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**Preparation of CaSO4:Dy by precipitation method to gamma radiation dosimetry**

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1. Introduction

2. Experimental

3. Results and discussions

4. Conclusions

Acknowledgments

References

Abstract

This paper presents the results of the preparation and characterization of dysprosium-doped calcium sulfate (CaSO4:Dy) phosphor, which was obtained by homogeneous precipitation from calcium acetate Ca(CH3COO−)2. Structural and morphological characteristics were studied using a scanning electronic microscope (SEM). The structure of all compounds was determined by X-ray diffraction method too. Thermoluminescence (TL) emission properties of CaSO4:Dy under gamma radiation effects were studied. This phosphor powder presented a TL glow curve with two peaks (Tmax) centered at around of 180 and 300 °C, respectively. The TL response of CaSO4:Dy as a function of gamma absorbed dose was linear in a wide range. Both emission and excitation spectra were also obtained. Results showed that this new preparation method of CaSO4:Dy TL phosphor is less expensive, cleaner and safer than the conventional preparation method.