

Design and characterization of the hollow electrode discharge in a dielectric tube

Abstract

The use of a hollow electrode in the place of planar cathode in a glow discharge or a capacitively coupled RF plasma, enhances the plasma density substantially. High density plasma devices find applications in electric propulsion, photovoltaic industry and surface modification techniques. The aim of the proposed project is to develop a hollow electrode discharge apparatus, control the plasma density and instabilities. The proposed work includes,

- optimization of the hollow electrode design for discharge in a dielectric tube and
- characterization of the plasma produced using plasma diagnostic probes and instrumentation.

Working in this project the student will learn about simple plasma apparatus, methods of plasma production, vacuum system and performing measurements in the plasma environment.

Academic Project Requirements:

1) Required No. of student(s) for academic project: 2

2) Name of course with branch/discipline: M.Sc. Physics

3) Academic Project duration:

(a) Total academic project duration: 26 Weeks

(b) Student's presence at IPR for academic project work: 5 Full working Days per week

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