Claims:

1. An electrostatic chuck comprising:

an insulating layer at an upper surface of the chuck,

a charge dissipation structure on the insulating layer, the charge dissipation structure comprising:

a first conductive layer on the insulating layer having a first resistivity, and

a second conductive layer over the first conductive layer, having a second resistivity, wherein the second resistivity is higher than the first resistivity,

embossments disposed on the first conductive layer, wherein the second conductive layer is disposed over the embossments,

wherein the charge dissipation structure comprising interconnecting topographies extending over the upper surface of the insulating layer, wherein between the interconnecting topographies there are exposed fields of the insulating layer, and

one or more electrodes beneath the insulating layer, wherein the interconnecting topographies are located directly above the one or more electrodes.

2. The chuck of claim 1, further comprising one or more seal rings disposed on the first conductive layer, wherein the second conductive layer is disposed over the seal ring.

3. The chuck of claim 1, wherein the second resistivity is below 1×10^{-2} ohm meter.

4. The chuck of claim 1, wherein the exposed fields of the insulating layer comprise geometric shapes that provide low cumulative distance of each point herein to the nearest charge dissipation structure.

5. The chuck of claim 1, wherein the first resistivity is less than 1×10^{-5} ohm meter.

6. The chuck of claim 1, wherein a charge dissipation structure has a total resistance below 1×10^{7} ohms measured across a longest length of the charge dissipation structure.

7. The chuck of claim 1, wherein a maximum distance between any location of an exposed field and a charge dissipation structure is less than 20 millimeters.

8. The chuck of claim 1, wherein a maximum distance between any location of an exposed field and a charge dissipation structure is in a range of 2 to 15 millimeters.

9. The chuck of claim 1, wherein the interconnecting topographies may be lines that have a width in a range from 0.1 to 1.5 millimeters.

10. The chuck of claim 1, wherein the first conductive layer comprises aluminum, nickel, or a combination thereof.

11. The chuck of claim 1, wherein the first conductive layer has a thickness in a range from 200 to 500 nanometers.

12. The chuck of claim 1, wherein the second conductive layer comprises conductive material selected from diamond-like carbon, silicon carbide, doped carbon, and titanium nitride.

13. The chuck of claim 1, wherein the second conductive layer has a thickness in a range from 500 to 1500 nanometers.

14. The chuck of claim 1, wherein:

an area of the interconnecting topographies is less than 10 percent the total area of the upper surface of the chuck, and

an area of the exposed fields is at least 90 percent the total area of the upper surface of the chuck.

15. The chuck of claim 1, further comprising one or more embossments disposed on an upper surface of the insulating layer, spaced from interconnecting topographies.

16. The chuck of claim 1, further comprising a barrier layer disposed between the first conductive layer and the second conductive layer.

17. A method of producing an electrostatic chuck, the method comprising:

forming a charge dissipation structure on an insulating layer of an electrostatic chuck, the charge dissipation structure comprising:

a first conductive layer on the insulating layer, the first conductive layer having a first resistivity,

embossments disposed on the first conductive layer, and

a second conductive layer over the first conductive layer and the embossments, the second conductive layer having a second resistivity, wherein the second resistivity is higher than the resistivity of the first conductive layer, and

the charge dissipation structure comprising interconnecting topographies extending over the insulating layer upper surface, the interconnecting topographies defining exposed fields of the insulating layer.

18. The method of claim 17, wherein the charge dissipation lines comprise:

the first conductive layer,

a seal ring or a portion of a seal ring disposed on the first conductive layer, and

the second conductive layer over the first conductive layer and the seal ring or portion of the seal ring.