

**H<sub>so</sub>:**

$$\langle \Lambda S \Sigma' J \Omega' | H_{so} + H_{soed} | \Lambda S \Sigma J \Omega \rangle = A \delta_{\Omega, \Omega'} \delta_{\Sigma, \Sigma'} \Lambda \Sigma + \frac{A_D}{2} \Lambda (\Sigma' + \Sigma) \frac{\langle \Lambda S \Sigma' J \Omega' | H_{rot} | \Lambda S \Sigma J \Omega \rangle}{B}$$