ABSTRACT

MAGNETIC ELEMENT WITH THERMALLY-ASSISTED WRITING

This magnetic element with thermally-assisted writing using a field or spin transfer comprises:

- a magnetic reference layer referred to as the "trapped layer", the magnetisation of which is in a fixed direction;
- a magnetic storage layer (40) called the "free layer" having a variable magnetisation direction and consisting of a layer (47) made of a ferromagnetic material with magnetisation in the plane of the layer and magnetically coupled to a magnetisation-trapping layer made of an antiferromagnetic material;
- a semiconductor or an insulating layer with confined-current-paths (42) sandwiched between the reference layer and the storage layer.

At least one bilayer consisting of an amorphous or quasi-amorphous material (45) and a material (46) having the same structure or the same crystal lattice as the antiferromagnetic layer is placed in the storage layer between ferromagnetic layer (47) which is in contact with the semiconductor or insulating layer with confined-current-paths (42) and antiferromagnetic layer (41).

Figure 4