Ni-X, Ni-Y, and Ni-X-Y Alloys With or Without Oxides As Sputter Targets For Perpendicular Magnetic Recording

ABSTRACT

The various embodiments of the present invention generally relate to the deposition of a seedlayer for a magnetic recording medium used for perpendicular magnetic recording (PMR) applications, where the seedlayer provides for grain size refinement and reduced lattice mis-fit for a subsequently deposited underlayer or granular magnetic layer, and where the seedlayer is deposited using a nickel (Ni) alloy based sputter target. The nickel (Ni) alloy can be binary (Ni-X; Ni-Y) or ternary (Ni-X-Y). In addition, the binary (Ni-X; Ni-Y) or ternary (Ni-X-Y) nickel (Ni) based alloys can be further alloyed with metal oxides, thus forming seedlayer thin films with a granular microstructure containing metallic grains, surrounded by an oxygen rich grain boundary. The nickel-based alloys (with or without metal oxides) of the various exemplary embodiments can be made by powder metallurgical technique or by melt-casting techniques, with or without thermo-mechanical working.

(No Suitable Figure)