# CLAIMS

1. A Fe-Pt-C based sputtering target member having a magnetic phase comprising Fe and Pt and a non-magnetic phase comprising C, wherein in an X-ray diffraction profile obtained by analyzing the sputtering target member by an X-ray diffraction method, the sputtering target member has a carbon-derived diffraction peak at a diffraction angle that satisfies $25.6° \leq 2\theta \leq 26.2°$.

2. The Fe-Pt-C based sputtering target member according to claim 1, wherein in the X-ray diffraction profile obtained by analyzing the sputtering target member by the X-ray diffraction method, a ratio of an integrated intensity $I_0$ at a diffraction angle in a range of $26.3° \leq 2\theta \leq 27.0°$ to an integrated intensity $I_1$ at the diffraction angle in a range of $25.6° \leq 2\theta \leq 26.2°$ is 0 to 0.5.

3. The Fe-Pt-C based sputtering target member according to claim 1 or 2, comprising 5 at.% to 70 at.% of Pt, 1 at.% to 70 at.% of C, wherein a total concentration of Fe, Pt, and C is 90 at.% or more.

4. The Fe-Pt-C based sputtering target member according to claim 1 or 2, comprising 5 at.% to 70 at.% of Pt, 1 at.% to 70 at.% of C, the remainder consisting of Fe and unavoidable impurities.

5. A sputtering target assembly, comprising the sputtering target member according to any one of claims 1 to 4, and a backing tube or a backing plate bonded to the sputtering target member.

6. A method for forming a film, comprising sputtering the sputtering target member according to any one of claims 1 to 4.

7. A method for manufacturing the Fe-Pt-C based sputtering target member according to claim 1 or 2, comprising:

preparing a mixed powder comprising one or both of the following combinations (1) and (2):

(1) a combination of: one or both selected from graphene powder and graphene oxide powder; and Fe-Pt alloy powder;

(2) a combination of: one or both selected from graphene powder and graphene oxide powder; and Fe powder and Pt powder; and

pressure sintering the mixed powder.