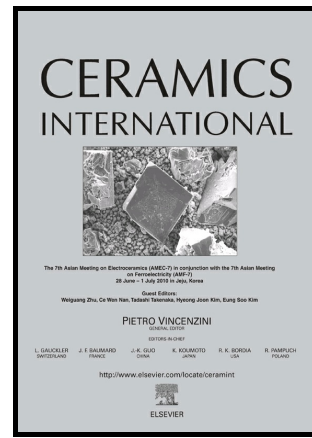


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# Effect of scanning magnetic field on the spiral magnetic structure of magnetoelectric hexaferrite $\text{Sr}_3\text{Co}_2\text{Fe}_{24}\text{O}_{41}$

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## Abstract

The room-temperature magnetoelectric hexaferrite  $\text{Sr}_3\text{Co}_2\text{Fe}_{24}\text{O}_{41}$  was prepared by the conventional solid-state reaction. A maximum magnetoelectric coefficient of  $\alpha = 480$  ps/m was obtained at about  $\mu_0\mathbf{H} = \pm 19.4$  mT. Most importantly, we found that the magnetoelectric effect shows a "hysteresis characteristic" about the scanning magnetic field. This unusual phenomenon was interpreted by the remnant magnetization mechanism and the superexchange interaction mechanism. Our work makes the mechanism of the magnetoelectric effect more clear and complete and offers basic knowledge for the application of magnetoelectric hexaferrite  $\text{Sr}_3\text{Co}_2\text{Fe}_{24}\text{O}_{41}$ .

Keywords: Magnetoelectric effect; Remnant magnetization; Superexchange interaction;

## 1. Introduction

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