

ABSTRACT OF THE DISCLOSURE

EXCHANGE COUPLING FILM, MAGNETORESISTANCE
EFFECT DEVICE, MAGNETORESISTANCE EFFECTIVE HEAD
AND METHOD FOR PRODUCING EXCHANGE COUPLING FILM

An exchange coupling film of the present invention includes a ferromagnetic layer and a pinning layer which is provided in contact with the ferromagnetic layer for pinning a magnetization direction of the ferromagnetic layer, the pinning layer including an $(AB)_2O_x$ layer (see FIGURE 1) wherein: O denotes an oxygen atom; $2.8 < x < 3.2$; and a value t as defined by:

$$t = (R_a + R_o) / (\sqrt{2} \cdot (R_b + R_o))$$

(where R_a , R_b and R_o denote the ion radii of the atoms A, B and O, respectively)

satisfies $0.8 < t < 0.97$