SOFT MAGNETIC MATERIALS 16

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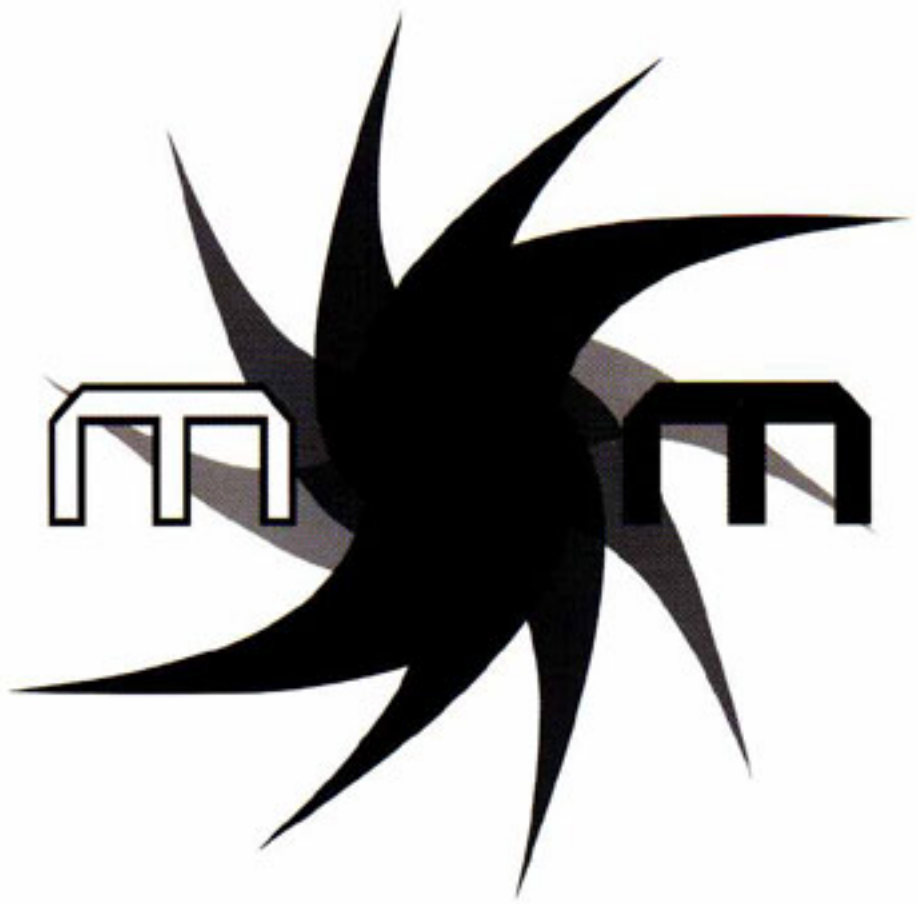

ABSTRACTS

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Magnetic properties of double perovskite Sr2Fe0.93Cr0.07MoO6

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The double perovskite Sr2Fe0.93Cr0.07MoO6 has been studied by Mössbauer spectroscopy, x-ray diffraction, and vibrating sample magnetometry. A single phase of the polycrystalline Sr2Fe0.93Cr0.07MoO6 powder has been prepared by a solid-state reaction method, and chemical composition of the sample was confirmed to be stoichiometric by Rutherford backscattering spectrometer(RBS) analysis. The structure is found to be tetragonal with lattice constants a0 = 5.5697 Å and c0 = 7.9158 Å, respectively. The saturation magnetization and coercivity were 28.3 emu/g and 101.2 Oe at room temperature, respectively. Mössbauer spectra measurements of the Sr2Fe0.93Cr0.07MoO6 have been taken at various temperatures ranging from 15 to 450 K. As the temperature increases toward to the Curie temperature, Mössbauer spectra show the line broadening and 1, 6 and 3, 4 line-with difference beause of anisotropic hyperfine field fluctuation. The anisotropic field fluctuation of +H (P+ = 0.85) was great than –H (P– = 0.15). We also calculated anisotropy energy dependence on frequency factor and temperature from the relaxation rate. The Curie temperature was determined to be 450 K using the thermal scan method.