

$$\begin{aligned} H_{\text{mhf}} = & b_{\text{F}} \left( \mathbf{I} \cdot \mathbf{S} + \frac{\mathbf{I}_z \mathbf{S}_z}{3} \right) + c \mathbf{I}_z \mathbf{S}_z \\ & + \frac{b_{\text{FD}}}{2} \left\{ \mathbf{I} \cdot \mathbf{S} + \frac{\mathbf{I}_z \mathbf{S}_z}{3}, (\mathbf{J} - \mathbf{S})^2 \right\} \end{aligned}$$