

Lecture 4, Jan 16, 2023

Electron Spin

- The Zeeman effect: in the presence of a strong magnetic field, the spectral lines spread out
 - This is because of the angular momentum from $L_z = m\hbar$ generating a magnetic dipole; the applied magnetic field makes it so that the states with different spin are no longer degenerate
 - With an even stronger field the lines split again due to spin
 - Spin can be detected with electron spin resonance
- Spin quantum number is m_s , with possible values $\pm\frac{1}{2}$
- This allows 2 electrons to occupy the same atomic orbital