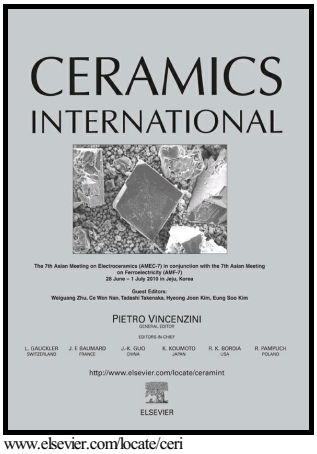

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Magnetite-based glass-ceramics prepared by controlled crystallization of borosilicate glasses: effect of nucleating agents on magnetic properties and relaxation

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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, Cr_2O_3 and P_2O_5, were investigated. The structure, morphology and magnetic properties are strongly influenced by the nucleating agents. Cr_2O_3 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 P_2O_5 displays only downward relaxation but with different signs of the temperature derivative of the