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Fabrication, Structure, Electrochemical, Ferromagnetic and Ferroelectric Properties of Cu Doped bismuth ferrite Thin Film

Cu-doped BiFeO3 thin film was deposited on Pt/Ti/SiO2 substrates by using simple spin coating technique. The structure, electrochemical properties and ferromagnetic/ferroelectric properties of the thin film were studied with the increase Cu-doped concentration. The prepared thin films were characterized by X-ray diffraction, Grazing incidence x-ray diffraction (GIXRD) and scanning electron microscopy (SEM). X-ray absorption spectroscopy (XAS) and x-ray photoemission spectroscopy (XPS) indicated oxidation states of Fe and Cu. The optical property and rough band gab of the BiFe1⊠xCuxO3 thin film were studied by ultraviolet visible spectroscopy. Vibration sample magnetometer (VSM) was used to study the magnetic properties of the thin film. The thin film exhibits ferromagnetism. The structure and magnetic properties of the Cu-doped BiFeO3 thin film is discussed.

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