

LASER INDUCED FLUORESCENCE and RAMAN SCATTERING (LIF)

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You must watch the *Laser Safety* video, fill out forms, sign the forms, take the Laser Safety quiz and turn them into the 111-Lab Staff before you use the apparatus in this experiment.

Watch the Video on 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 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. Describe the processes of absorption and emission of light.
2. Qualitatively describe the structure of a diatomic molecule and how the electronic, vibrational, and rotational energies are manifested in the absorption spectrum, and in the emission spectrum. What electronic and vibrational states of iodine are involved in the absorption spectrum?
3. What is laser induced fluorescence? Can a source other than a laser be used?
4. Qualitatively, what will the iodine fluorescence spectrum look like?
5. What molecular parameters can be derived from experimental observations of absorption and laser induced fluorescence?
6. What safety precautions should be observed while using the laser?

Staff Signature _____ Date _____

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

More Pre-Lab questions on the next page.

Mid-lab Questions and sign off sheet

1. On day 4 of this lab, you should have produced a plot of ΔG versus ν'' from your fluorescence data. Show it to a GSI and ask for a signature.
2. What is Raman scattering?
3. What molecular parameters can be derived from Raman scattering?

Staff Signature _____ Date _____

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

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