CLAIMS

What is claimed is:

1. A method, comprising:

   obtaining a substrate comprising a ceramic material and having an etch resistant coating layer, wherein the etch resistant coating layer comprises at least one of silicon carbide, diamond, yttrium oxide, aluminum oxide, or any combinations thereof;

   ablating, with a laser, the etch resistant coating layer to remove at least a portion of the etch resistant coating layer and obtain one or more exposed portions of the substrate, wherein the one or more exposed portions of the substrate span distances of at least 0.5 mm; and

   forming an electrostatic chuck,

      wherein, when measuring an electrical resistance across an exposed portion of the substrate between two metallized portions, the electrostatic chuck exhibits an electrical isolation of 300 GΩ or more.

2. The method of claim 1, wherein the substrate comprises ceramic, alumina, zirconia, aluminum-nitride, aluminum-oxy-nitride, silicon-nitride, silicon-oxide, silicon-carbide, silicon-oxy-nitride, silicon-carbo-nitride, tungsten-carbide, molybdenum-disilicide, titanium-oxide, hafnium silicate, zirconium silicate, zirconium silicate, hafnium dioxide, strontium dioxide, scandium dioxide, zirconium dioxide, chromium oxide, yttrium oxide, iron oxide, barium oxide, barium titanate, tantalum oxide, or any combinations thereof.

3. The method of claim 1, wherein the laser comprises ultra-violet nanosecond (UV ns) lasers, infra-red nanosecond (IR ns) lasers, infra-red picosecond (IR ps) lasers, green lasers, or any combinations thereof.

4. The method of claim 1, wherein the laser is applied at a rate of 0.5 mm^2/s to 8.5 mm^2/s.

5. The method of claim 1, wherein the laser is applied in cycles of 48 s to 798 s.

6. The method of claim 1, wherein the one or more exposed portions of the substrate provide for a plurality of embossments.

7. An electrostatic chuck, comprising:

   a substrate comprising a ceramic material and having at least one etch resistant coating layer comprising at least one of silicon carbide, diamond, yttrium oxide, aluminum oxide, or any combinations thereof, the at least one etch resistant coating layer comprising a laser ablated pattern comprising one or more exposed portions of the substrate spanning distances of at least 0.5 mm, wherein the one or more exposed portions of the substrate provide for a plurality of electrodes having separate electrically conducting pathways, and wherein when measuring an electrical resistance across an exposed portion of the substrate between two metallized portions, the electrostatic chuck exhibits an electrical isolation of 300 GΩ or more.

8. The electrostatic chuck of claim 7, wherein the at least one etch resistant coating layer comprises a metallized layer.

9. The electrostatic chuck of claim 7, wherein the one or more exposed portions of the substrate provide for a plurality of embossments.