(B) Characterization of supersonic helium beam by using fast pressure transducer

Background: Helium supersonic beam is used to measure the electron density and temperature in tokomak edge plasmas by exploiting the neutral Helium line ratios. Supersonic beam is generated by using a piezoelectric valve/pulse valve. The characterization of the supersonic beam in terms of its temporal/spatial profile is a n important aspect for its application.

Summary of Project Work: Supersonic helium beam is used for the study of edge electron temperature and density in fusion machines. The work carried out by the student will be the characterization of supersonic valves with various pressure and pulse durations. Helium will be used for supersonic expansion inside a vacuum chamber and a fast transducer will be used to measure the temporal pressure profiles. The pressure profile will be calibrated in terms helium atoms. The student will also use this helium beam to perform a preliminary measurement in laboratory plasma.

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Project Duration: 6-8 months

Eligibility: Only students of **M. Sc. (Physics/Applied Physics)** can submit their application at following email addresses

hem@ipr.res.in [Guide e-mail address], jinto@ipr.res.in and project_phy@ipr.res.in [Project coordinator's e-mail address]

Phone Number: 079-23962056 [Guide phone number] 079-23962165 (Co guide phone number)