

# CO<sub>2</sub> LASER Experiment

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You must watch the [Laser Safety](#) video from the 111-LAB site before you use the apparatus in this experiment. Then Fill out and turn into 111-LAB Staff a REQUIRED Laser Safety FORM.

*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. How does a laser work, in general?
2. What is the purpose of the different gases ( ie; N<sub>2</sub>, CO<sub>2</sub>, and He)?
3. What are the necessary characteristics of the medium, and the cavity?
4. How are the requirements for laser action satisfied in a CO<sub>2</sub> laser?
5. What does a grating do when one is used in place of a mirror in the laser?
6. What are the safety requirements for working with this laser?

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 aligned the laser and observed a lasing spectrum in the spectrum analyzer. How many lines are lasing? On what does this number depend? Demonstrate your progress to an instructor 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**

**Physics 111 Advanced Lab****Student Evaluation of Experiment**

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 get them this way?

<p>Please circle the abbreviations of the other labs you Have done.</p> <p>ATM BMC BRA COM CO<sub>2</sub> GMA HAL HOL JOS LIF LLS MNO MOT MUO NMR NLD OPT OTZ RUT SHE XRA</p>	<p>Overall quality of this experiment?</p> <p>1 2 3 4 5 Poor Average Good</p>
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