CLAIM(S):

1. A chemical-mechanical polishing composition comprising:
   (a) a first abrasive comprising cationically modified colloidal silica particles,
   (b) a second abrasive having a Mohs hardness of ~~about~~ 5.5 or more, wherein the second abrasive is selected from α-alumina particles, zirconia particles, diamond particles, and combinations thereof,
   (c) a cationic polymer,
   (d) an iron containing activator,
   (e) an oxidizing agent, and
   (f) water.

2. The polishing composition of claim 1, wherein the cationically modified colloidal silica particles have a zeta potential of greater than ~~about~~ 20 mV at a pH of about 2.5.

3. The polishing composition of claim 1, wherein the cationically modified colloidal silica particles have an average particle size of ~~about~~ 50 nm to ~~about~~ 200 nm.

4. The polishing composition of claim 1, wherein the cationically modified colloidal silica particles are present in the polishing composition in an amount of ~~about~~ 0.01 wt.% to ~~about~~ 5 wt.%.

~~5. The polishing composition of claim 1, wherein the second abrasive is selected from α-alumina particles, zirconia particles, diamond particles, and combinations thereof.~~

5~~6~~. The polishing composition of claim 1~~5~~, wherein the second abrasive comprises α-alumina particles.

6~~7~~. The polishing composition of claim 1, wherein the second abrasive is present in the polishing composition in an amount of ~~about~~ 25 ppm or higher.

7~~8~~. The polishing composition of claim 6~~7~~, wherein the second abrasive is present in the polishing composition in an amount of ~~about~~ 50 ppm to ~~about~~ 500 ppm.

8~~9~~. The polishing composition of claim 1, wherein the cationic polymer has a molecular weight of ~~about~~ 100,000 g/mol or less.

9~~10~~. The polishing composition of claim 8~~9~~, wherein the cationic polymer has a molecular weight of ~~about~~ 2,000 g/mol to ~~about~~ 15,000 g/mol.

10~~11~~. The polishing composition of claim 1, wherein the cationic polymer is polydiallyldimethylammonium chloride (pDADMAC).

11~~12~~. The polishing composition of claim 1, wherein the cationic polymer is present in the polishing composition in an amount of ~~about~~ 1 to ~~about~~ 100 ppm.

12~~13~~. The polishing composition of claim 1, wherein the iron containing activator comprises a soluble iron salt.

13~~14~~. The polishing composition of claim 12~~13~~, wherein the soluble iron salt is ferric nitrate.

14~~15~~. The polishing composition of claim 1, wherein iron from the iron containing activator is present in the polishing composition in an amount of ~~about~~ 1 ppm to ~~about~~ 100 ppm.

15~~16~~. The polishing composition of claim 12~~13~~, further comprising a stabilizer bound to the soluble iron salt, wherein the stabilizer is selected from phosphoric acid, phthalic acid, citric acid, adipic acid, oxalic acid, malonic acid, aspartic acid, succinic acid, glutaric acid, pimelic acid, suberic acid, azelaic acid, sebacic acid, maleic acid, glutaconic acid, muconic acid, ethylenediaminetetraacetic acid, propylenediaminetetraacetic acid, and combinations thereof.

16~~17~~. The polishing composition of claim 15~~16~~, wherein the stabilizer is present in the polishing composition in an amount of ~~about~~ 20 ppm to ~~about~~ 2,000 ppm.

17~~18~~. The polishing composition of claim 1, wherein the oxidizing agent is hydrogen peroxide.

18~~19~~. The polishing composition of claim 1, wherein the polishing composition has a pH of ~~about~~ 2 to ~~about~~ 4.

1920. A method of chemically mechanically polishing a substrate comprising:

(i) providing a substrate,

(ii) providing a polishing pad,

(iii) providing a chemical-mechanical polishing composition comprising:

(a) a first abrasive comprising cationically modified colloidal silica particles,

(b) a second abrasive having a Mohs hardness of ~~about~~ 5.5 or more, wherein the second abrasive is selected from α-alumina particles, zirconium particles, diamond particles, and combinations thereof,

(c) a cationic polymer,

(d) an iron containing activator,

(e) an oxidizing agent, and

(f) water,

(iv) contacting the substrate with the polishing pad and the chemical-mechanical polishing composition, and

(v) moving the polishing pad and the chemical mechanical polishing composition relative to the substrate to abrade at least a portion of the substrate to polish the substrate, wherein the substrate comprises both a tungsten layer and a titanium nitride layer on a surface of the substrate, and wherein both the tungsten layer and the titanium nitride layer are abraded to polish the substrate.

2021. The method of claim 1920, wherein the cationically modified colloidal silica particles have a zeta potential of greater than ~~about~~ 20 mV at a pH of about 2.5.

2122. The method of claim 1920, wherein the cationically modified colloidal silica particles are present in the polishing composition in an amount of ~~about~~ 0.05 wt.% to ~~about~~ 5 wt.%.

~~23. The method of claim 20, wherein the second abrasive is selected from α-alumina particles, zirconium particles, diamond particles, and combinations thereof.~~

2224. The method of claim 1920, wherein the second abrasive comprises α-alumina particles.

2325. The method of claim 1920, wherein the second abrasive is present in the polishing composition in an amount of ~~about~~ 25 ppm or higher.

2426. The method of claim 1920, wherein the cationic polymer has a molecular weight of ~~about~~ 100,000 g/mol or less.

2527. The method of claim 2426, wherein the cationic polymer is polydiallyldimethylammonium chloride (pDADMAC).

2628. The method of claim 1920, wherein iron from the iron-containing activator is present in the polishing composition in an amount of ~~about~~ 1 ppm to ~~about~~ 100 ppm.

2729. The method of claim 1920, wherein the polishing composition has a pH of ~~about~~ 2 to ~~about~~ 4.

~~30. The method of claim 20, wherein the substrate comprises both a tungsten layer and a titanium nitride layer on a surface of the substrate, and wherein both the tungsten layer and the titanium nitride layer are abraded to polish the substrate.~~