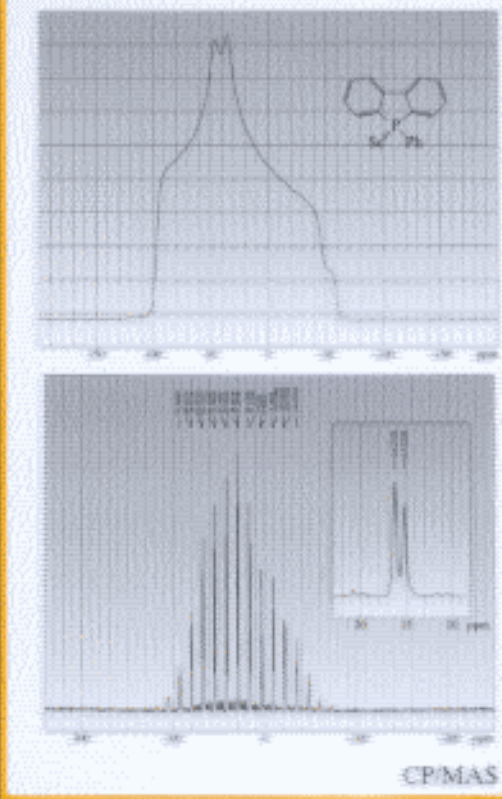


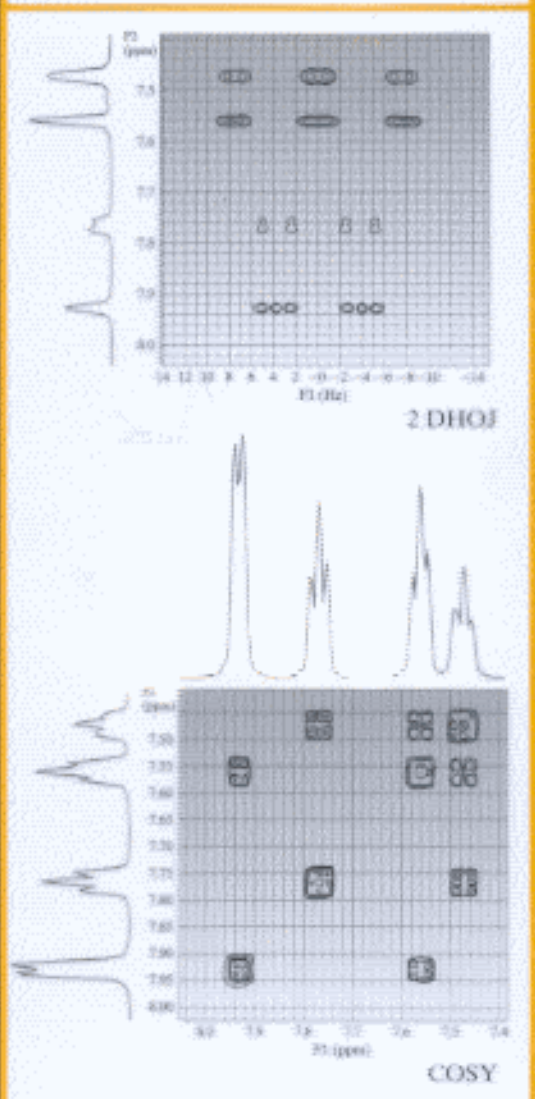


# NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY

JOHN H. NELSON

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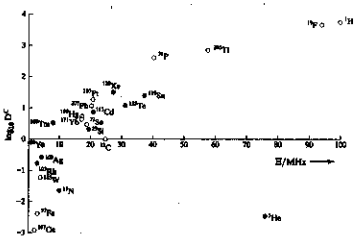
CHAPTER 3

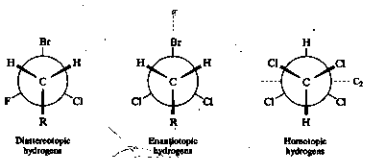
# The Chemical Shift and Examples for Selected Nuclei





CHAPTER 4

# Symmetry and NMR Spectroscopy



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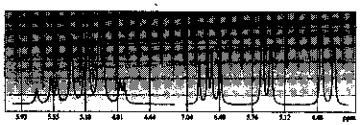
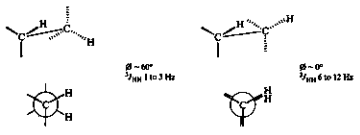
# Spin–Spin Coupling and NMR Spin Systems



CHAPTER 6

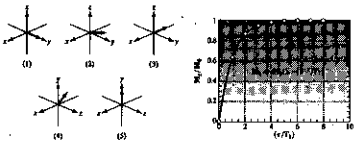
# Typical Magnitudes of Selected Coupling Constants





CHAPTER 7

# Nuclear Spin Relaxation



CHAPTER 8

## The Nuclear Overhauser Effect



$$\frac{M_C(^1H_{sat})}{M_C^0} = 1 + \left[\frac{6J_2(\omega_H + \omega_C) - J_0(\omega_H - \omega_C)}{J_0(\omega_H - \omega_C) + 3J_1\omega_C + 6J_2(\omega_C + \omega_H)}\right]\frac{\gamma_H}{\gamma_C} = 1 + \eta_{CH}$$

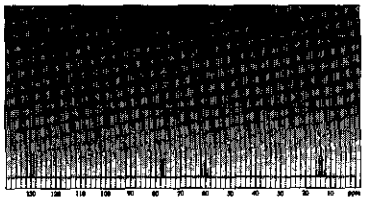
$$\frac{M_C(^1H_{sat})}{M_C^0} = 1 + 0.5\frac{\gamma_H}{\gamma_C} = 2.988 \quad \text{or} \quad \eta_{CH} = 1.988$$

$$\frac{1}{T_1(\text{other})} = \frac{1}{T_1(\text{obs})}\left[1 - \frac{\nu_{obs}}{\nu_0}\right]$$

CHAPTER 9

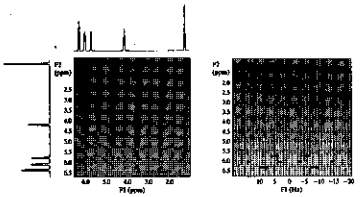
## Editing $^{13}C$ NMR Spectra





CHAPTER 10

# Two-Dimensional NMR Spectroscopy





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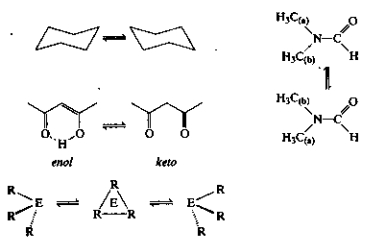
# Dynamic NMR Spectroscopy



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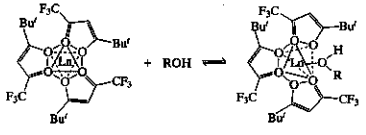
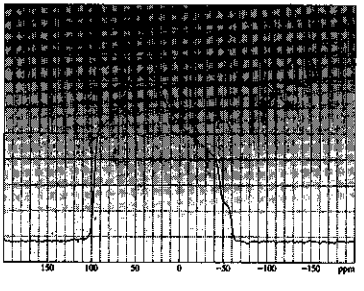
# Lanthanide-Shift Reagents





## CHAPTER 13

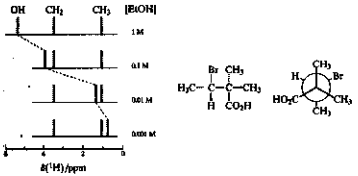
# NMR of Solids



CHAPTER 14

# Problems






APPENDIX

# Selected Values of Longitudinal Relaxation Times for Some Nuclei