

What is claimed is:

1. A physical vapor deposition (PVD) chamber comprising:
a plurality of cathode assemblies;
a shroud below the plurality of cathode assemblies; and
5 each cathode assembly comprising a magnet assembly comprising a plurality of outer peripheral magnets surrounding an inner magnet, the outer peripheral magnets and an inner magnet mounted to a mounting plate configured to rotate during a physical vapor deposition process.
- 10 2. The PVD chamber of claim 1, further comprising:
a rotating shield below the plurality of cathode assemblies to expose one of the plurality cathode assemblies through the shroud and through a shield hole of the rotating shield;
a target below each of the plurality of cathode assemblies; and
15 a rotating pedestal for producing a material to form a carrier over the rotating pedestal.
3. The PVD chamber of claim 1, wherein the plurality of outer peripheral magnets comprises at least three outer peripheral magnets surrounding the inner magnet.
- 20 4. The PVD chamber of claim 1, wherein the plurality of outer peripheral magnets comprises at least seven outer peripheral magnets surrounding the inner magnet.
5. The PVD chamber of claim 4, wherein the outer peripheral magnets are in
25 contact with the inner magnet.
6. The PVD chamber of claim 1, wherein the plurality of outer peripheral magnets comprises twenty-three magnets.
- 30 7. The PVD chamber of claim 1, wherein the plurality of outer peripheral

magnets are of a first polarity and the inner magnet is of a second polarity opposite the first polarity.

8. The PVD chamber of claim 1, further comprising a balancing weight mounted
5 to the mounting plate opposite the magnet assembly.

9. The PVD chamber of claim 8, wherein the mounting plate comprises
mounting slots, and the magnet assembly is slidably mounted to mounting plate to allow the
magnet assembly to be moved toward and away from a peripheral edge of the mounting plate.
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10. The PVD chamber of claim 1, wherein the plurality of outer peripheral
magnets comprises at least twenty magnets.

11. The PVD chamber of claim 1, wherein the plurality of cathode assemblies
15 comprises at least twelve cathode assemblies.

12. A method of depositing a material layer comprising:
placing a substrate in a PVD chamber;
rotating a cathode assembly comprising a magnet assembly comprising a plurality of
20 outer peripheral magnets surrounding an inner magnet, the outer peripheral magnets and an
inner magnet mounted to a mounting plate; and
depositing the material layer on the substrate.

13. The method of claim 12, wherein the mounting plate comprises a balancing
25 weight mounted on a mounting plate opposite the magnet assembly.

14. The method of claim 13, wherein the PVD chamber comprises a plurality of
cathode assemblies.

15. The method of claim 14, wherein the substrate comprises an extreme ultraviolet mask blank, the method further comprising depositing multiple alternating materials layers comprising a first layer comprising molybdenum and a second layer comprising silicon.

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