HIGH RESOLUTION TECHNIQUES of EPR SPECTROSCOPY

OUTLINE

I. Electron-Nuclear and Nuclear Coupling Contributions to the Hamiltonian
   A. Hyperfine interaction
   B. NZ interaction
   C. Energy levels and the hyperfine spectrum
   D. Nuclear quadrupole interaction
   E. Probing the nuclear transitions: General features

II. Continuous-Wave Electron-Nuclear Double Resonance (CW-ENDOR)
   A. The steady-state CW-ENDOR experiment
   B. Applications in metalloproteins/enzymes

III. Pulsed-EPR Methods
   A. Comparison of pulsed- and CW-EPR methods
   B. The electron spin echo (ESE)

IV. Pulsed-ENDOR (ESE-ENDOR)
   A. Pulsed-ENDOR experiments
      1. Davies pulse sequence
      2. Mims pulse sequence
   B. Applications in metalloproteins/enzymes

V. Electron Spin Echo Envelope Modulation (ESEEM)
   A. The ESEEM experiment
   B. 14N ESEEM at exact cancellation
   C. Applications in metalloproteins/enzymes