

HALL EFFECT IN A PLASMA (HAL)

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Watch the video on this experiment.

Student's Name _____

Partner's Name _____

Pre-lab Discussion Questions

It is your responsibility to discuss this lab with a professor or GSI on the first day of your scheduled laboratory period. This signed sheet must be included as the first page of your report. Without it you will lose 1/3 of a letter grade. You should think about and 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. Make a rough calculation of what the Hall voltage should be in this experiment.
3. What does it mean to say that the plasma has a temperature? If the temperature is so high, why doesn't the glass tube melt?
4. 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.
5. Approximately what potential do we apply across the tube to get a glow discharge?
6. Why don't we use a DVMM to measure the relevant voltages?.

Staff Signature _____ Date _____

Completed on the *first* day of lab? (circle) Yes / No**Mid-lab Questions**

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

Staff Signature _____ Date _____

Completed on the *fourth* day of lab? (circle) Yes / No**INCLUDE THESE SHEETS AS THE FIRST PAGES OF YOUR REPORT**

<i>Physics 111 Advanced Lab</i>	<i>Student Evaluation of Experiment</i>
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Now that you have completed this experiment, we would appreciate your comments. Please take a few moments to answer the questions below, and feel free to add any other comments. Since you have just finished the experiment it is *your* critique that will be the most helpful. Your thoughts and suggestions will help to change the lab and improve the experiments.

Please be as specific as possible, using both sides of the paper as needed, and turn this in with your report. Thank you!

Experiment name: _____ Date: _____

How was the write-up for this experiment? How could it be improved?

How easily did you get started with the experiment? What sources of information were most/least helpful in getting started? Were the reprints appropriate? Did the Pre-lab discussion help? Did you need to go outside the course materials for assistance? What additional materials could you have used?

What did you like and/or dislike about the experiment?

Would you recommend this lab to fellow student? Why or why not?

What advice would you give to a friend just starting this experiment?

If the course materials were available over the Internet (WWW, FTP, etc), would you (a) have access to them and (b) would you prefer to use them this way?

Please circle the abbreviations of the other labs you have done.	Overall quality of this experiment?																															
<table style="width: 100%; border: none;"> <tr> <td style="padding: 2px 10px;">ATM</td> <td style="padding: 2px 10px;">BMC</td> <td style="padding: 2px 10px;">BRA</td> <td style="padding: 2px 10px;">CO2</td> <td style="padding: 2px 10px;">COM</td> <td style="padding: 2px 10px;">GMA</td> <td style="padding: 2px 10px;">HAL</td> </tr> <tr> <td style="padding: 2px 10px;">HOL</td> <td style="padding: 2px 10px;">JOS</td> <td style="padding: 2px 10px;">LIF</td> <td style="padding: 2px 10px;">LLS</td> <td style="padding: 2px 10px;">MNO</td> <td style="padding: 2px 10px;">MOT</td> <td style="padding: 2px 10px;">MUO</td> </tr> <tr> <td style="padding: 2px 10px;">NLD</td> <td style="padding: 2px 10px;">NMR</td> <td style="padding: 2px 10px;">OPT</td> <td style="padding: 2px 10px;">OTZ</td> <td style="padding: 2px 10px;">RUT</td> <td style="padding: 2px 10px;">SHE</td> <td style="padding: 2px 10px;">XRA</td> </tr> </table>	ATM	BMC	BRA	CO2	COM	GMA	HAL	HOL	JOS	LIF	LLS	MNO	MOT	MUO	NLD	NMR	OPT	OTZ	RUT	SHE	XRA	<table style="width: 100%; border: none;"> <tr> <td style="padding: 2px 10px;">1</td> <td style="padding: 2px 10px;">2</td> <td style="padding: 2px 10px;">3</td> <td style="padding: 2px 10px;">4</td> <td style="padding: 2px 10px;">5</td> </tr> <tr> <td colspan="2" style="padding: 2px 10px;">Poor</td> <td colspan="2" style="padding: 2px 10px;">Average</td> <td style="padding: 2px 10px;">Good</td> </tr> </table>	1	2	3	4	5	Poor		Average		Good
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