CLAIMS

1. A method for manufacturing an electrostatic chuck, the method comprising:

(a) forming a projection projecting upward from an upper surface of a dielectric member; and

(b) forming a surface layer comprising amorphous alumina on the projection by applying a laser beam to the projection.

2. A method for manufacturing an electrostatic chuck, the method comprising:

(a) forming, on an upper surface of a dielectric member included in an electrostatic chuck used in plasma processing, a projection projecting upward from the upper surface; and

(b) forming a surface layer comprising amorphous alumina on the projection by applying a laser beam to the projection.

3. A method for manufacturing an electrostatic chuck, the method comprising:

(a) forming a projection projecting upward from an upper surface of a dielectric member;

(b) forming an amorphous surface layer on the projection by applying a laser beam to the projection; and

(c) polishing the amorphous surface layer.

4. The method according to any one of claims 1 to 3, wherein

the projection comprises crystalline alumina.

5. The method according to claim 1 or 2, further comprising:

(c) polishing the amorphous surface layer.

6. The method according to claim 3, wherein

(c) is performed using an elastic abrasive.

7. The method according to any one of claims 1 to 3, wherein

the projection is formed by laser processing in (a).

8. The method according to any one of claims 1 to 3, wherein

the projection is formed by blasting in (a).

9. The method according to any one of claims 1 to 3, wherein

the amorphous surface layer is formed so as to have a thickness in a range of 0.1 to 20 μm.

10. The method according to any one of claims 1 to 3, wherein

the surface layer has a thermal conductivity lower than a thermal conductivity of a base included in the projection.

11. The method according to any one of claims 1 to 3, wherein

in (b), by applying laser, the amorphous surface layer is formed on a side surface of the projection and the amorphous surface layer is subsequently formed on an upper surface of the projection.

12. The method according to claim 3, wherein

the amorphous surface layer comprises amorphous alumina.