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Abstract

Magnetic Recording Medium

The magnetic layer has a granular structure consisting of ferromagnetic crystal grains with hexagonal closest packed structure and nonmagnetic grain boundary region of mainly oxide intervening between the crystal grains. The underlayer has body-centered cubic lattice structure. A nonmagnetic intermediate layer with hexagonal closest packed structure mainly composed of one or more element selected from a group consisting of Ru, Os, and Re is provided between the magnetic layer and the underlayer. A degree of mismatching $\Delta = |d_1 - d_2|/d_1$ is at most 10 %, preferably in the range from 2.5 % to 7.0 %, where d_1 is a spacing of lattice planes of crystal grains in the magnetic layer and d_2 is a spacing of lattice planes of crystal grains in the intermediate layer. A proportion of crystal grains with grain size of not smaller than 8 nm is at most 10 % of crystal grains included in the intermediate layer and a standard deviation of the grain size is at most 1.4 nm. The layers are deposited without preheating the substrate.

Selected drawing Figure 1

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