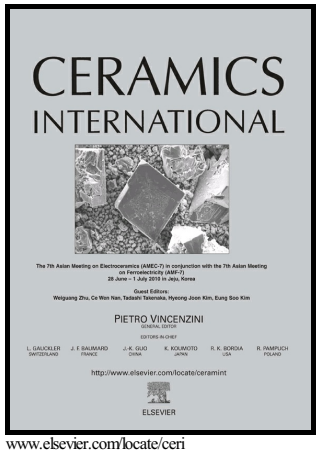

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Synthesis and characterization of BGO with different chelating compounds by the polymeric precursor method, and their effect on luminescence properties

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Abstract

In the present work, $Bi_3Ge_4O_{12}$ (BGO) was synthesized by the polymeric precursor method using different chelating agents. We present a comparative analysis of each chelate formation and how the physicochemical properties of the BGO were affected, specifically its luminescence. In this work we used citric acid (CTR), ethylenediaminetetraacetic acid (EDTA), ethylene glycol (EG), nitrilotriacetic acid (NTA) and tartaric acid (TA), since they are the most reported chelating agents for this type of synthesis. The BGO materials were characterized by scanning electron spectroscopy (SEM), X-ray diffraction (XRD), Fourier Transform infrared spectroscopy (FTIR) and photoluminescence (PL), and showed that the luminescence properties of the synthesized BGO was affected by the formation of secondary phases. The changes in the BGO luminescence properties with the use of each chelating agent are discussed.