

$$\begin{aligned}
H_{LD,\Delta} &= \frac{1}{2} \tilde{q}_{\Delta} (J_{+}^4 + J_{-}^4) - \frac{1}{2} \tilde{p}_{\Delta} (S_{+} J_{+}^3 + S_{-} J_{-}^3) \\
&\quad - \frac{1}{4} \tilde{p}_{\Delta D} [(S_{+} J_{+}^3 + S_{-} J_{-}^3) \cdot R^2]_{+} \\
&\quad - \frac{1}{4} \tilde{p}_{\Delta H} [(S_{+} J_{+}^3 + S_{-} J_{-}^3) \cdot R^4]_{+} \\
&\quad - \frac{1}{4} \tilde{p}_{\Delta L} [(S_{+} J_{+}^3 + S_{-} J_{-}^3) \cdot R^6]_{+} \\
&\quad - \frac{1}{4} \tilde{p}_{\Delta P} [(S_{+} J_{+}^3 + S_{-} J_{-}^3) \cdot R^8]_{+}
\end{aligned}$$