

Chemistry 14CL
Experiment #15: Nuclear Magnetic Resonance Spectroscopy

Pre-lab Report MUST be written inside the lab notebook

Online Resources and Tutorials

[Basic Principles of NMR](#)

[Concepts in NMR](#)

[Principles of MRI \(Magnetic Resonance Imaging\)](#)

[The Most Powerful MRI for Brain Imaging](#)

Pre-lab Report Guidelines

- (1) Title of the experiment & introduction
- (2) Procedure in Flowchart Format & Reference
- (3) Pre-lab study questions

Complete **ALL** the study questions on page 139 of your lab manual

(MUST SHOW ALL YOUR REASONINGS IN ORDER TO RECIEVE FULL CREDIT)

NOTE: For question #2, the three small peaks (around 80ppm) in Spectrum 1 (p.138) is due to the solvent (CDCl₃). Also, ignore the 4 little peaks in spectrum 3 (DEPT 90) (these apply only if you have an older edition of the lab manual).

Use the DEPT table on page 137 (or the lecture guide) when answering question #3 of the study question. Remember that in DEPT spectroscopy, carbons with no hydrogen attached give no signals on the DEPT spectra.

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**Post-lab (This post-lab is due at the END of the
NMR Spectroscopy Workshop)**

Turn in ONE Post-lab Per Group

Your Post-lab is the COMPLETED NMR WORKSHEETS (will be provided in the lab).

(1) Write the names of your group members on **EACH** page of the worksheet.

(2) Answer questions (1) - (3) in lab (see page 139)

Note: for question #3, your group needs to PREDICT the ^{13}C , DEPT 45 & 90 spectra for EACH of the isomer.

(3) Answer questions (4) - (6) in the computer lab (see page 139 - 140)

Note: for question #6, your group need to COMPARE your predicted ^{13}C , DEPT 45 & 90 spectra with the computer generated spectra for EACH of the isomer.

Staples all the worksheets (if you take them apart during the lab period) and turn them in to your TA at the end of the lab period.