

PHYSICAL & MATHEMATICAL SCIENCES

Synthesis and characterization of BiFeO₃: An effect of leaching

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Abstract: Bismuth ferrite (BiFeO₃) - a multiferroic with perovskite structure, high magnetization and polarization was synthesized by solid state reaction method. The prepared Bismuth ferrite was characterized by X-ray diffraction (XRD) to investigate the structure and size of the crystal. Thus obtained XRD contains secondary phases of Bi₂O₃ and Bi₂Fe₄O₃. These secondary phases are eliminated by the process of leaching with concentrated HNO₃ acid. The then obtained powder is characterized by XRD where single phase BiFeO₃ is obtained. The magnetic and electrical properties of both leached and unleached samples are studied and compared.

Keywords: *Bismuth ferrite, X-ray diffraction, leaching.*