Claims:

1. A chemical mechanical polishing pad conditioner, comprising: a substrate including a front surface having a plurality of protrusions integral therewith, said plurality of protrusions extending in a frontal direction that is substantially normal to said front surface, each of said plurality of protrusions including a distal extremity, and a dispersion of superabrasive grit seeds disposed on said protrusions, the chemical mechanical polishing pad conditioner being characterized by:

each of said plurality of protrusions having a root-mean-square surface roughness that is greater than 3 μm;

a dispersion of superabrasive grit seeds disposed on said substrate; and

a diamond coating that covers said substrate, said protrusions and said dispersion of superabrasive grit seeds.

2. The chemical mechanical polishing pad conditioner of claim 1, wherein the protrusions of the substrate have a matrixical arrangement, the projections each having a highest most peak, and each highest most peak positioned on its respective projection in a non repeating fashion with respect to the other projections.

3. The chemical mechanical polishing pad conditioner of claim 1 wherein the protrusions of the substrate have repeating spacing pattern providing a density, the density being .5 to 5 projections per square mm.

4. The chemical mechanical polishing pad conditioner of claim 1, wherein the protrusions of the substrate have a matrixical arrangement of projections of a first height and a matrixical arrangement of projections of a different height.

5. The chemical mechanical polishing pad conditioner of claim 1, wherein said plurality of superabrasive diamond grit seeds have diameters that range from about 1 μm to about 15 μm.

6. The chemical mechanical polishing pad conditioner of claim 1, wherein said plurality of superabrasive diamond grit seeds have diameters that range from about 1 μm to about

15 μm and said coating has a thickness that is in the range of 50% to 100% of an average diameter of said superabrasive grit seeds.

7. The chemical mechanical polishing pad conditioner of claim 5, further comprising a second plurality of superabrasive grit seeds disposed on said surfaces of said substrate and said protrusions, said second plurality of superabrasive grit seeds having diameters that range from about 1 nm to about 30 nm.

8. The chemical mechanical polishing pad conditioner of claim 3, wherein said substrate and said protrusions are of a silicon carbide material.

9. The chemical mechanical polishing pad conditioner of any of the above claims wherein the substrate is mounted on a backing plate and there are at least 4 additional like substrates.

10. A method of manufacturing a chemical mechanical polishing pad conditioner according to claim 1, comprising providing a ceramic substrate, the method characterized by:

removing material from the silicon carbide substrate by machining to provide a repeating pattern of projections each having a height of 10 to 150 microns, and having a root-mean-square surface roughness that is greater than 3 μm;

dispersing a quantity of diamond grains across on the substrate;

coating the surface of the substrate by chemical vapor deposition with diamond thereby covering the projections and the quantity of diamond grains.

11. The method of claim 10 further comprising selecting the quantity of diamond grains to be substantially sized to be less than 12 microns.

12. The method of claim 10 further comprising selecting the quantity of diamond grains to be substantially sized with a maximum diameter from 1 nm to 30 nm, and further selecting an additional quantity of diamond seed grains to be sized to be greater than 2 microns and less than 12 microns, and further dispersing the additional quantity across the substrate.

13. The method of claim 10 further comprising selecting a silicon substrate with a porosity of at least 10 per cent.

14. The method of any one of claims 10 through 13 further comprising providing a roughness to the silicon carbide of about 2 microns to about 5 microns before coating the surface with diamond.

15. The method of any of claims 10 through 13 further comprising providing a plurality of the ceramic substrates and attaching them evenly spaced about a circular disk.