

TILTED MAGNETIC RECORDING MEDIA

ABSTRACT

A tilted magnetic recording medium comprises a layer of magnetic material having a magnetic easy axis defined by tilted alignment of a particular crystalline phase of the magnetic material. A film of (101) and (011) textured $L1_0$ phase of a tetragonal crystalline magnetic material has crystalline c-axes oriented 45° to the medium surface normal. The $L1_0$ crystalline magnetic alloy comprises a first element selected from the group consisting of Co and Fe, and a second element selected from the group consisting of Pt and Pd. A seedlayer comprising a bcc or B2 crystal structure with a natural texture of (110) creates interfacial stress with the magnetic layer, giving rise to a pure (101) and (011) textured $L1_0$ crystalline film. A textured underlying surface facilitates preferential formation of the seedlayer and subsequent growth of the magnetic material to achieve tilted magnetic directions perpendicular to the recording tracks.

FIGURE 2