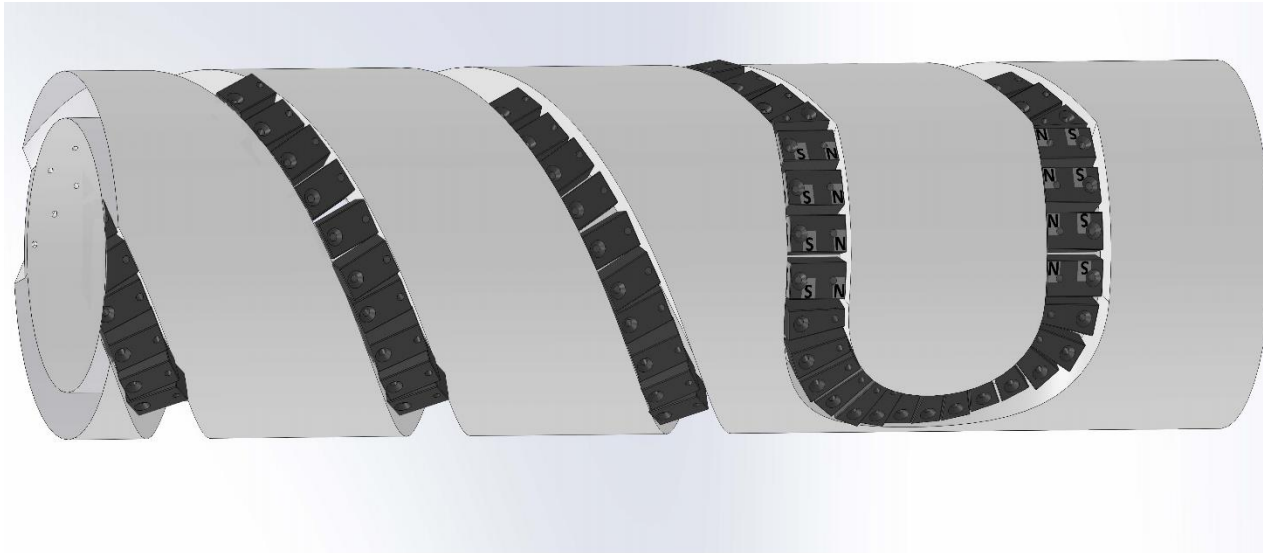


COATING FOR COMPLEX SURFACES



PRIORITY NUMBER:

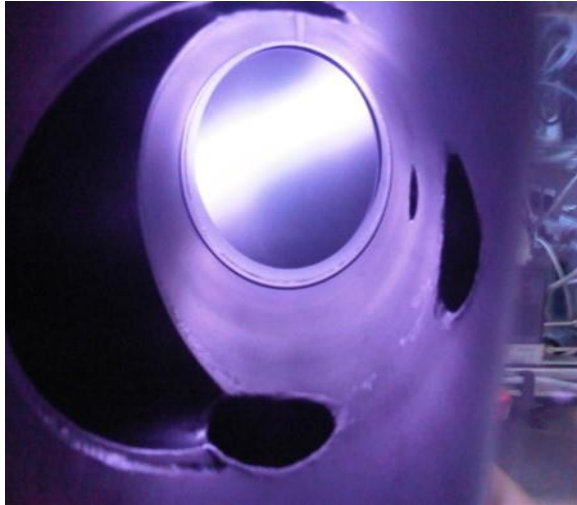
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KEYWORDS:

Magnetron Sputtering
Complex Internal Surface
Surface treatments
Thin films
Plasma

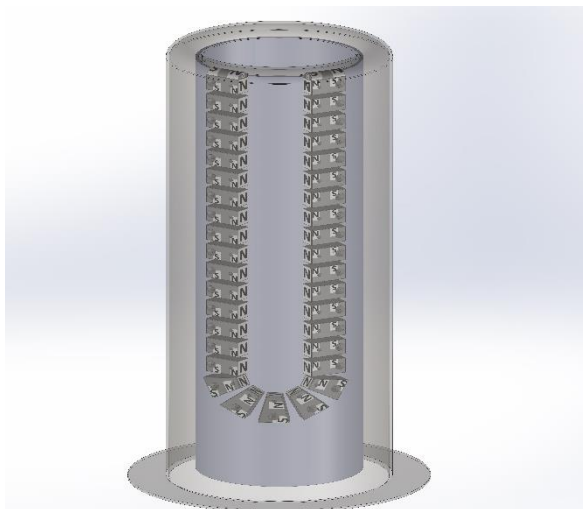
A system for the deposition of thin films, using magnetron sputtering technique, on the inner surface of an annular cavity called substrate. The system include a cathode target, made of the base material to be deposited, and a innovative rotating magnetic structure. The magnetic structure, thanks to the special configuration, is unique both for the internal and external part of the cathode.

COATING FOR COMPLEX SURFACES



DESCRIPTION :

The invention solves the technical problem of deposition by magnetron sputtering inside accelerating cavities and in particular of all objects with a complex geometry, characterized by two coaxial cylinders joined at one end and which must be coated with a thin film of uniform thickness. The invention consists of a target of the material to be deposited, be made of two concentric tubes joined together at the top. An innovative magnetic structure is inserted in the inner cavity, which allows the plasma to be confined to the inner surface of the lower diameter target tube and to the outer surface of the larger diameter tube. The special magnetic configuration (which can be varied according to the application) allows a single pattern of the plasma and, through a mechanism that allows the rotation of the magnets, moves the plasma over the entire cathode in order to ensure a high deposition uniformity.



ADVANTAGES:

- Coating by magnetron sputtering on concentric and coaxial surfaces with better uniformity and in a shorter time.
- Possibility to apply the sputtering technology (with hard, protective, anti-wear coatings, etc.) to new product sectors where normally, due to technical difficulties, they have not been developed.

APPLICATIONS:

Deposition of thin films on objects consisting of two concentric tubes connected at one end, for example:

- accelerating cavities
- tumblers machine
- molds for donuts
- baskets for washing machines
- candyfloss containers
- cement mixer