Claims

1. A process chamber, comprising:

a first window;

a second window;

a substrate support disposed between the first window and the second window;

a cooling plate;

a rotary stage disposed in a first plane and on the cooling plate; and

a motorized rotatable radiant spot heating source disposed over the first window and configured to provide radiant energy through the first window, wherein the motorized rotatable radiant spot heating source is mounted to the rotary stage, the motorized rotatable radiant spot heating source positioned at an acute angle with respect to the first plane, and wherein the rotary stage is rotatable to rotate the motorized rotatable radiant spot heating source and direct radiant energy provided by the motorized rotatable radiant spot heating source.

2. The process chamber of claim 1, wherein the rotary stage is coupled with an actuator configured to rotate the motorized rotatable radiant spot heating source about the rotary stage.

3. The process chamber of claim 2, wherein the cooling plate comprises one or more channels formed therein.

4. The process chamber of claim 3, wherein the one or more channels comprise aluminum.

5. The process chamber of claim 2, wherein the rotary stage is disposed in direct contact with the cooling plate.

6. The process chamber of claim 2, further comprising a chamber lid, wherein the cooling plate is disposed on the chamber lid.

7. The process chamber of claim 1, wherein the motorized rotatable radiant spot heating source comprises:

a collimator holder; and

a collimator disposed in the collimator holder.

8. The process chamber of claim 1, further comprising a rotary plate disposed on the rotary stage, the rotary plate rotatable about a vertical axis.

9. A spot heating source assembly, comprising:

a motorized rotatable radiant spot heating source configured to provide radiant energy, the motorized rotatable radiant spot heating source comprising:

a collimator holder;

a cooling plate; and

a rotary stage disposed at a first plane, wherein the collimator holder is mounted to the rotary stage at an acute angle with respect to the first plane, and wherein the rotary stage is rotatable to rotate the motorized rotatable radiant spot heating source and direct radiant energy provided by the motorized rotatable radiant spot heating source, wherein the rotary stage is in direct contact with the cooling plate, the cooling plate mounted in a second plane parallel to the first plane.

10. The spot heating source assembly of claim 9, wherein the rotary stage is coupled with an actuator configured to rotate the rotatable radiant spot heating source about the rotary stage.

11. The spot heating source assembly of claim 10, further comprising:

a collimator disposed on the collimator holder; and

a laser coupled to the collimator.

12. The spot heating source assembly of claim 9, wherein the collimator holder comprises at least one lens mounted therein.

13. The spot heating source assembly of claim 12, wherein the at least one lens is coated in an anti-reflective coating.

14. The spot heating source assembly of claim 9, wherein the collimator holder comprises a plurality of lenses mounted therein.

15. The spot heating source assembly of claim 14, wherein the rotary stage comprises a plurality of vacuum-tight seals.

16. A method for spot heating, comprising:

disposing a substrate on a substrate support in a process chamber;

activating a spot heating source mounted on a rotary stage disposed in a first plane to project radiant energy to the substrate, wherein the rotary stage is in direct contact with a cooling plate, the cooling plate mounted in a second plane parallel to the first plane;

moving the spot heating source along an arcuate path to adjust an impact point of the projected radiant energy on the substrate; and

heating a desired area of the substrate with the projected radiant energy.

17. The method of claim 16, further comprising:

rotating the substrate support while heating the desired area of the substrate.

18. The method of claim 16, further comprising:

rotating the rotary stage while heating the desired area of the substrate.

19. The method of claim 16, further comprising:

rotating the substrate support and the rotary stage while heating the desired area of the substrate.