leaving a precipitate of CaMoO<sub>4</sub>. At last, the sample was placed in a muffle oven at 700 °C for 8 hours in order to get the crystalline structure. XRD and Raman were used as characterization techniques for CaMoO<sub>4</sub> doped with different concentrations of Dy<sup>3+</sup> in order to verify that the compound was correctly synthesized. Photoluminescence emission was measured showing interesting results.

### Keywords

Luminescence, Thermoluminescence, Crystalline, Raman, XRD

### Reference

Laguna, M. (et al.). Morphology control of uniform CaMoO<sub>4</sub> microarchitectures and development of white light emitting phosphors by Ln doping (Ln = Dy<sup>3+</sup>, Eu<sup>3+</sup>). The Royal Society of Chemistry: CrystEngComm, Vol. 12, 1590-1600. (2017) doi: 10.1039/C6CE02611G

### This work was supported by

CONAHCyT PhD scholarship

### Author approval

I confirm

### Author will attend

I confirm

**Primary author:** SAAVEDRA ROMERO, Andrés Alfonso (Benemérita Universidad Autónoma de Puebla)

**Co-authors:** SORIANO ROMERO, Omar (Benemérita Universidad Autónoma de Puebla); Prof. CARMONA TÉLLEZ, Salvador (CONAHCyT)

**Presenter:** SAAVEDRA ROMERO, Andrés Alfonso (Benemérita Universidad Autónoma de Puebla)

**Session Classification:** LUMINESCENCE PHENOMENA

**Track Classification:** Luminescence Phenomena: Materials and Applications