CLAIMS

1. A plasma transport channel device, comprising a channel body, wherein an A channel configured for a transport of a plasma is formed inside the channel body, two ends of the A channel constitute an A inlet and an A outlet, respectively, a cooling unit configured for cooling the channel body is arranged on or beside the channel body, and an adsorption unit configured for adsorbing an impurity component in the plasma is detachably arranged on an inner wall of the channel body;

the cooling unit is formed by a cooling passage arranged on the channel body, and a cooling fluid is contained in the cooling passage;

the cooling passage is arranged on an outer side wall of the channel body;

the cooling passage is formed by a spiral tube arranged on the channel body, one end of the spiral tube is a cooling fluid inlet, and the other end of the spiral tube is a cooling fluid outlet;

wherein the adsorption unit is formed by annular plates arranged on the inner wall of the channel body, a center line of each of the annular plates is consistent with a center line of the channel body, and the annular plates are arranged at intervals along a length direction of the channel body; and

wherein each of the annular plates is in a shape of a side surface of truncated cone, an included angle between the annular plate and the inner wall of the channel body being in a range of 15°-75°, and a distance between an inner ring side of the annular plate and the A inlet is smaller than a distance between an outer ring side thereof and the A inlet.

2. The plasma transport channel device according to claim 1, wherein the adsorption unit is arranged along a length range of the channel body.

3. The plasma transport channel device according to claim 1, wherein the adsorption unit is formed by a plate or a block arranged on the inner wall of the channel body.

4. The plasma transport channel device according to claim 1, wherein a magnetic field device is arranged beside the channel body, and an intensity of a magnetic field applied by the magnetic field device is 0.01 T-0.98 T.

5. The plasma transport channel device according to claim 1, wherein a cross section of the spiral tube is circular, rectangular, elliptical, or semicircular.

6. The plasma transport channel device according to claim 1, wherein the channel body is a bent tube or a folded tube.

7. The plasma transport channel device according to claim 1, wherein the A channel is a variable-diameter cavity-type channel.

8. The plasma transport channel device according to claim 1, wherein an included angle between a flow direction in the A inlet and a flow direction in the A outlet is 30°, 90°, 180°, or 270°.

9. The plasma transport channel device according to claim 1, wherein the channel body comprises a straight tubular A channel body section and a straight tubular B channel body section located at two ends of the channel body, and the A channel body section and the B channel body section are connected by an arc-shaped C channel body section.

10. The plasma transport channel device according to claim 9, wherein a cross section of the A channel body section and a cross section of the B channel body section have the same size, and a cross section of the C channel body section and the cross section of the A channel body section have different sizes.

11. The plasma transport channel device according to claim 9, wherein a length of the A channel body section and a length of the B channel body section are different.

12. A coating equipment, comprising the plasma transport channel device according to any one of claims 1-3, wherein the coating equipment is one or any combination of magnetron sputtering equipment, vacuum-arc equipment, chemical vapor deposition equipment and pure ion vacuum coating equipment.