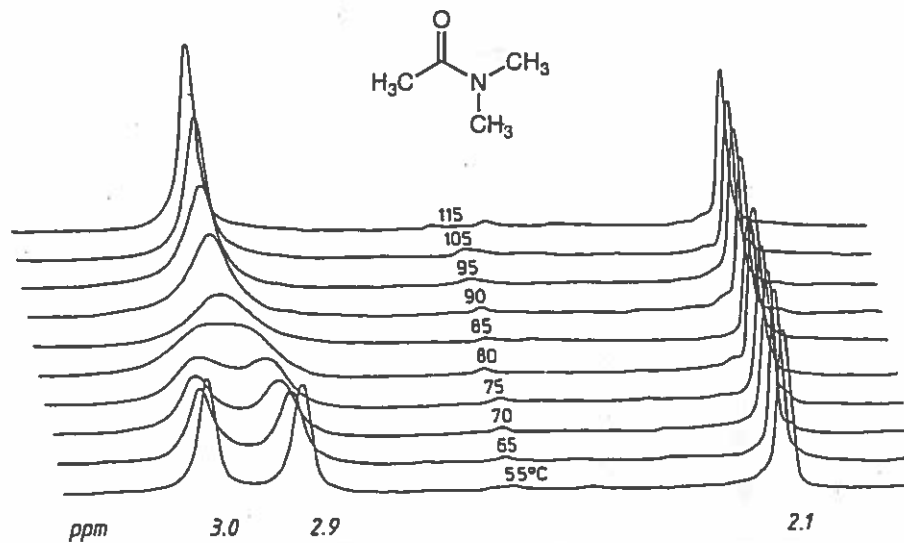
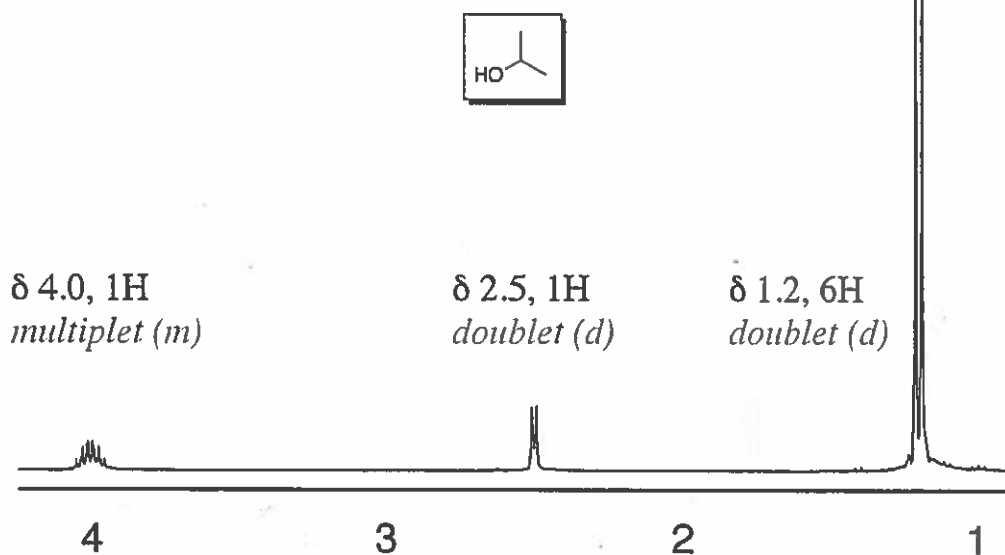


- N,N-dimethylacetamide (DMA) at varying temperatures:



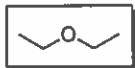
from Breitmaier, E. Structure Elucidation... Wiley 1993.

- 2-propanol



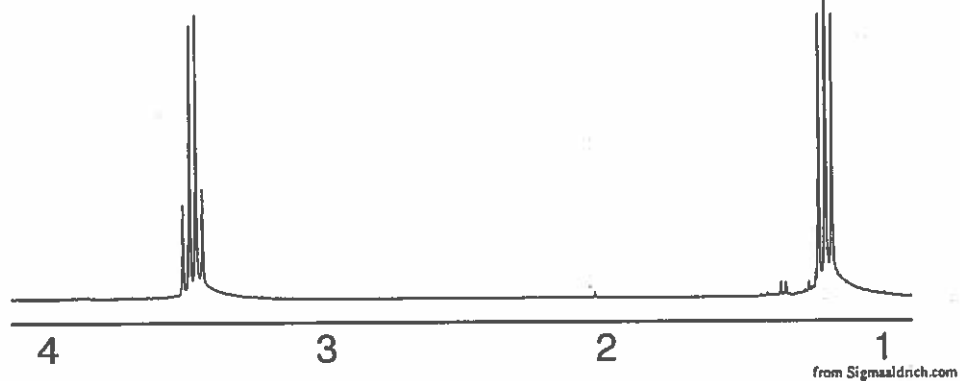
from Sigmaaldrich.com

- diethyl ether

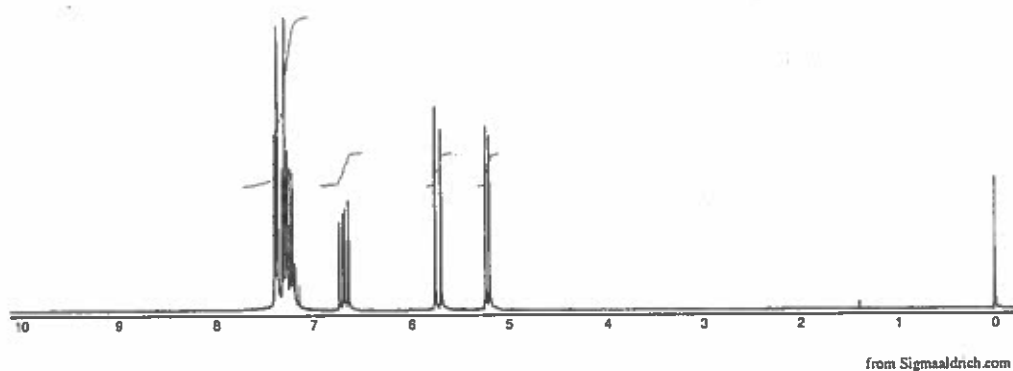
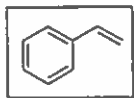


δ 3.4, 4H
quartet (q)

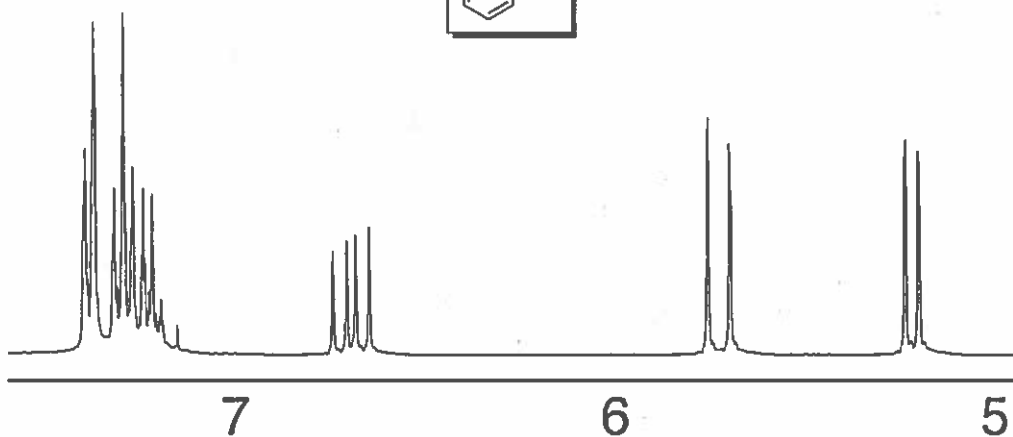
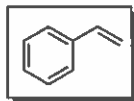
δ 1.2, 6H
triplet (t)



- styrene



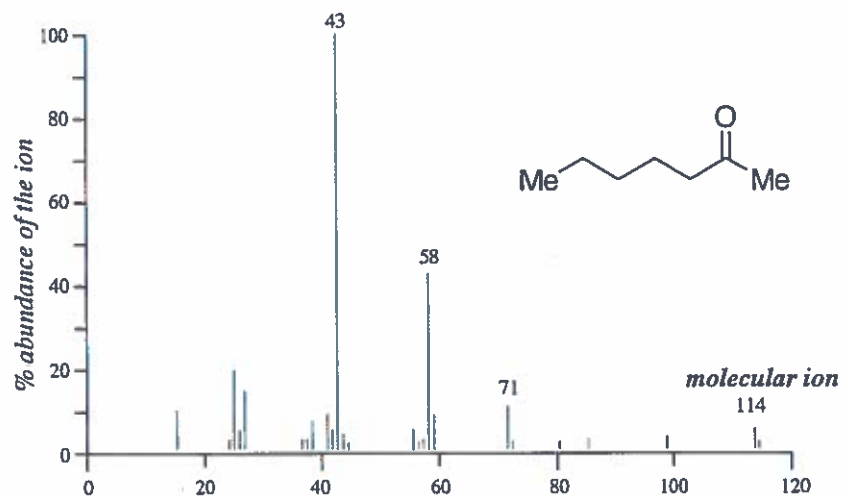
- styrene (detail)



from Sigmaaldrich.com

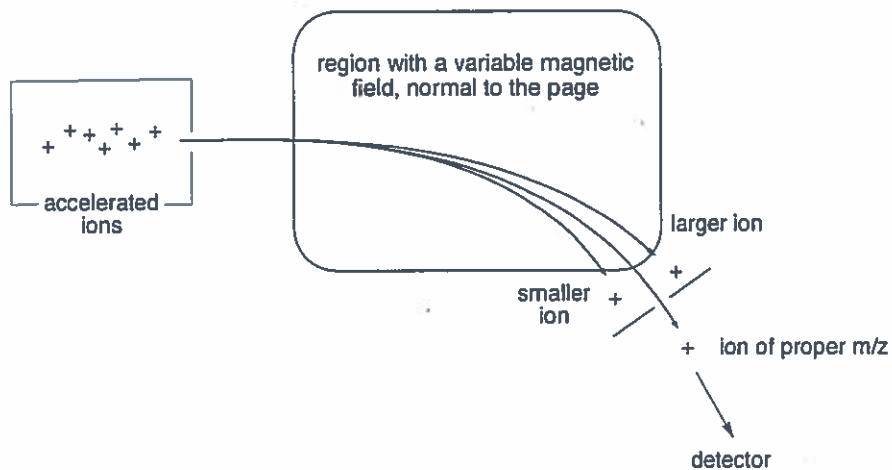
Mass Spectrometry

- Electron impact mass spectrum of heptan-2-one



Mass Selection

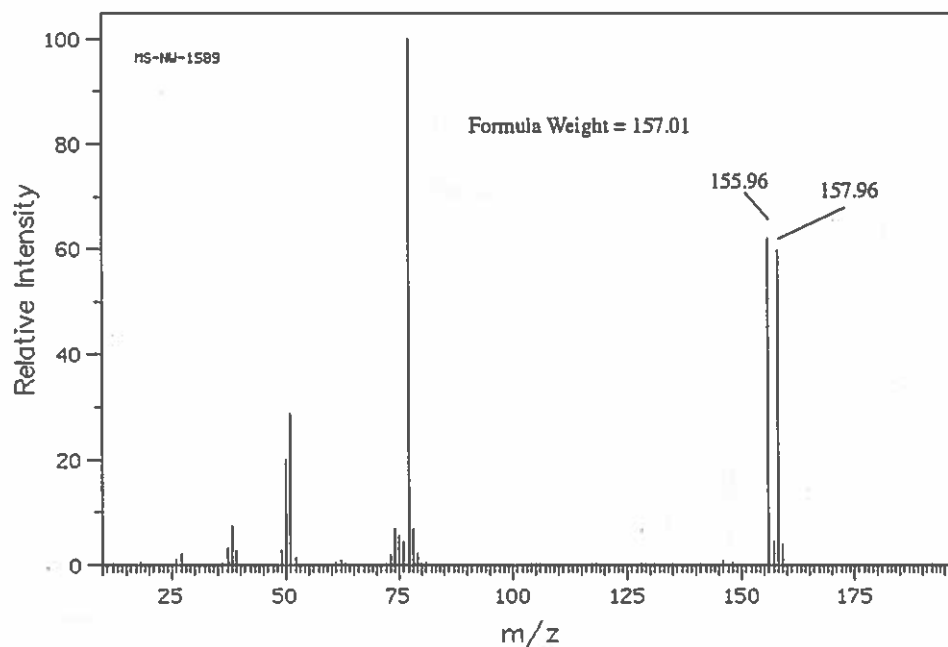
- Magnetic Sector Analyzer
 - the ion follows a curved path through a magnetic field



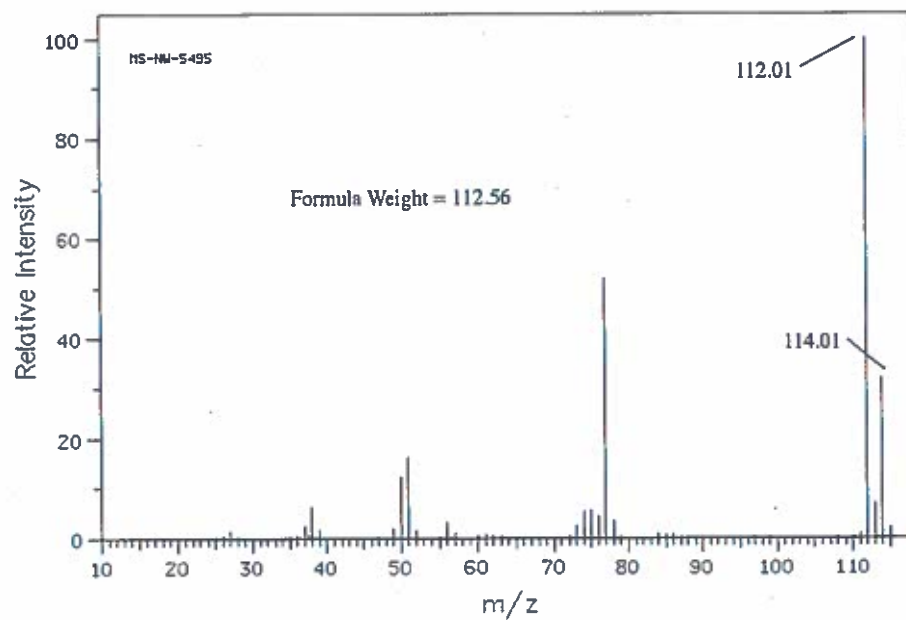
- Exact Mass vs. Formula Weight
 - Formula weight: the average mass of one mole of a sample (g/mol), which takes into account the natural abundances of the isotopes in the sample
 - Exact mass: the mass of a single molecule, such as that measured by a mass spectrometer

Isotope	Abundance (%)	Mass (amu)
^1H	99.98	1.0078
^2H	0.015	2.014
^{12}C	98.9	12.0000
^{13}C	1.1	13.0034
^{14}N	99.6	14.0031
^{16}O	99.8	15.9949
^{35}Cl	75.8	34.9689
^{37}Cl	24.2	36.9659
^{79}Br	50.7	78.9183
^{81}Br	49.3	80.9163

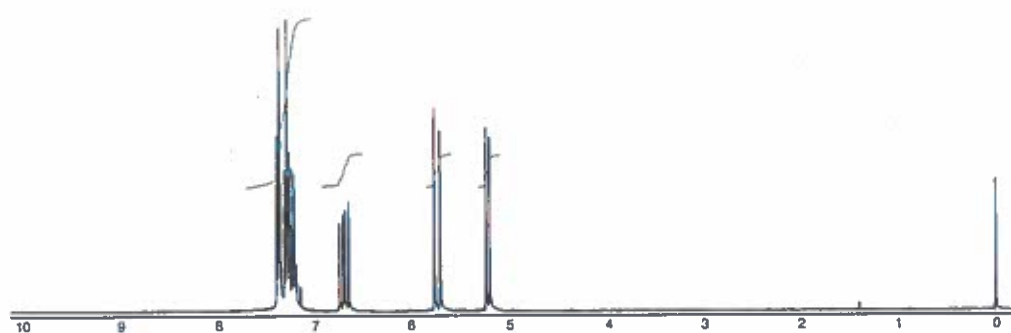
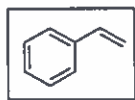
- Bromobenzene



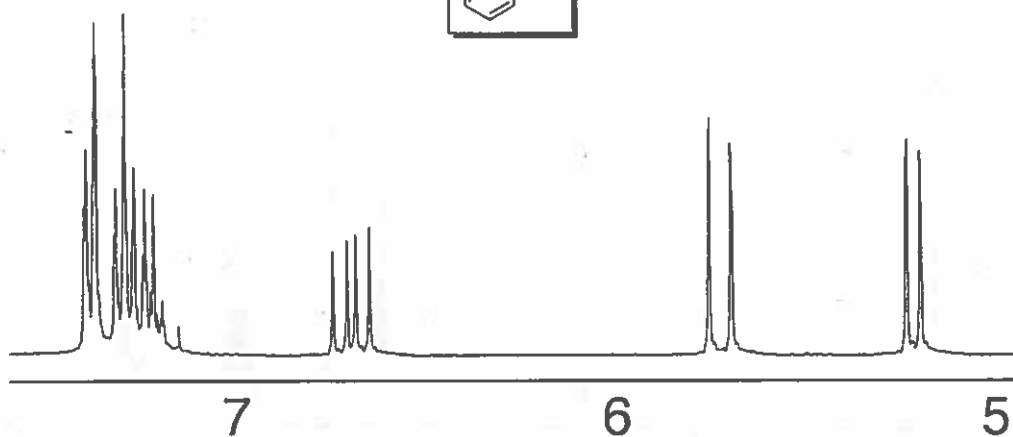
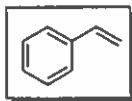
• Chlorobenzene



• styrene

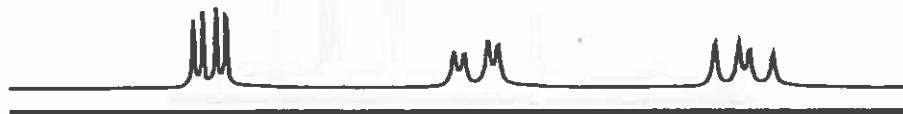
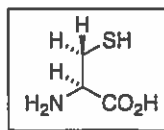


- styrene (detail)



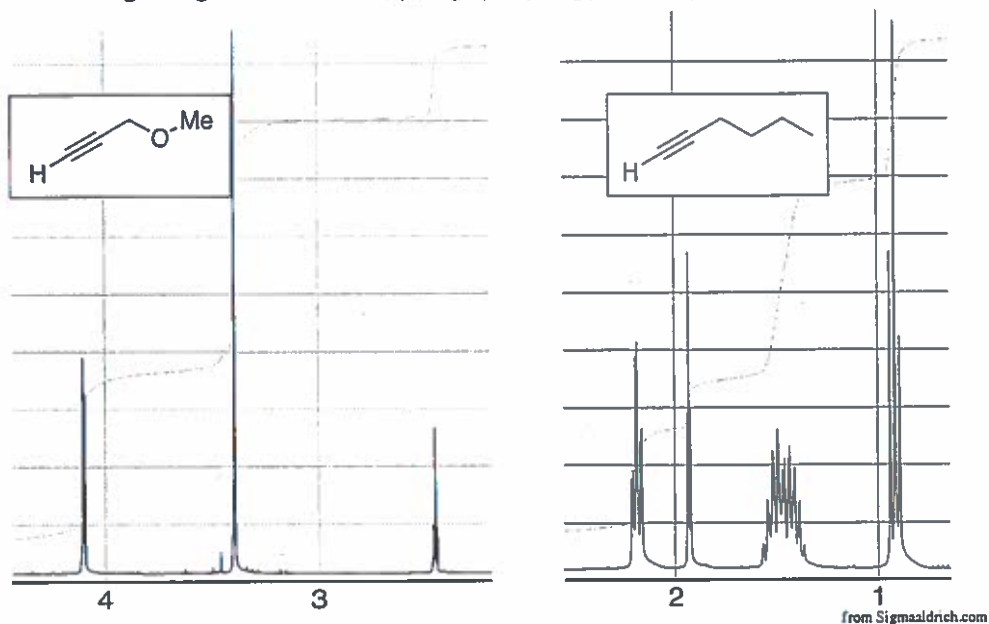
from Sigmaaldrich.com

- Cysteine (in D₂O solvent)

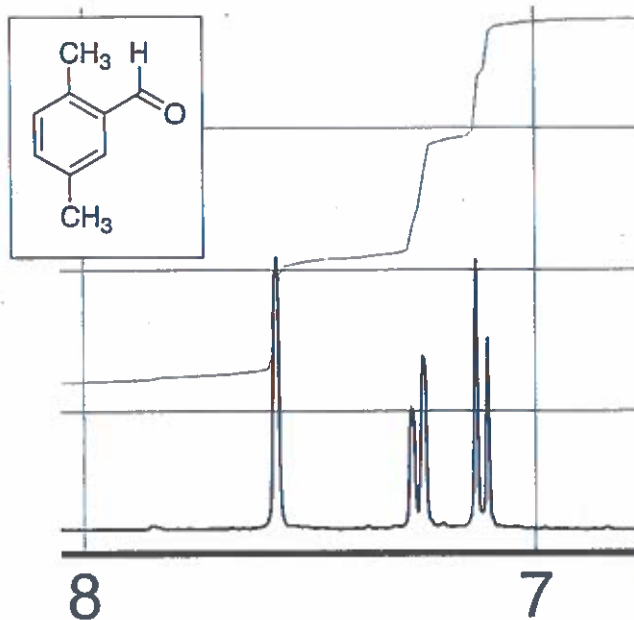


from Sigmaaldrich.com

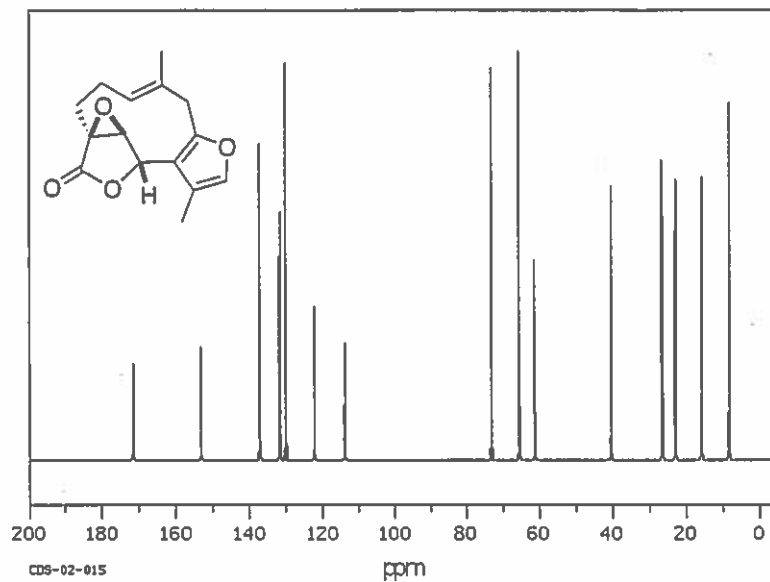
- "long-range" 4-bond coupling: propargylic coupling, 2-3 Hz



- "long-range" 4-bond coupling: meta coupling



- ^{13}C NMR Spectroscopy (proton decoupled)



- 2-Dimensional NMR Methods – Correlation Spectroscopy

