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Dielectric and Magnetic Properties of $Bi_{1-x}Sm_xFeO_3$ ($0 \leq x \leq 1$) RICARDO MELGAREJO, VENKATA PULI, NEERAJ PANWAR, REJI THOMAS, RAM KATIYAR, University of Puerto Rico, DEPARTMENT OF PHYSICS AND INSTITUTE OF FUNCTIONAL MATERIALS,UNIVERSITY OF PUERTO RICO TEAM — Multiferroic materials like $BiFeO_3$ (BFO) have recently gained worldwide attention due to their applications in nonvolatile memories, spintronics, sensors, and micro mechanical systems (MEMS). $BiFeO_3$ is a naturally occurring multiferroics, however, the large leakage current has hampered its practical applications. To circumvent this problem generally, substitution is carried out at Bi and Fe sites. We have doped samarium (Sm) at Bi-site in BFO. Thin films were grown on $Pt/Ti/SiO_2$ /Si substrates by spin coating method. XRD patterns showed well-grown perovskite structure with polycrystalline nature. Dielectric properties, leakage current, and magnetic properties were systematically studied. A correlation between these properties will be presented.

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