

Characterisation of the plasma discharge in a low cost inertial confinement device.

Objective:

For the study of plasma breakdown and confinement in a cylindrical vessel chamber, a grid system has been designed along with the installation of a low cost high voltage (40 kV, 5 mA) power supply. Different grid arrangements were installed and tested for the Deuterium gases under different operating range of pressures and at different operating voltages.

Automation of the experimental setup has been performed for the vessel chamber heating using heaters and Glow discharge cleaning technique has been established. Indigenous power supply was designed at IPR using the fly-back transformers for the experimental purpose. Plasma in an inertial confinement device is under experimental phase and initial spectroscopy results have been measured.

Scope of Work:

- Testing and characterisation of power supply output voltage ripple under no-load and full load (plasma) conditions.
- Optimisation of system output for different arrangements of fly back transformers.
- Design, development and installation of Langmuir probe for the system along with their auxiliary system.
- Characterisation of continuous plasma discharge using Langmuir probe for the measurement of edge plasma temperature and density has to be performed. Under different experimental condition.

Project duration: 6 months

No. of students: 1 (One)

Eligibility: Interested B.E student of Electrical/I&C or of any relevant background can submit his/her application.

rohit.kumar@ipr.res.in [Guide e-mail address]

project_ee@ipr.res.in [Project Coordinator's e-mail]

Phone No. 079-23962347, 8238932600 [Guide Phone No.]