

## **Modification of Fe-Ni Invar alloys by high-energy ion beams**

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Measurements of temperature dependence of AC-susceptibility were made in Fe-30.2at.%Ni Invar alloy before and after 100 MeV Xe ion irradiation up to the dose of  $10^{14}$  ions/cm<sup>2</sup>. Measurements were performed at various angles  $\theta$  between the direction of the ion beam and the external AC-magnetic field. It was found that in partially irradiated area, locally ferromagnetic parts exist at temperatures above the Curie temperature of the body where high-energy ions did not penetrate. The easy axis of the locally ferromagnetic parts was determined to be parallel to the beam direction.

Those locally ferromagnetic parts can be considered to be in thin needle-like shape. This type of modification has a possibility of applications for perpendicular high-density memory and giant magneto-resistance materials.