
Ultra-Thin Nucleation Layer for Magnetic Thin Film Media and the Method for
Manufacturing the Same

ABSTRACT

In this invention, an ultra thin layer of CoCr alloy nucleation layer is sputtered at an extremely low deposition rate above a predominantly (200) oriented Cr film followed by a CoCrPt based alloy sputtered film at higher rates and moderate temperatures. This structure creates a media which has very high Hc, and excellent PW50, low noise and excellent low TNLD values. By using this technique, the CoCrPt magnetic film achieves excellent in-plane crystallographic orientation, and high Hc is achieved with minimal amount of Pt addition to the magnetic film. The method allows very fine grain structure of cobalt to be formed which contributes to good signal to noise ratio. A fine grain structure combined with chromium segregation between the grains improve the signal to noise ratio even more. A high degree of in-plane c-axis orientation is achieved in the cobalt layer which provides very high hysteresis loop squareness which helps to improve the OW and TNLD. The perfection of the grains is very high so that high anisotropy is obtained in the magnetic layer, resulting in high Hc without the necessity of addition of high level of Pt. The high degree of crystalline perfection also contributes to low TNLD.

Figure 4



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