HAL - Hall Effect in Plasma

Signature Sheet

Student's Name _____ Partner's Name _____

Pre-Lab Discussion Questions

It is your responsibility to discuss this lab with an instructor before your first day of your scheduled lab period. This signed sheet must be included as the first page of your report. Without it you will lose grade points. You should be prepared to discuss at least the following before you come to lab:

1. What is the Hall Effect? Why do we examine the Hall Effect using plasma instead of a piece of metal?
2. What does it mean to say that the plasma has a temperature? If the temperature is so high, why doesnt the glass tube melt?
3. What plasma parameters are you going to determine, and what measurements must you make besides the Hall voltage? To put another way, what are the relationships between what you measure and what you are going to calculate? For example, how do you get from a measurement of Hall voltage to a value of the electron density? Work out all these relationships now. Otherwise you might neglect to measure some relevant quantities.
4. Approximately what potential do we apply across the tube to get a glow discharge?
5. Why dont we use a DVMM to measure the relevant voltages?

Staff Signature _____ Date _____

Completed before the first day of lab? (Circle one) Yes / No

Mid-Lab Discussion Questions

1. On day 4 of this lab, you should have successfully produced a plot of EH vs B for at least one discharge-tube pressure value. Show it to a GSI and ask for a signature.

Staff Signature _____ Date _____

Completed by day 4 of lab? (Circle one) Yes / No

Checkpoint Signatures

1. Mean Electron Energy

   Staff Signature _____

2. Stable Plasma Flow

   Staff Signature _____

3. Valves and Probes

   Staff Signature _____

4. Shut off the System Completely

   Staff Signature _____

5. Hall Electric Field vs. Magnetic Field Plots

   Staff Signature _____