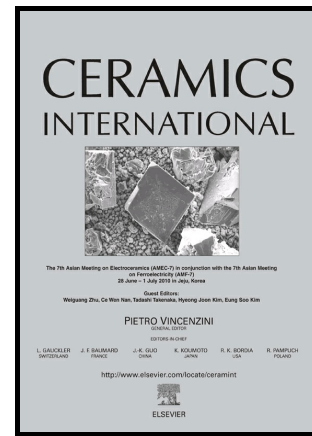


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Magnetite-based glass-ceramics prepared by controlled crystallization of borosilicate glasses: effect of nucleating agents on magnetic properties and relaxation

V. Sandu^{1*}, E. Cimpoiasu², S. Greculeasa¹, A. Kuncser^{1,3}, M. S. Nicolescu¹, and V. Kuncser¹

¹National Institute of Materials Physics, Bucharest Magurele, 077125, Romania

²Department of Physics, US Naval Academy, Annapolis, MD, USA

³Bucharest University, Faculty of Physics 077125, Bucharest-Magurele, Romania

*Corresponding author, email: vsandu@infim.ro

Abstract: The specific magnetic structure and magnetic relaxation phenomena in magnetite nanoentities grown in a glassy matrix by controlled crystallization of Fe-containing borosilicate and boroaluminosilicate glasses in the presence of two types of nucleating agents, Cr₂O₃ and P₂O₅, were investigated. The structure, morphology and magnetic properties are strongly influenced by the nucleating agents. Cr₂O₃ generates magnetite-based glass ceramics with magnetite configurations showing an upward relaxation of magnetization at low and high temperatures but downward at intermediate temperatures. The magnetite grown with P₂O₅ displays only downward relaxation but with different signs of the temperature derivative of the

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