

Gamma Irradiation Effects on the Magnetic Properties of Hard Ferrites

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Abstract : Many industrial materials like magnets need to be tested for the radiation environment expected at linear colliders (LC) where the accelerator and detectors will be subjected to large influences of beta, neutron and gamma's over their life. Gamma irradiation of the permanent sample magnets using a ^{60}Co source was investigated up to an absorbed dose of 700Mrad shows a negligible effect on some magnetic properties of Nd-Fe-B. In this work, it has been tried to investigate the change of some important properties of Barium hexa ferrite. Results showed little decreases of magnetic properties at doses rang of 0.5 to 2.5 Mrad. But at the gamma irradiation dose up to 10 Mrad it is showed a few increase of properties. Also study of gamma irradiation of Nd-Fe-B showed considerably increase of magnetic properties.

Keywords : gamma ray irradiation, hard ferrite, magnetic coefficient, magnetic material, radiation dose

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