

## Magnetic Properties and the Order-disorder Phase Transformation of $(\text{Fe}_{1-x}\text{Co}_x)\text{Pt}$ Magnetic Thin Films

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Magnetic properties and crystal structures of  $(\text{Fe}_x\text{Co}_{1-x})\text{Pt}$  ( $X = 0, 0.2, 0.4, 0.5, 0.6, 0.8$  and  $1.0$ ) ternary thin films were investigated. The order-disorder phase transformation of FePt thin films during annealing was also studied by x-ray diffraction and Mössbauer spectroscopy. The magnetic thin films were deposited on glass substrates using a dc sputtering method and were subsequently annealed at  $400\text{--}700^\circ\text{C}$  in a high vacuum. The as-deposited films exhibited a high degree of the  $\langle 111 \rangle$  preferred orientation and the preferred orientation was not destroyed even after the subsequent post annealing. The coercivity of the  $(\text{Fe}_x\text{Co}_{1-x})\text{Pt}$  thin films annealed at  $700^\circ\text{C}$  showed a minimum value at the equiatomic composition of the Fe and Co atoms. The ordered structure of the FePt alloy was thought to have formed from the disordered structure by an inhomogeneous process, which was confirmed by the asymmetric peak shapes and Mössbauer spectra.