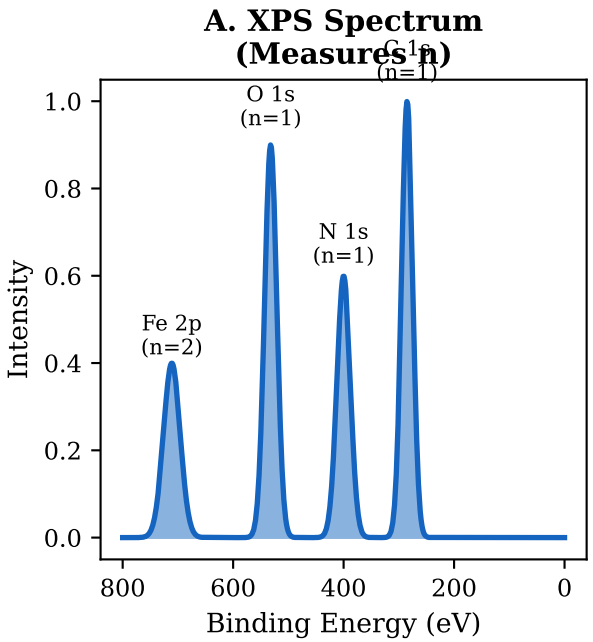
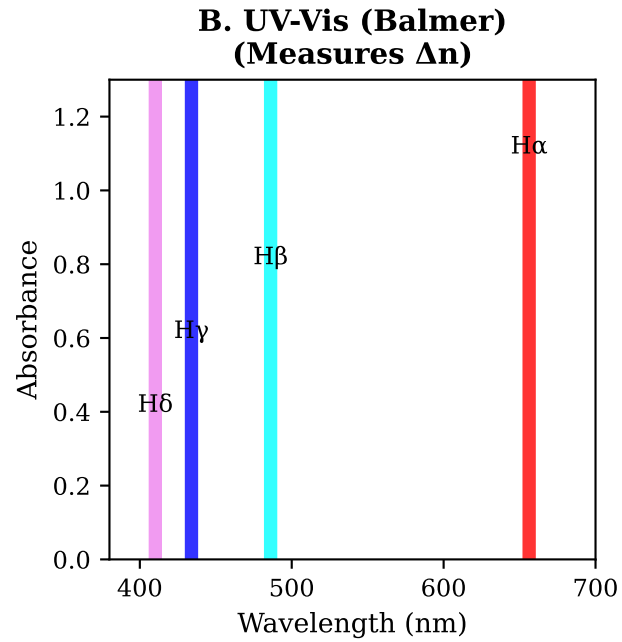
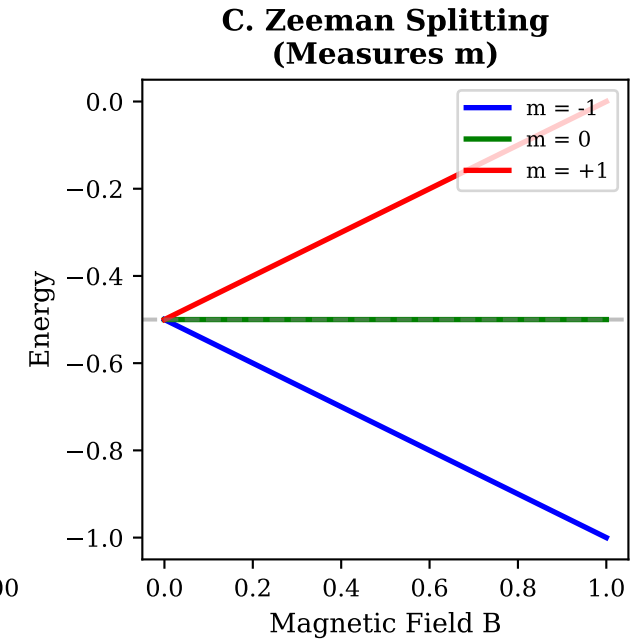
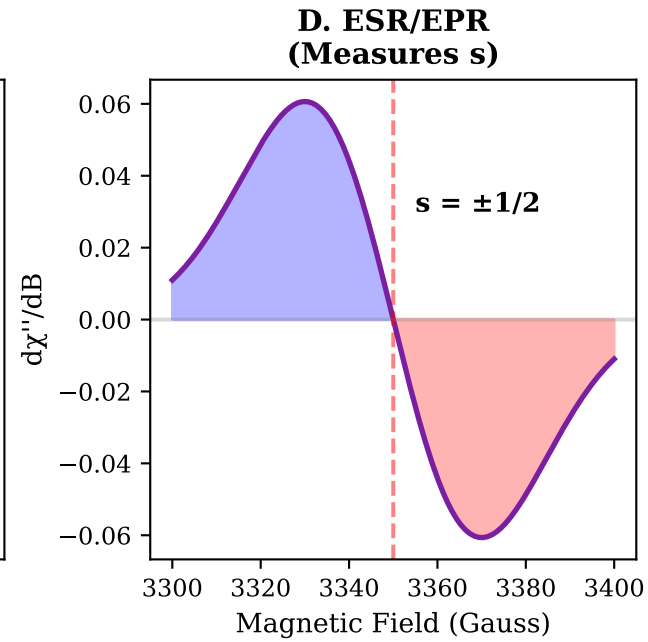
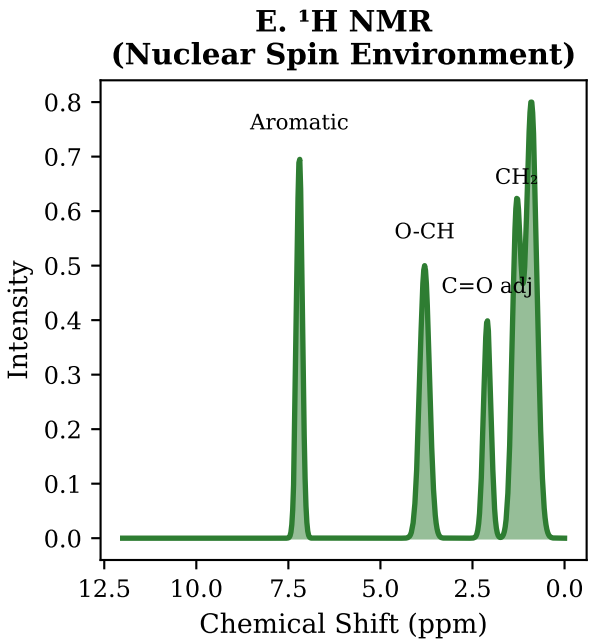
Panel 3: Virtual Spectrometry - Partition Coordinate Measurement

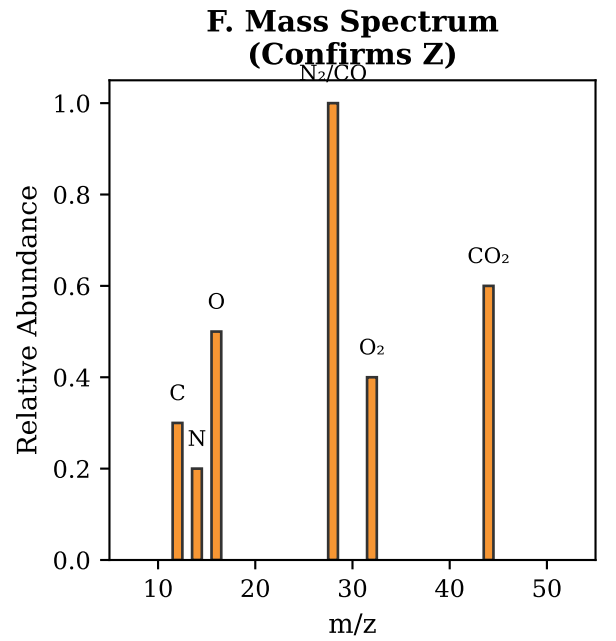


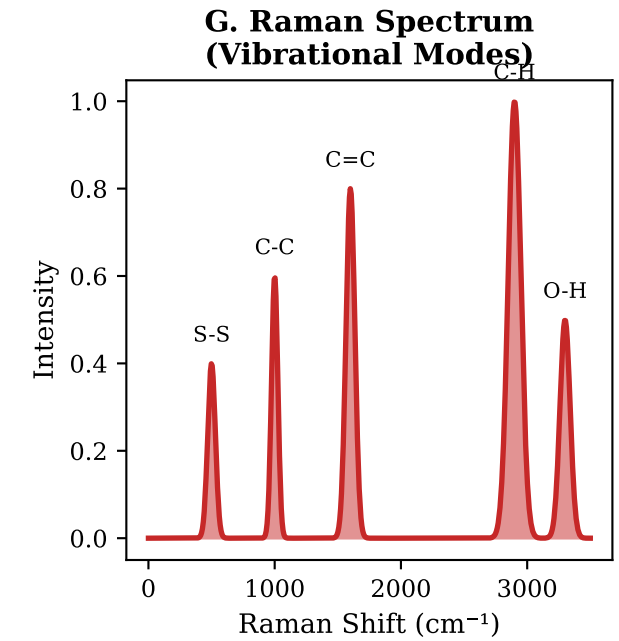


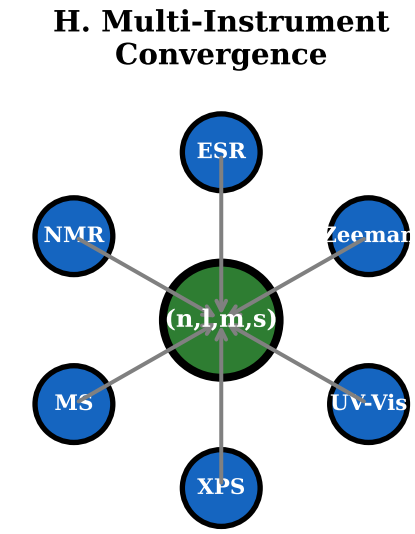












VIRTUAL SPECTROMETRY HARDWARE VALIDATION

X-ray Photoelectron Spectroscopy:
- Al Kα source: 1486.6 eV, resolution < 0.5 eV
- Binding energy accuracy: ± 0.1 eV
- Measures n via core level energies

Optical Spectroscopy:
- UV-Vis range: 190-800 nm
- Wavelength accuracy: ± 0.1 nm
- Validates selection rules Δl = ±1

Magnetic Resonance:
- ESR: 9.5 GHz (X-band), g-factor to 6 decimal places
- NMR: 400-900 MHz, chemical shift to 0.01 ppm
- Direct measurement of s = ±1/2

ELEMENT IDENTIFICATION: OXYGEN (Z=8)

Instrument	Measurement	Result
XPS	O 1s @ 532 eV	n = 1 confirmed
UV-Vis	2s→2p @ 13.6 eV	l = 0,1 confirmed
Zeeman	3-line splitting	m = -1,0,+1
ESR	g = 2.002	s = ±1/2
Mass Spec	m/z = 16.00	Z = 8 confirmed

Configuration: $(1s)^2(2s)^2(2p)^4$

ALL INSTRUMENTS CONVERGE → UNIQUE IDENTIFICATION