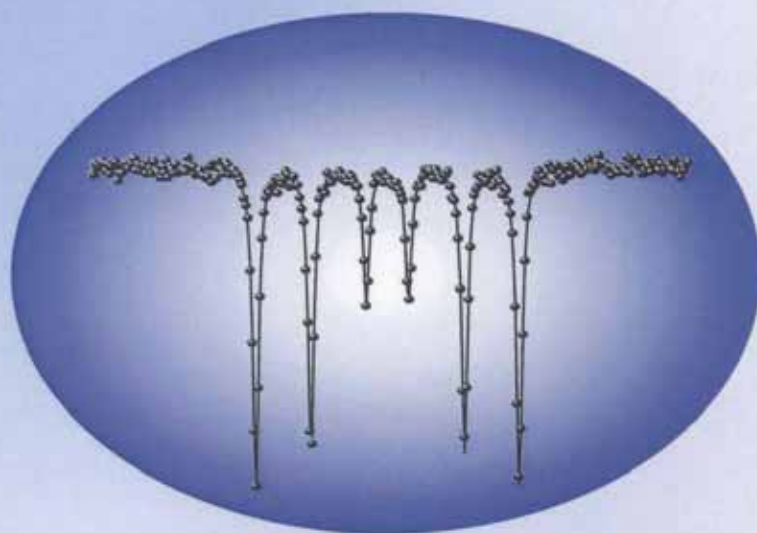


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Conversion electron Mössbauer study of barium ferrite thin films deposited by pulsed laser deposition

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The conversion electron Mössbauer spectroscopy (CEMS) measurement was carried out at various temperatures in barium ferrite ($\text{BaFe}_{12}\text{O}_{19}$; BaM) thin films. BaM thin films were deposited by pulsed laser deposition (PLD). Deposited BaM thin film on Pt (111) substrate were exhibited c-axis orientation when deposition temperature in chamber was kept at 710 °C without after annealing, and deposition time was 30 minute. The BaM film thickness was about 2000 Å. Deposited BaM film was convinced to be oriented in (00 l) direction from x-ray diffraction (XRD) measurement. Film surface revealed hexagonal platlet type grain as characterized by atomic force micrometer (AFM) and scanning electron microscope (SEM). Saturation magnetization and coercivity of out of plane the values of exhibited 260 emu/cc \pm 5 %, 1.2 KOe \pm 5 %, respectively. The conversion electron mössbauer spectra were measured from 150 K to room temperature and were fitted by a least-squares technique with five subpatterns of Fe sites in the structure and corresponding to the $4f_2$, $4f_{1,12a}$, $12k$, and $2b$ sites.