G00002

17 OCT 2002

Magnetic Alloy Having a Structured Nucleation Layer and Method for Manufacturing Same

162162

ABSTRACT

A magnetic recording medium is provided with a structured nucleation layer. The structured nucleation layer comprises a fine-grained seed layer and an intermediate layer. The seed layer (e.g., NiAl, Ti, Cr-Cu, etc.) serves as a template for fine grained-growth of the intermediate layer. The intermediate (e.g., Cr, etc.) layer has preferred crystal textures and an appropriate lattice match to a subsequently deposited magnetic recording layer to allow epitaxial growth of the magnetic recording layer. The intermediate layer provides morphology and orientation to the magnetic recording layer. The magnetic recording layer (e.g., Co-alloy) includes a material which segregates to the alloy grain boundaries to isolate the grains thereof. Each grain of the magnetic recording layer is predominantly a single crystal of small size and uniformly spaced from adjacent grains. The easy axis of the magnetic recording material is predominantly in the plane of the disk, with a random in-plane orientation. Superior magnetic properties are obtained.

Figure 2