

Magnetic behaviors of nanoscale Sm-Co/Co multilayers heat treated at external field

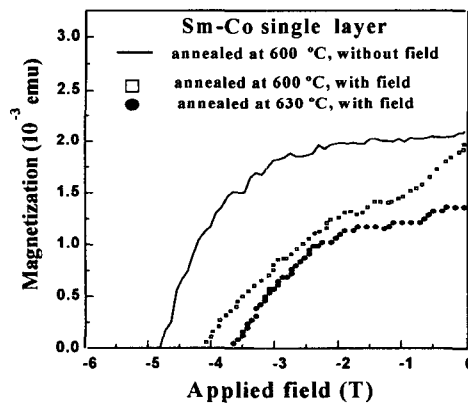
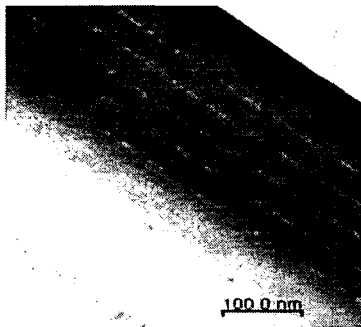
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Abstract

A magnetic field annealing is used on nanostructured SmCo₅/Co films, prepared by magnetron sputtering method. The effects of magnetic field annealing on single-layered Sm-Co films are different from that of multi-layered SmCo₅/Co films. The relationship between magnetic properties and microstructure the explain different demagnetization process of single-layered and multi-layered films. For the single SmCo₅ layer films, magnetic field annealing change the main phase from SmCo₅ to Sm₂Co₁₇ structure resulting in a decrease of coercivity. The magnetic field annealing was proved to improve the properties of multilayered SmCo₅(30 nm)/Co(10 nm) films due to the enhancement of pinning effectiveness in coercivity mechanism which was overwhelming to exchange coupling effect. A very high coercivity about 0.7 T was obtained from nanoscaled multilayered SmCo₅/Co films.



References

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