

Growth and properties of ytterbium doped $KY(WO_4)_2$ nanocomposites

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Nanocomposites (nanocrystals) of $KY(WO_4)_2$ and $KY(WO_4)_2+1\%$ mol Yb have been synthesized using a Complex Sol-Gel Process (CSGP). The chemical treatment with concentrated nitric acid and hydrogen peroxide was used to decrease the decarbonisation temperature.

The expected monoclinic phase $C2/c$ of the KYW of the nanocomposite powder has been confirmed using XDR technique. From the X-ray diffraction measurements, the unit cell parameters and the size of a nanoparticles have been determined. Electron spin resonance studies in the X band have been performed on KYW and $KYW:Yb$ nanocrystals.

The sintered samples were made with using the high pressure technique in the temperature up to 600°C. The chemical analysis, the X-ray diffraction measurements and ESR investigations were made for sintered samples too.