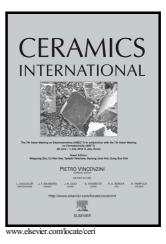
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ACCEPTED MANUSCRIPT

Bismuth and lead oxides codoped boron phosphate glasses for Faraday rotators

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Abstract

New magneto-optical vitreous materials were obtained by melting-quenching technique comprising wet route raw materials preparation. The glass has the following composition in oxide mol. %: 10 Li₂O, 9 Al₂O₃, 5 ZnO, (35; 20; 50) B₂O₃, (35; 50; 20) P₂O₅, 3 Bi₂O₃, 3 PbO, phosphorus and boron oxide being the vitreous network formers. It was also prepared a similar reference glass composition but without Bi₂O₃ and PbO. Optical and structural characterization by ultraviolet-visible (UV-Vis), Fourier Transform Infrared (FTIR) and Raman Spectroscopy of the bulk glasses showed a transmission over 90%, metaphosphate structure of glass together with Q² boron oxide units and P-O-B bonds. The mechanical parameters, hardness (*H*), Young's Modulus (*E*) and fracture toughness (*K*_{*IC*}) of boron phosphate glasses,

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