Author(s): MELO 3D Project Team, 2011

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WebSpectra
An Organic Chemistry LO

Renata Everett and Grace Winschel
MELO3D Meeting, June 14, 2011
University of Michigan, Ann Arbor
WebSpectra

- Spectroscopy is a widely used identification technique in Organic Chemistry

- Many students learning introductory spectroscopy in CH216 struggle to learn how to interpret spectra

- Website provides 1H-NMR, 13C-NMR, IR, COSY and DEPT spectra practice problems and solutions.

Website can be found at: http://www.merlot.org/merlot/viewMaterial.htm?id=88400
Welcome to WebSpectra - This site was established to provide chemistry students with a library of spectroscopy problems. Interpretation of spectra is a technique that requires practice - this site provides $^1$H NMR and $^{13}$C NMR, DEPT, COSY and IR spectra of various compounds for students to interpret. Hopefully, these problems will provide a useful resource to better understand spectroscopy.

This project is supported by Cambridge Isotope Laboratories and the UCLA Department of Chemistry and Biochemistry.

Project Director
Professor Craig A. Merlic

NMR Facility Contributor
Dr. Jane Strouse

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Instructional Documents

- Solving Spectral Problems
- Overview of NMR Spectroscopy
- Notes on NMR Solvents
- Types of NMR Spectra
- Introduction to IR Spectra
- Table of IR Absorptions

Awards

Top 5% Chemistry Site

Why This is a Great LO:

- Drill and Practice
- Instruction manual provided
- Range of difficulty levels
- Solutions provided
- Helpful links to other spectroscopy tools and information
Beginning Problem #1

**C₄H₈O₂**
NMR Solvent: CDCl₃

**1H NMR Spectrum - C₄H₈O₂**

Peaks: 4.0665 ppm (1627.13 Hz)  

**13C NMR Spectrum - C₄H₈O₂**

Peaks: 170.939 ppm

**View Structure Solution**

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ethyl acetate
ethyl ethanoate

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What Needs Improvement:

- Some problems are too advanced for the undergraduate coursework at Michigan
  - Needs a slightly modified wrapper

- Limited amount of problems

- Unsightly