CLAIMS

1. A filter for a cathode arc source, said filter comprising:

a filter duct having two bends, and

a first magnetic field source for steering plasma through the filter duct for removal of macroparticles from the plasma;

wherein the ~~apparatus~~ filter comprises a second magnetic field source, ~~which is~~ the filter being configured for the second magnetic field source to be rotatably mounted surrounding a portion of the filter duct between the two bends.

2. A filter for a cathode arc source, said filter comprising:

a filter duct having a bend of an angle of greater than 90°, and

a first magnetic field source for steering plasma through the filter duct for removal of macroparticles from the plasma;

wherein the ~~apparatus~~ filter comprises a second magnetic field source, ~~which is~~ the filter being configured for the second magnetic field source to be rotatably mounted surrounding a portion of the filter duct downstream of the bend.

3. A filter according to claim 1 or claim 2 wherein the second magnetic field source is annular in shape.

4. A filter according to any one of claims 1 to 3 wherein the second magnetic field source is a coil of an electrically conducting material.

5. A filter according to any one of claims 1 to 4 wherein the second magnetic field source is rotatable along two axes.

6. A filter according to any one of claims 1 to 5 wherein the second magnetic field source is configured to provide~~s~~ an electrical field of strength of from 3 mT to 15 mT

7. A filter according to any one of claims 1 to 6 wherein the second magnetic field source is configured to provide~~s~~ a magnetic field of strength from 20% to 35% of the strength of the magnetic field from the first magnetic field source.

8. A filter according to claim 1 or any claim dependent thereon wherein the two bends are in different planes.

9. A filter according to any one of claims 1 to 8 ~~wherein~~ configured for the second magnetic field source ~~is~~ to be mounted on the filter duct in a manner that allows it to be rotated about an axis perpendicular to the axis of the filter duct at the portion of the filter duct where the second magnetic field source surrounds the filter duct.

10. A filter according to claim 9 ~~wherein~~ configured for the second magnetic field source ~~is~~ to be mounted on the filter duct in a manner that allows it to be rotated independently about two axes perpendicular to the axis of the filter duct at the portion of the filter duct where the second magnetic field source surrounds the filter duct.

11. A filter according to any one of claims 1 to 10 wherein the filter duct has a single inlet for connecting to a cathode arc source and a single outlet for connecting to a coating chamber.

12. A filter according to any one of claims 1 to 11 wherein the first magnetic field source comprises a coil of a conducting material wrapped around the filter duct along 50% ~~of~~ or greater of its length.

13. A filter according to any one of claims 1 to 12 wherein the filter duct has a baffle in the form of a disc having a substantially circular aperture at an outlet end, wherein the baffle extends across the width of the filter duct.

14. A cathode arc source for depositing a coating on a substrate, said source comprising

an anode and a cathode station for a target; and

a filter as defined in any one of claims 1 to 13.

15. A cathodic vacuum arc deposition apparatus comprising two or more (e.g. two, four or six) cathode arc sources as defined in claim 14.

~~16. A method of filtering macroparticles from a beam of plasma emitted from a cathode arc source, the method comprising:~~

~~steering the plasma beam through a filter comprising a filter duct and a first magnetic field source for directing the plasma beam through the duct; and~~

~~applying a second magnetic field to the plasma beam to adjust the position of the plasma beam at the outlet of the filter.~~