What is claimed is:

1. An apparatus for controlling the temperature of a substrate support, comprising:

a first heat transfer loop having a first bath with a first heat transfer fluid at a first temperature with a first flow controller for providing the first heat transfer fluid to a substrate support;

a second heat transfer loop having a second bath with a second heat transfer fluid at a second temperature with a second flow controller for providing the second heat transfer fluid to the substrate support; and

one or more return lines coupling one or more outlets of the substrate support to the first and second baths for returning the first and second heat transfer fluids to the first and second baths.

2. The apparatus of claim 1, wherein the first temperature is not equal to the second temperature.

3. The apparatus of any of claims 1-2, wherein the first and second heat transfer fluids are mixed, prior to entering the substrate support, in a conduit having a temperature sensor coupled thereto.

4. The apparatus of claim 3, wherein the first and second heat transfer fluids are mixed in a conduit prior to entering the substrate support, and wherein the one or more return lines is one return line coupling the substrate support and the first and second baths.

5. The apparatus of claim 4, further comprising:

a return line flow controller disposed in the return line.

6. The apparatus of claim 5, further comprising:

a controller coupled to the return line flow controller for monitoring the fluid level inside at least one of the first or second baths.

7. The apparatus of claim 4, further comprising:

a first return line flow controller disposed in the return line to control flow of the heat transfer fluid flowing from the return line to the first bath; and

a second return line flow controller disposed in the return line to control flow of heat transfer fluid flowing from the return line to the second bath.

8. The apparatus of any of claims 1-2, further comprising:

a first intermediate flow controller disposed between the first bath and the first flow controller, the first intermediate flow controller comprising a flow splitter for splitting a flow of the first heat transfer fluid between the first flow controller and the first bath, wherein the first flow controller comprises a flow splitter for splitting the flow of the first heat transfer fluid between the substrate support and the first bath; and

a second intermediate flow controller disposed between the second bath and the second flow controller, the second intermediate flow controller comprising a flow splitter for splitting a flow of the second heat transfer fluid between the second flow controller and the second bath, wherein the second flow controller comprises a flow splitter for splitting the flow of the second heat transfer fluid between the substrate support and the second bath.

9. The apparatus of any of claims 1-2, wherein the first and second heat transfer fluids do not mix upon entering the substrate support, and wherein the one or more return lines comprises a first return line coupling the substrate support to the first bath, and a second return line coupling the substrate support to the second bath.

10. The apparatus of claim 9, wherein the first flow controller of the first heat transfer loop comprises a flow splitter for splitting the flow of the first heat transfer fluid between the substrate support and the first bath, and wherein the second flow controller of the second heat transfer loop comprises a flow splitter for splitting the flow of the second heat transfer fluid between the substrate support and the second bath.

11. A method for controlling a temperature of a substrate support comprising:

flowing a first heat transfer fluid having a first temperature from a first bath to a substrate support;

flowing a second heat transfer fluid having a second temperature from a second bath to a substrate support; and

returning the first and second heat transfer fluids to the first and second baths.

12. The method of claim 11, wherein the first temperature is not equal to the second temperature.

13. The method of any of claims 11-12, further comprising:

mixing the first and second heat transfer fluids prior to entering the substrate support; and

returning the mixed first and second heat transfer fluids to the first and second baths.

14. The method of any of claims 11-12, further comprising:

splitting a flow of the first heat transfer fluid to provide a portion of the flow of the first heat transfer fluid to the substrate support and to return a remainder of the flow of the first heat transfer fluid to the first bath; and

splitting a flow of the second heat transfer fluid to provide a portion of the flow of the second heat transfer fluid to the substrate support and to return a remainder of the flow of the second heat transfer fluid to the second bath.

15. The method of any of claims 11-12, further comprising:

flowing the first and second heat transfer fluids, wherein the first and second heat transfer fluids are not mixed.

CLAIMS

1. An apparatus to control the temperature of a substrate support, comprising:

a first heat transfer loop having a first bath with a first heat transfer fluid at a first temperature with a first flow controller to provide the first heat transfer fluid to the substrate support;

a second heat transfer loop having a second bath with a second heat transfer fluid at a second temperature with a second flow controller to provide the second heat transfer fluid to the substrate support, wherein the first heat transfer fluid and the second heat transfer fluid can be provided to the substrate support simultaneously; and

one or more return lines coupling the substrate support to the first bath and the second bath to return the first heat transfer fluid and the second heat transfer fluid to the first bath and the second bath.

2. The apparatus of claim 1, wherein the first temperature is not equal to the second temperature.

3. The apparatus of claim 1, wherein the first heat transfer fluid and the second heat transfer fluid are mixed in a conduit prior to entering the substrate support.

4. The apparatus of claim 3, further comprising:

a temperature sensor coupled to the conduit.

5. The apparatus of claim 3, wherein the one or more return lines is one return line coupling the substrate support and the first bath and the second bath.

6. The apparatus of claim 5, further comprising:

a return line flow controller disposed in the one return line.

7. The apparatus of claim 6, further comprising:

a controller coupled to the return line flow controller to monitor the fluid level inside at least one of the first bath or the second bath.

8. The apparatus of claim 5, further comprising:

a first return line flow controller disposed in the one return line to control flow of the heat transfer fluid from the one return line to the first bath; and

a second return line flow controller disposed in the one return line to control flow of the heat transfer fluid from the one return line to the second bath.

9. The apparatus of claim 1, further comprising:

a first intermediate flow controller disposed between the first bath and the first flow controller, the first intermediate flow controller comprising a flow splitter to split a flow of the first heat transfer fluid between the first flow controller and the first bath, wherein the first flow controller comprises a flow splitter to split the flow of the first heat transfer fluid between the substrate support and the first bath; and

a second intermediate flow controller disposed between the second bath and the second flow controller, the second intermediate flow controller comprising a flow splitter to split a flow of the second heat transfer fluid between the second flow controller and the second bath, wherein the second flow controller comprises a flow splitter to split the flow of the second heat transfer fluid between the substrate support and the second bath.

10. The apparatus of claim 1, wherein the first heat transfer fluid and the second heat transfer fluid do not mix upon entering the substrate support.

11. The apparatus of claim 10, wherein the one or more return lines comprises a first return line coupling the substrate support to the first bath, and a second return line coupling the substrate support to the second bath.

12. The apparatus of claim 11, wherein the first flow controller of the first heat transfer loop comprises:

a flow splitter to split the flow of the first heat transfer fluid between the substrate support and the first bath.

13. The apparatus of claim 11, wherein the second flow controller of the second heat transfer loop comprises:

a flow splitter to split the flow of the second heat transfer fluid between the substrate support and the second bath.

14. A method for controlling a temperature of a substrate support comprising:

flowing a first heat transfer fluid having a first temperature from a first bath with a first flow controller in a first heat transfer loop, to the substrate support;

flowing a second heat transfer fluid having a second temperature from a second bath with a second flow controller in a second heat transfer loop to a substrate support, wherein the first heat transfer fluid and the second heat transfer fluid can be provided to the substrate support simultaneously; and

returning the first heat transfer fluid and the second heat transfer fluid to the first bath and the second bath using one or more return lines coupling the substrate support to the first bath and the second bath.

15. The method of claim 14, wherein the first temperature is not equal to the second temperature.

16. The method of claim 14, further comprising:

mixing the first heat transfer fluid and the second heat transfer fluid prior to entering the substrate support.

17. The method of claim 16, further comprising:

returning the mixed first and second heat transfer fluids to the first bath and the second bath.

18. The method of claim 14, further comprising:

splitting a flow of the first heat transfer fluid to provide a portion of the flow of the first heat transfer fluid to the substrate support and to return a remainder of the flow of the first heat transfer fluid to the first bath.

19. The method of claim 18, further comprising:

splitting a flow of the second heat transfer fluid to provide a portion of the flow of the second heat transfer fluid to the substrate support and to return a remainder of the flow of the second heat transfer fluid to the second bath.

20. The method of claim 14, further comprising:

flowing the first heat transfer fluid and the second heat transfer fluid, wherein the first heat transfer fluid and the second heat transfer fluid are not mixed.

21. The method of claim 20, further comprising:

returning the first heat transfer fluid to the first bath; and

returning the second heat transfer fluid to the second bath.

22. The method of claim 21, further comprising:

splitting a flow of the first heat transfer fluid to provide a portion of the flow of the first heat transfer fluid to the substrate support and to return a remainder of the flow of the first heat transfer fluid to the first bath; and.

splitting a flow of the second heat transfer fluid to provide a portion of the flow of the second heat transfer fluid to the substrate support and to return a remainder of the flow of the second heat transfer fluid to the second bath.

23. The method of claim 20, further comprising:

flowing the first heat transfer fluid at a first flow rate; and

flowing the second heat transfer fluid at a second flow rate, wherein the second flow rate is different than the first flow rate.