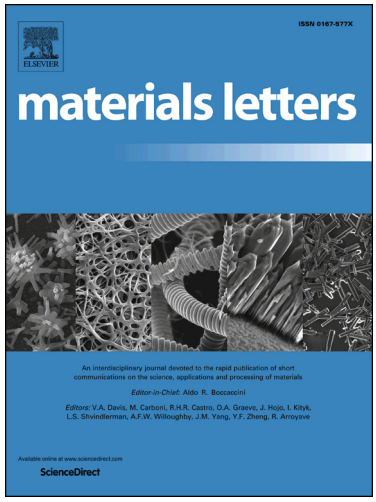

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Abstract

Eutectic $BaTiO_3/CoFe_2O_4$ was synthesized using a developed BN diffuser by containerless microwave processing. The crystallized $BaTiO_3$ and $CoFe_2O_4$ was obtained from melt of quinary system Ba-Ti-Co-Fe-O. Samples included eutectic $BaTiO_3/CoFe_2O_4$ structure with fine dendrite structure and primary crystal of $CoFe_2O_4$. The microstructure became finer with decreasing the weight ratio of $CoFe_2O_4$. The microstructure was finer in solidification with levitation than in solidification without levitation.

Keywords: Containerless processing, eutectic oxides, microwave processing, multiferroic

1. Introduction

$BaTiO_3/CoFe_2O_4$ composite with fine structure is expected to apply for a new device such as multiferroic materials[1, 2]. One of the strategies for enhancement of magnetoelectric effects is to introduce indirect coupling, via strain, between a ferromagnet and ferroelectric materials[3, 4]. Recently, novel sintering process was conducted to prepare the particulate

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