

## **A study of multiferroic BiFeO<sub>3</sub>/Epoxy resin composite as potential coating materials for microwave absorption**

### **ABSTRACT**

A single layer of BiFeO<sub>3</sub> (BFO)/epoxy resin composite with thickness of 3 mm was fabricated by polymerized 70 wt% of sintered BFO as fillers and 30 wt% of epoxy resin polymer as matrix. The electromagnetic and the microwave absorption properties of BFO/epoxy resin composite were reported. The reflection loss (RL) of the same composite sample was measured by two different techniques of measurement, S11a parameter (without metal backed reflector) and S11b parameter (with metal backed reflector) in the range of 8-18 GHz using a network analyzer. Minimum RL (RL<sub>min</sub>) from S11b parameter for BFO/epoxy resin composite with metal backed is lower than the RL<sub>min</sub> from S11a composite without metal backed reflector. In details, the results showed BFO/epoxy resin composite with metal backed can achieve a strong absorption with RL<sub>min</sub> of -40.5 dB over a 1.31 GHz bandwidth.

**Keyword:** Absorbers; BiFeO<sub>3</sub>; Composites; Microwave; Multiferroic