

**H<sub>ehf</sub>:**

$$\begin{aligned} \langle \pi' \Lambda S \Sigma' J' \Omega' I F | H_{ehf} | \pi \Lambda S \Sigma J \Omega I F \rangle = & \left[ e Q q_0 \delta_{\Omega, \Omega'} \begin{pmatrix} J' & 2 & J \\ -\Omega & 0 & \Omega \end{pmatrix} + \frac{e Q q_2}{\sqrt{6}} \delta_{\Omega+\Omega', 2} \pi(-1)^{J-S} \begin{pmatrix} J' & 2 & J \\ -\Omega' & 2 & -\Omega \end{pmatrix} \right] \\ & \times (-1)^{J'+J-\Omega'+I+F} \frac{\sqrt{(2J+1)(2J'+1)}}{8I(2I-1)} \prod_{k=0}^4 \sqrt{2I-1+k} \begin{Bmatrix} J' & I & F \\ I & J & 2 \end{Bmatrix} \end{aligned}$$