

THE JOSEPHSON EFFECT (JOS)

Copyright © 2008 The Regents of the University California. All Rights Reserved

WATCH THE VIDEO FOR THIS EXPERIMENT

Student's Name _____

Partner's Name _____

Pre-lab Discussion Questions and sign off sheet

It is your responsibility to discuss this lab with an instructor 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 a Josephson-junction?
2. How do you construct the Josephson-junction used in this experiment? (Hint 4 wire junction)
3. What is a Cooper-pair?
4. What, in a sentence or two, what are the Josephson effects (DC and AC)? How are they useful?
5. Why is it important to know the number $2e/h$; what does it mean?

Staff Signature _____ Date _____

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

Mid-lab Questions and sign off sheet

On day 6 of this lab, show your photo of the DC effect with calibrated axis and photo of the AC effect, with calibrated axis, to a GSI. Also you present your measured corrected value for $2e/h$ in units of MHz/ μ V ($2 e/h = 4.83593718 \times 10^{14}$), with uncertainty, to an instructor and ask for a signature.

Staff Signature _____ Date _____

Completed on the *sixth* 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>
---------------------------------	---

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. ATM BMC BRA COM CO ₂ GMA HAL HOL JOS LIF LLS MNO MOT MUO NLD NMR OPT OTZ RUT SHE XRA Please circle experiments completed and rating on right side	Overall quality of this experiment? 1 2 3 4 5 Poor Average Good
---	---