

Zeeman Effect for $n = 2$ Levels in Hydrogen

Fine structure splitting in $B_{\text{ext}} = 0$

$$\Delta E = E_n^{1\text{Relativity}} + E_n^{1\text{SpinOrbit}} = \frac{|E_n^0| \alpha^2}{n^2} \left[\frac{3}{4} - \frac{n}{j + \frac{1}{2}} \right]$$

Griffiths *Quantum Mechanics*

Figure 6.12: Zeeman splitting of the $n = 2$ states of hydrogen in the weak, intermediate, and strong field regimes.

