CLAIMS

1. A substrate support assembly, comprising:

a cooling bottom plate;

a ceramic top plate;

a bond layer between the ceramic top plate and the cooling bottom plate, the ceramic top plate in direct contact with the bond layer, and the bond layer in direct contact with the cooling bottom plate; and

a detachable shaft coupled to the cooling bottom plate by a plurality of bolts at a side of the cooling bottom plate opposite the bond layer.

2. The substrate support assembly of claim 1, wherein the detachable shaft is a metal shaft.

3. The substrate support assembly of claim 1, wherein the ceramic top plate has heater elements and an electrode therein.

4. The substrate support assembly of claim 1, wherein the cooling bottom plate includes cooling channels therein.

5. The substrate support assembly of claim 1, wherein the ceramic top plate includes gas grooves in a bottom surface thereof.

6. The substrate support assembly of claim 1, further comprising:

an O-ring between a metal shaft and the cooling bottom plate.

7. The substrate support assembly of claim 1, further comprising:

a cover ring on the ceramic top plate, the cover ring comprising a metal or a ceramic material.

8. The substrate support assembly of claim 1, wherein the bond layer is a silicone bond layer, an organic bond layer, or an aluminum foil.

9. The substrate support assembly of claim 8, wherein the aluminum foil has a thickness in the range of 50 – 500 microns.

10. The substrate support assembly of claim 1, wherein the cooling bottom plate is a metal cooling bottom plate.

11. A system, comprising:

a chamber;

a plasma source within or coupled to the chamber; and

an electrostatic chuck within the chamber, the electrostatic chuck comprising:

a cooling bottom plate;

a ceramic top plate;

a bond layer between the ceramic top plate and the cooling bottom plate, the ceramic top plate in direct contact with the bond layer, and the bond layer in direct contact with the cooling bottom plate; and

a detachable shaft coupled to the cooling bottom plate by a plurality of bolts at a side of the cooling bottom plate opposite the bond layer.

12. The system of claim 11, wherein the detachable shaft is a metal shaft.

13. The system of claim 11, wherein the ceramic top plate of the electrostatic chuck has heater elements and an electrode therein.

14. The system of claim 11, wherein the cooling bottom plate of the electrostatic chuck includes cooling channels therein.

15. The system of claim 11, wherein the ceramic top plate of the electrostatic chuck includes gas grooves in a bottom surface thereof.

16. The system of claim 11, the electrostatic chuck further comprising:

an O-ring between a metal shaft and the cooling bottom plate.

17. The system of claim 11, the electrostatic chuck further comprising:

a cover ring on the ceramic top plate, the cover ring comprising a metal or a ceramic material.

18. The system of claim 11, wherein the bond layer is a silicone bond layer, an organic bond layer, or an aluminum foil.

19. The system of claim 18, wherein the aluminum foil has a thickness in the range of 50 – 500 microns.

20. The system of claim 11, wherein the cooling bottom plate is a metal cooling bottom plate.