CLAIMS

1. A soft magnetic thin film layer in a perpendicular magnetic recording medium, the soft magnetic thin film layer comprising an alloy, wherein:

the alloy comprises, in at%, one or two or more of Ti, Zr, Hf, V, Nb, Ta, Mo, W, Ni, Cu, B, P, Zn, Ga, Ge, and Sn, with the balance being Co, Fe, and unavoidable impurities;

the alloy satisfies all of the following expressions (1) to (3):

(1) $0<Fe\%/(Fe\%+Co\%)\leq 0.5$;

(2) $13\leq Ti\%+Zr\%+Hf\%+V\%+Nb\%+Ta\%+B\%/2$; and

(3) $0.3\leq 0.813\times Fe\%/(Fe\%+Co\%)-0.062\times TNM+1.751\leq 1.2$

where, Fe%/(Fe%+Co%) is a ratio between a content of Fe and a total content of Fe and Co, and TNM is a total percentage of amounts of Ti, Zr, Hf, V, Nb, Ta, Mo, W, Ni, Cu, B, P, Zn, Ga, Ge, and Sn added, in which as for only B, a value of 1/2 thereof is used;

the alloy has Bs at room temperature, of 0.3 to 1.2 T, and Hk of 180 to 1050 A/m; and

the alloy has an amorphous structure.

2. A perpendicular magnetic recording medium, comprising the soft magnetic thin film layer according to claim 1.