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**Study of Structural, Optical and Electrical behaviours in**

**Rare-Earth modified Lanthanum Ferrite**

Nabasmita Saikia1 and B N Parida1\*

1Department of Physics, Central Institute of Technology Kokrajhar (Deemed-to-be-

University under MoE, Govt. of India), BTR, Assam, India, 783370

\*E mail: *nabasmitasaikia@mail.com*

**Abstract**

In the recent decades, perovskite material based on LaFeO3 (LFO) has received a lot of attention due to its wide variety of applications in modern technology. This paper tries to briefly explain structural, dielectric and optical effect of (La0.5Gd0.5)FeO3 pervoskite. The traditional high temperature solid-state route method is used to synthesize the sample.The primary structural investigation is done through the XRD technique and it suggests the development of a single-phase novel compound referring to orthorhombic symmetry. The surface morphology of the sample was carried out by field emission scanning electron micrograph (FESEM). UV –visible spectroscopy is utilized to investigate the optical sensitivity as well as band gap of the corresponding material. The variation of dielectric parameters (dielectric constant and loss tangent) as a function of frequency (100Hz -5MHz) or temperature (250C -3000C) is used to illustrate the material's dielectric characteristics.

**Keywords:** Perovskite, XRD, UV –visible spectroscopy, Dielectric spectroscopy



Fig. 1Crystalline XRD structure of the **(La0.5Gd0.5)FeO3**

**References**

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