

거대교류 자기저항효과의 Co-BASED 비정질 리본에서의 미세구조 분석
 (MICROSTRUCTURAL ANALYSIS ON GIANT
 MAGNETO-IMPEDANCE IN Co-BASED AMORPHOUS RIBBON)

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microstructural analysis have been made on the amorphous $\text{Co}_{66}\text{Fe}_4\text{B}_{15}\text{Si}_{15}$ ribbons annealed at the temperature of 380 °C for various annealing time in vacuum and in open air, and the measured GMI profiles have been compared in order to investigate the effect of surface crystalline modification on the GMI.

The XRD spectra in annealed amorphous $\text{Co}_{66}\text{Fe}_4\text{B}_{15}\text{Si}_{15}$ samples in vacuum indicate atomic arrangements with initial nucleation of hcp-Co crystallite at 380 °C annealing temperature. The samples annealed in open air during short time for $t_a \leq 40$ min show the formation of the initial surface nuclei of fcc- and hcp-Co crystalline phases. However the XRD spectra in samples for long annealed time of $t_a \geq 300$ min demonstrate sharp and good developed surface crystalline hcp, fcc-Co and Co_2Si phases. The difference of GMI profiles between annealed samples in vacuum and air are distinctive for $t_a \geq 300$ min. However, the interpretation of each crystalline phases with the bias field to describe an unidirectional anisotropy is a work to be further studied.

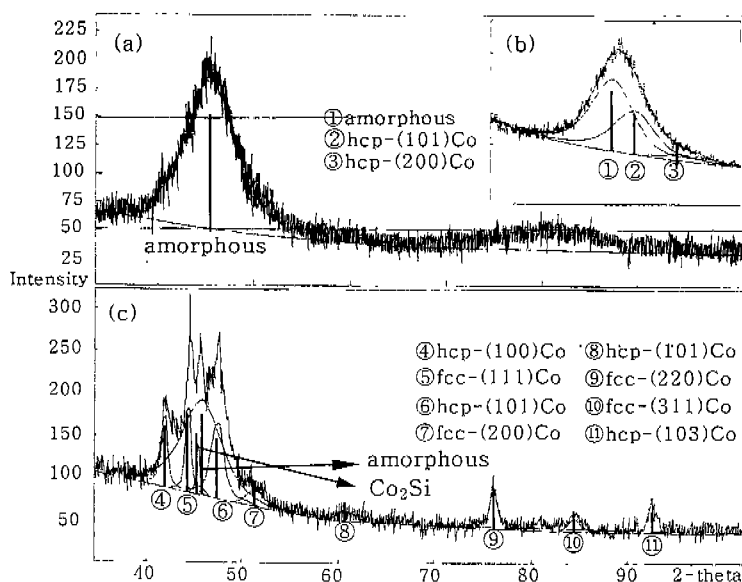


Fig1. GID-spectrum ($\approx 1^\circ$) in (a) as-quenched sample, (b) annealed sample in vacuum (A-batch) and (c) in air (B-batch) for 480 min annealing time. Solid line denotes the best fitting profiles.