

ION SOURCE BLOCK FILAMENT WITH LABYRINTH CONDUCTIVE PATH

ABSTRACT

5 A filament plate (80) for an ion beam source assembly (10) of an ion implantation apparatus is disclosed. The filament plate is comprised of tungsten and includes two spaced apart spiral slits (96, 98) through a width of the plate. A gap width of the slits in not substantially greater than ten times a plasma Debye length of ions generated by electrons emitted into an arc chamber (62). The plate filament is disposed in an arc chamber into which ionizable source materials are injected. The plate includes two conductive posts (106, 108) press fit into openings of the plate for heating the plate to the thermionic emission temperature. The conductive posts extend through insulated openings in a side wall of the arc chamber.

(Fig. 5)