

JOS - Josephson Junction

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 a Josephson Junction?
2. What is a Cooper Pair?
3. How does the DC Josephson effect work? What is the AC Josephson effect? How are they useful?
4. Why is it important to know the number $2e/h$; what does it mean?
5. How do you construct the Josephson Junction used in this experiment? (Hint 4 wire junction)
6. Explain how you remove the junction assembly from the probe and put it back in. Which way do you turn the set screws?
7. Did you notify a professor or GSI about filling the liquid helium tank one day before starting the lab?

Staff Signature _____ Date _____

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

Mid-Lab Discussion Questions

1. By day 4, show your DC effect to an instructor. What changes did you make in order to improve your observation?

Staff Signature _____ Date _____

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

Checkpoint Signatures

1. Low-Frequency Oscillator

Staff Signature _____

2. Steps

Staff Signature _____

3. DC Effect

Staff Signature _____

4. AC Effect

Staff Signature _____

5. Josephson Constant

Staff Signature _____