THIN FILM DISK WITH ACICULAR MAGNETIC GRAINS

ABSTRACT

A thin film disk and a disk drive using the thin film disk are described. The disk has a thin film magnetic layer (14) composed of small acicular grains (35) having an average aspect ratio greater than one which results in improved recording performance . The development of the acicularity is aided through the crystal structure having anisotropic inplane stress with a radial stress being less than a tangential stress. The preferred magnetic material is an an alloy cobalt which includes a glass forming material such as boron, boron oxide , silicon, silicon oxide, carbon, phosphorus, etc. The typical hcp unit cells form acicular grains (35) with a tendency for the C-axis to be orthogonal to a long axis of the acicular grains (35). Preferably the C-axis of the grains (35) is oriented along the circumferential direction of the disk. Preferably the underlayer (13) is sputtered deposited using negative bias.

FIG.3

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