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EFFECT OF SILICA COATING ON THE STRUCTURAL AND LUMINESCENT PROPERTIES OF CSVO₃

This work studied the structural and luminescent properties of CsVO₃ crystals synthesised by the Solid State Reaction, and the effect of the silica coated of the cesium metavanadate (CsVO₃/SiO₂) on the properties described above. The Solid State Reaction is a versatile and eco-friendly technique potentially applicable in the industry. The X-Ray Diffraction patterns shows that the crystalline structure is the characteristic of the CsVO₃ for the crystals with and without silica coated. The excitation spectra of CsVO₃ and CsVO₃/SiO₂ (from 200 nm to 400 nm) show that the band has the maximum at 323 nm, this absorption band corresponding to 1A₁ → 1T₂ transition associated to [VO₄]³⁻. While the emission spectra from 400 nm to 800 nm, show that the band has the maximum at 535 nm, the band emission in the PL spectra is made up of 3T₁ → 1A₁ (548 nm) and 3T₂ → 1A₁ (486 nm) transitions.

Keywords

Cesium Metavanadate, Solid State Reaction, Luminescent Properties

Reference

Luo, J., Yang, A., Xie, Z., Huang, J., Zuo, X. (2021). Preparation, optical properties and first principle calculation of CsV O₃. *Journal of Luminescence*, 229, 117658.

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