

Structural and Morphological Study of $\text{Bi}_2\text{Fe}_4\text{O}_9$ and $\text{La}_{2-x}\text{Sr}_x\text{NiO}_4$ System ($x = 0.3$) Bulk Materials

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ABSTRACT

In this work we have been studied the comparative investigation of both proveskite materials $\text{Bi}_2\text{Fe}_4\text{O}_9$ and $\text{La}_{2-x}\text{Sr}_x\text{NiO}_4$ and its properties. These two systems are a close match from the crystal structure perspective new generation multiferroic. For pure $\text{Bi}_2\text{Fe}_4\text{O}_9$ bulk materials have been prepared by solid state reaction method with sintered pallet at $800\text{ }^\circ\text{C}$ temperature. On the other hand $\text{La}_{2-x}\text{Sr}_x\text{NiO}_4$ materials have been synthesized by solid state reaction method and sintered pallet at high temperature $1100\text{ }^\circ\text{C}$. On the basis of comparative studies it is found that both materials indivisibly show good structural and morphological properties. The structural and surface morphological properties of $\text{Bi}_2\text{Fe}_4\text{O}_9$ and $\text{La}_{2-x}\text{Sr}_x\text{NiO}_4$ have been examined by X-ray diffraction (XRD) and scanning electron microscopy (SEM) at room temperature.

Key Words: proveskite, multiferroic, Dibismuth tetrairon oxides, polarization.