

~~WHAT IS CLAIMED IS:~~

CLAIMS

1. A radio-frequency (RF) power circuit for a multi-electrode cathode in a processing chamber, the power circuit comprising:
an RF source;
one or more inductive elements that are conductively coupled to the RF source;
a first inductive element that is inductively coupled to the one or more inductive elements, wherein the first inductive element is configured to receive a first portion of RF power originating from the RF source through the one or more inductive elements, and to provide the first portion of the RF power originating from the RF source for a first pedestal electrode in the processing chamber; ~~and~~

a second inductive element that is inductively coupled to the one or more inductive elements, wherein the second inductive element is configured to receive a second portion of RF power originating from the RF source through the one or more inductive elements, and to provide the second portion of the RF power originating from the RF source for a second pedestal electrode in the processing chamber—; and

a capacitive element that separates the first inductive element from the second inductive element.

2. The RF power circuit of claim **Error! Reference source not found.**, wherein the one or more inductive elements comprises a third inductive element and a fourth inductive element, wherein the third inductive element is inductively coupled to the first inductive element, and the fourth inductive element is inductively coupled to the second inductive element.

3. The RF power circuit of claim **Error! Reference source not found.**, further comprising:
a second RF source;
second one or more inductive elements that are conductively coupled to the RF source;

a third inductive element that is inductively coupled to the second one or more inductive elements, wherein the third inductive element is configured to receive a first portion of RF power originating from the second RF source through the second one or more inductive elements, and to provide the first portion of the RF power originating from the second RF source for the first pedestal electrode in the processing chamber; and

a fourth inductive element that is inductively coupled to the second one or more inductive elements, wherein the fourth inductive element is configured to receive a second portion of RF power originating from the second RF source through the second one or more inductive elements, and to provide the second portion of the RF power originating from the second RF source for the second pedestal electrode in the processing chamber.

4. The RF power circuit of claim **Error! Reference source not found.**, wherein the third inductive element and the fourth inductive element have a same inductance.

5. The RF power circuit of claim **Error! Reference source not found.**, wherein the third inductive element and the fourth inductive element are configured to block the RF power originating from the RF source.

6. The RF power circuit of claim **Error! Reference source not found.**, wherein the first inductive element and the second inductive element are configured to block the RF power originating from the second RF source.

7. The RF power circuit of claim **Error! Reference source not found.**, wherein the RF source has a frequency of approximately 13 MHz and the second RF source has a frequency of approximately 40 MHz.

8. An RF power circuit for a multi-electrode cathode in a processing chamber, the power circuit comprising:

an RF source;

a first inductive element that is configured to receive a first portion of RF power originating from the RF source, and to provide the first portion of the RF power originating from the RF source for a first pedestal electrode in the processing chamber;

a second inductive element that is configured to receive a second portion of RF power originating from the RF source, and to provide the second portion of the RF power originating from the RF source for a second pedestal electrode in the processing chamber; and
a capacitive element that separates the first inductive element from the second inductive element.

9. The RF power circuit of claim 8, further comprising:
a first DC source that is conductively coupled to the first inductive element; and
a second DC source that is conductively coupled to the second inductive element, wherein the capacitive element isolates the first DC source from the second DC source.

10. The RF power circuit of claim **Error! Reference source not found.**, wherein a voltage difference between the first DC source and the second DC source represents a bipolar chucking voltage that holds a substrate to a pedestal in the processing chamber.

11. The RF power circuit of claim **Error! Reference source not found.**, further comprising:
a tuning circuit configured to siphon a portion of the RF power such that power delivered to the first pedestal electrode is different from power delivered to the second pedestal electrode.

12. The RF power circuit of claim **Error! Reference source not found.**, wherein the tuning circuit comprises a parasitic inductor.

13. The RF power circuit of claim 11, wherein the tuning circuit comprises a parasitic capacitor.

14. The RF power circuit of claim **Error! Reference source not found.**, wherein the first pedestal electrode comprises a wire mesh.

15. A method of powering a multi-electrode cathode in a processing chamber, the method comprising:
generating RF power using an RF source;

transmitting the RF power through one or more inductive elements that are conductively coupled to the RF source;

inductively coupling a first portion of the RF power from the one or more inductive elements to a first inductive element;

providing the first portion of the RF power from the first inductive element to a first pedestal electrode in the processing chamber;

inductively coupling a second portion of RF power from the one or more inductive elements to a second inductive element; ~~and~~

providing the second portion of the RF power from the second inductive element to a second pedestal electrode in the processing chamber—; and

separating the first inductive element from the second inductive element using a capacitive element.

16. The method of claim **Error! Reference source not found.**, further comprising:

generating second RF power using a second RF source;

transmitting the second RF power through second one or more inductive elements that are conductively coupled to the second RF source;

inductively coupling a first portion of the second RF power from the second one or more inductive elements to a third inductive element;

providing the first portion of the RF power from the third inductive element to a third pedestal electrode in the processing chamber;

inductively coupling a second portion of second RF power from the second one or more inductive elements to a fourth inductive element; and

providing the second portion of the second RF power from the fourth inductive element to a fourth pedestal electrode in the processing chamber.

17. The method of claim **Error! Reference source not found.**, wherein a phase difference between the RF source and the second RF source rotates an energy transferred to a plasma in the processing chamber.

18. The method of claim **Error! Reference source not found.**, wherein the first pedestal electrode, the second pedestal electrode, the third pedestal electrode, and the fourth pedestal electrode each are located in separate quadrant of the pedestal in the processing chamber.

19. The method of claim **Error! Reference source not found.**, wherein the first pedestal electrode comprises a circular mesh in a center of a pedestal, and the second pedestal electrode comprises a ring mesh around a periphery of the pedestal.

20. The method of claim **Error! Reference source not found.**, wherein the first inductive element comprises an inductive value of approximately 1 μH .