

$$\begin{aligned}
& \hbar \left(\frac{1}{216} \frac{1}{m_e^2} \left(s_Y^2 \overline{y_e}^{pi3} y_e^{pi4} \left(-54 c_Y^2 \overline{y_u}^{i2r} y_u^{i1r} + 5 g_1^2 \delta_{i1i2} \right) + 13 g_1^2 c_Y^2 \overline{y_u}^{i2p} y_u^{i1p} \delta_{i3i4} - \right. \right. \\
& \quad \left. s_Y^2 \overline{y_d}^{i2p} y_d^{i1p} \left(54 c_Y^2 \overline{y_e}^{ri3} y_e^{ri4} + 5 g_1^2 \delta_{i3i4} \right) \right) - \frac{2}{81} \sum_p g_1^4 \text{LF}_{3,0} [m_d^p] \delta_{i1i2} \delta_{i3i4} + \\
& \quad \frac{5}{108} \sum_p g_1^4 \text{LF}_{4,-1} [m_d^p] \delta_{i1i2} \delta_{i3i4} - \frac{8}{405} \sum_p g_1^4 \text{LF}_{5,-2} [m_d^p] \delta_{i1i2} \delta_{i3i4} - \\
& \quad \frac{2}{27} \sum_p g_1^4 \text{LF}_{3,0} [m_e^p] \delta_{i1i2} \delta_{i3i4} + \frac{5}{36} \sum_p g_1^4 \text{LF}_{4,-1} [m_e^p] \delta_{i1i2} \delta_{i3i4} - \\
& \quad \frac{8}{135} \sum_p g_1^4 \text{LF}_{5,-2} [m_e^p] \delta_{i1i2} \delta_{i3i4} - \frac{1}{27} \sum_p g_1^4 \text{LF}_{3,0} [m_l^p] \delta_{i1i2} \delta_{i3i4} + \\
& \quad \frac{5}{72} \sum_p g_1^4 \text{LF}_{4,-1} [m_l^p] \delta_{i1i2} \delta_{i3i4} - \frac{4}{135} \sum_p g_1^4 \text{LF}_{5,-2} [m_l^p] \delta_{i1i2} \delta_{i3i4} - \\
& \quad \frac{1}{81} \sum_p g_1^4 \text{LF}_{3,0} [m_q^p] \delta_{i1i2} \delta_{i3i4} + \frac{5}{216} \sum_p g_1^4 \text{LF}_{4,-1} [m_q^p] \delta_{i1i2} \delta_{i3i4} - \\
& \quad \frac{4}{405} \sum_p g_1^4 \text{LF}_{5,-2} [m_q^p] \delta_{i1i2} \delta_{i3i4} - \frac{8}{81} \sum_p g_1^4 \text{LF}_{3,0} [m_u^p] \delta_{i1i2} \delta_{i3i4} + \\
& \quad \frac{5}{27} \sum_p g_1^4 \text{LF}_{4,-1} [m_u^p] \delta_{i1i2} \delta_{i3i4} - \frac{32}{405} \sum_p g_1^4 \text{LF}_{5,-2} [m_u^p] \delta_{i1i2} \delta_{i3i4} + \\
& \quad \frac{1}{18} \left(s_Y^2 \overline{y_e}^{pi3} y_e^{pi4} \left(-9 c_Y^2 \overline{y_u}^{i2r} y_u^{i1r} + g_1^2 \delta_{i1i2} \right) + 4 g_1^2 c_Y^2 \overline{y_u}^{i2p} y_u^{i1p} \delta_{i3i4} - \right. \\
& \quad \left. s_Y^2 \overline{y_d}^{i2p} y_d^{i1p} \left(9 c_Y^2 \overline{y_e}^{ri3} y_e^{ri4} + 2 g_1^2 \delta_{i3i4} \right) \right) \text{LF}_{1,2} [m_\oplus] + \\
& \quad \frac{1}{36} \left(s_Y^2 \overline{y_e}^{pi3} y_e^{pi4} \left(9 c_Y^2 \overline{y_u}^{i2r} y_u^{i1r} + g_1^2 \delta_{i1i2} \right) - 3 g_1^2 c_Y^2 \overline{y_u}^{i2p} y_u^{i1p} \delta_{i3i4} + \right. \\
& \quad \left. 3 s_Y^2 \overline{y_d}^{i2p} y_d^{i1p} \left(-3 s_Y^2 \overline{y_e}^{ri3} y_e^{ri4} + g_1^2 \delta_{i3i4} \right) \right) \text{LF}_{2,1} [m_\oplus] - \\
& \quad \frac{1}{108} g_1^2 \left(3 s_Y^2 \overline{y_e}^{pi3} y_e^{pi4} \delta_{i1i2} + \left(9 s_Y^2 \overline{y_d}^{i2p} y_d^{i1p} - 9 c_Y^2 \overline{y_u}^{i2p} y_u^{i1p} + 4 g_1^2 \delta_{i1i2} \right) \delta_{i3i4} \right) \\
& \quad \text{LF}_{3,0} [m_\oplus] + \frac{5}{72} g_1^4 \text{LF}_{4,-1} [m_\oplus] \delta_{i1i2} \delta_{i3i4} - \frac{4}{135} g_1^4 \text{LF}_{5,-2} [m_\oplus] \delta_{i1i2} \delta_{i3i4} - \\
& \quad \frac{1}{27} g_1^4 \text{LF}_{3,0} [\tilde{\mu}] \delta_{i1i2} \delta_{i3i4} - \frac{1}{18} g_1^4 \text{LF}_{4,-1} [\tilde{\mu}] \delta_{i1i2} \delta_{i3i4} + \frac{8}{135} g_1^4 \text{LF}_{5,-2} [\tilde{\mu}] \delta_{i1i2} \delta_{i3i4} - \\
& \quad \frac{1}{18} g_1^4 \text{LF}_{2,1,0} [m_1, m_e^{i4}] \delta_{i1i2} \delta_{i3i4} - \frac{1}{18} g_1^4 \text{LF}_{2,2,-1} [m_1, m_e^{i4}] \delta_{i1i2} \delta_{i3i4} + \\
& \quad \frac{1}{9} g_1^4 \text{LF}_{3,1,-1} [m_1, m_e^{i4}] \delta_{i1i2} \delta_{i3i4} - \frac{1}{18} g_1^4 \text{LF}_{4,1,-2} [m_1, m_e^{i4}] \delta_{i1i2} \delta_{i3i4} - \\
& \quad \frac{1}{648} g_1^4 \text{LF}_{2,1,0} [m_1, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \frac{1}{648} g_1^4 \text{LF}_{2,2,-1} [m_1, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} + \\
& \quad \frac{1}{324} g_1^4 \text{LF}_{3,1,-1} [m_1, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \frac{1}{648} g_1^4 \text{LF}_{4,1,-2} [m_1, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \\
& \quad \frac{1}{24} g_1^2 g_2^2 \text{LF}_{2,1,0} [m_2, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \frac{1}{24} g_1^2 g_2^2 \text{LF}_{2,2,-1} [m_2, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} + \\
& \quad \frac{1}{12} g_1^2 g_2^2 \text{LF}_{3,1,-1} [m_2, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \frac{1}{24} g_1^2 g_2^2 \text{LF}_{4,1,-2} [m_2, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \\
& \quad \frac{2}{27} g_1^2 g_3^2 \text{LF}_{2,1,0} [m_3, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \frac{2}{27} g_1^2 g_3^2 \text{LF}_{2,2,-1} [m_3, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} + \\
& \quad \frac{4}{27} g_1^2 g_3^2 \text{LF}_{3,1,-1} [m_3, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \frac{2}{27} g_1^2 g_3^2 \text{LF}_{4,1,-2} [m_3, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \\
& \quad \frac{1}{9} g_1^2 \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{2,1,0} [m_d^p, \tilde{\mu}] \delta_{i3i4} + \frac{1}{18} g_1^2 \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{2,2,-1} [m_d^p, \tilde{\mu}] \delta_{i3i4} + \\
& \quad \frac{1}{18} g_1^2 \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{3,1,-1} [m_d^p, \tilde{\mu}] \delta_{i3i4} + \frac{1}{9} g_1^4 \text{LF}_{2,1,0} [m_e^{i4}, m_1] \delta_{i1i2} \delta_{i3i4} - \\
& \quad \frac{1}{18} g_1^4 \text{LF}_{3,1,-1} [m_e^{i4}, m_1] \delta_{i1i2} \delta_{i3i4} + \frac{1}{18} g_1^2 \overline{y_e}^{pi3} y_e^{pi4} \text{LF}_{2,1,0} [m_l^p, \tilde{\mu}] \delta_{i1i2} - \\
& \quad \frac{1}{36} g_1^2 \overline{y_e}^{pi3} y_e^{pi4} \text{LF}_{2,2,-1} [m_l^p, \tilde{\mu}] \delta_{i1i2} - \frac{1}{36} g_1^2 \overline{y_e}^{pi3} y_e^{pi4} \text{LF}_{3,1,-1} [m_l^p, \tilde{\mu}] \delta_{i1i2} + \\
& \quad \frac{1}{324} g_1^4 \text{LF}_{2,1,0} [m_q^{i2}, m_1] \delta_{i1i2} \delta_{i3i4} - \frac{1}{648} g_1^4 \text{LF}_{3,1,-1} [m_q^{i2}, m_1] \delta_{i1i2} \delta_{i3i4} + \\
& \quad \frac{1}{12} g_1^2 g_2^2 \text{LF}_{2,1,0} [m_q^{i2}, m_2] \delta_{i1i2} \delta_{i3i4} - \frac{1}{24} g_1^2 g_2^2 \text{LF}_{3,1,-1} [m_q^{i2}, m_2] \delta_{i1i2} \delta_{i3i4} + \\
& \quad \frac{4}{27} g_1^2 g_3^2 \text{LF}_{2,1,0} [m_q^{i2}, m_3] \delta_{i1i2} \delta_{i3i4} - \frac{2}{27} g_1^2 g_3^2 \text{LF}_{3,1,-1} [m_q^{i2}, m_3] \delta_{i1i2} \delta_{i3i4} + \\
& \quad \frac{2}{9} g_1^2 \overline{y_u}^{i2p} y_u^{i1p} \text{LF}_{2,1,0} [m_u^p, \tilde{\mu}] \delta_{i3i4} - \frac{1}{9} g_1^2 \overline{y_u}^{i2p} y_u^{i1p} \text{LF}_{2,2,-1} [m_u^p, \tilde{\mu}] \delta_{i3i4} - \\
& \quad \frac{1}{9} g_1^2 \overline{y_u}^{i2p} y_u^{i1p} \text{LF}_{3,1,-1} [m_u^p, \tilde{\mu}] \delta_{i3i4} + \frac{1}{18} g_1^2 \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{2,1,0} [\tilde{\mu}, m_d^p] \delta_{i3i4} + \\
& \quad \frac{5}{36} g_1^2 \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{3,1,-1} [\tilde{\mu}, m_d^p] \delta_{i3i4} - \frac{1}{36} g_1^2 \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{4,1,-2} [\tilde{\mu}, m_d^p] \delta_{i3i4} - \\
& \quad \frac{1}{36} g_1^2 \overline{y_e}^{pi3} y_e^{pi4} \text{LF}_{2,1,0} [\tilde{\mu}, m_l^p] \delta_{i1i2} + \frac{5}{36} g_1^2 \overline{y_e}^{pi3} y_e^{pi4} \text{LF}_{3,1,-1} [\tilde{\mu}, m_l^p] \delta_{i1i2} - \\
& \quad \frac{1}{18} g_1^2 \overline{y_e}^{pi3} y_e^{pi4} \text{LF}_{4,1,-2} [\tilde{\mu}, m_l^p] \delta_{i1i2} - \frac{1}{9} g_1^2 \overline{y_u}^{i2p} y_u^{i1p} \text{LF}_{2,1,0} [\tilde{\mu}, m_u^p] \delta_{i3i4} - \\
& \quad \frac{1}{36} g_1^2 \overline{y_u}^{i2p} y_u^{i1p} \text{LF}_{3,1,-1} [\tilde{\mu}, m_u^p] \delta_{i3i4} - \frac{1}{36} g_1^2 \overline{y_u}^{i2p} y_u^{i1p} \text{LF}_{4,1,-2} [\tilde{\mu}, m_u^p] \delta_{i3i4} - \\
& \quad \frac{1}{36} g_1^4 \text{LF}_{2,1,1,-1} [m_1, m_e^{i4}, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \frac{1}{18} g_1^4 m_1^2 \text{LF}_{2,1,1,0} [m_1, m_e^{i4}, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \\
& \quad \frac{1}{4} \overline{y_d}^{i2p} y_d^{i1p} \overline{y_e}^{ri3} y_e^{ri4} \text{LF}_{2,1,1,-1} [\tilde{\mu}, m_d^p, m_l^r] - \\
& \quad \frac{1}{2} \tilde{\mu}^2 \overline{y_e}^{pi3} y_e^{pi4} \overline{y_u}^{i2r} y_u^{i1r} \text{LF}_{2,1,1,0} [\tilde{\mu}, m_l^p, m_u^r] \Big)
\end{aligned}$$