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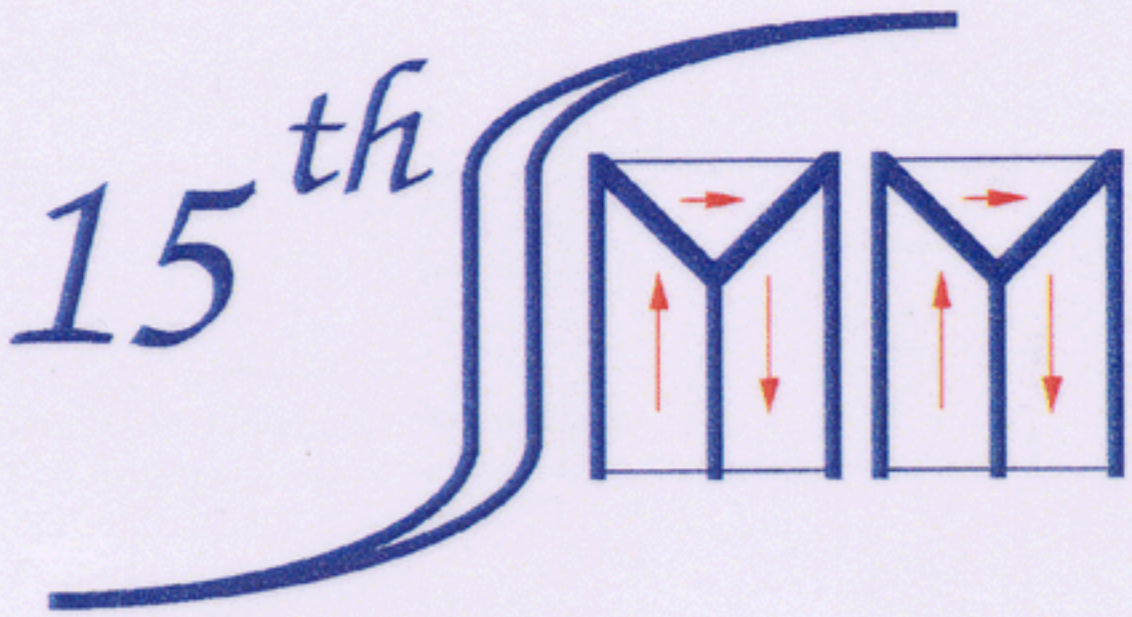

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BOOK OF ABSTRACTS

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Anisotropic hyperfine field fluctuation in Ba_2FeMoO_6

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The double perovskite Ba_2FeMoO_6 has been studied by Mössbauer technique, x-ray diffraction, and vibrating sample magnetometry. A single phase of the polycrystalline Ba_2FeMoO_6 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 cubic with lattice constant a_0 = 8.0747 Å. The Magnetoresistance magnitude ($\Delta\rho/\rho_0$) was 18.83 % and 2.96 %, at 77 K and 300 K under the applied field with 1 T. The saturation magnetization was 3.7 μ_B and 2.16 μ_B per formula unit, at 77 K and 300 K, respectively. Mössbauer spectra measurements of the Ba_2FeMoO_6 have been taken at various temperatures ranging from 18 to 345 K. As the temperature increases toward to the Curie temperature, T_C = 345 K, 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 frequency factor and anisotropy energy with values of 6.04 Γ/h and 76.8 erg/cm^3, respectively, using the relatively accurate data for T = 230 K which is associated with the large line broadening.