METHOD FOR MAKING A PERPENDICULAR THERMALLY-ASSISTED RECORDING (TAR) MAGNETIC RECORDING DISK HAVING A CARBON SEGREGANT

ABSTRACT

A method of making a thermally-assisted recording (TAR) disk includes etching an initial layer of generally spherically shaped FePt grains encapsulated by shells of graphitic carbon layers. The etching partially or completely removes the carbon layers on the tops of the shells, exposing the FePt grains while leaving carbon segregant material between the FePt grains. Additional Fe, Pt and C are then simultaneously deposited. The additional Fe and Pt grow on the exposed FePt grains and increase the vertical height of the grains, resulting in growth of columnar FePt grains. The additional C forms on top of the grains that together with the intergranular carbon form larger carbon shells. The resulting FePt grains thus have a generally columnar shape with perpendicular magnetic anisotropy, rather than a generally spherical shape. Lateral grain isolation is maintained by the carbon segregant remaining between the grains.

Fig. 1