

## STRUCTURE AND MAGNETISM OF $\text{BaTi}_{1-x}\text{Fe}_x\text{O}_{3-d}$ MULTIFERROICS (SCI)

N. V. Dang, Ha M. Nguyen, Pei-Yu Chuang, Jie-Hao, Zhang, T. D. Thanh, Chih-Wei Hu, Tsan-Yao Chen, Hung-Duen Yang, V. D. Lam, Chih-Hao Lee and L. V. Hong

### TÓM TẮT:

The effect of Fe dopant content,  $x$ , on the magnetism of polycrystalline  $\text{BaTi}_{1-x}\text{Fe}_x\text{O}_{3-d}$  (BTFO) multiferroic samples was investigated using magnetization measurements in correlation with the crystallographic and local structures. The changes of coercivity and magnetization as functions of  $x$  are closely related to the variation of oxygen vacancy content,  $d$ , which can be deduced from the Fe oxidation number estimation using Fe K-edge x-ray absorption spectroscopy. It is shown that although the samples exhibit ferromagnetic (FM) hysteresis at room temperature, a dominant paramagnetic phase coexisting with the FM phase makes it difficult to identify the FM contribution to the total magnetization. Spin-glass and/or superparamagnetic behavior may be ruled out due to the fact that both zero-field-cooled and field-cooled thermomagnetization curves almost totally overlap together over the whole range of measured temperatures