

$$\begin{aligned}
& \frac{1}{432} m_e^2 (s_\gamma^2 \overline{y_d}^{i2p} (5 g_1^2 y_d^{i1p} - 36 c_\gamma^2 \overline{y_d}^{i1p} y_d^{i1s}) y_d^{i1s}) + \\
& (y_u^{i2p} (-13 g_1^2 y_u^{i1p} + 36 s_\gamma^2 \overline{y_u}^{i1p} y_u^{i1p} y_u^{i1s})) + \frac{1}{81} \sum_p g_1^4 \text{LF}_{3,0} [m_d^P] \delta_{i1i2} - \\
& g_1^4 \text{LF}_{4,-1} [m_d^P] \delta_{i1i2} + \frac{4}{405} \sum_p g_1^4 \text{LF}_{5,-2} [m_d^P] \delta_{i1i2} + \frac{1}{27} \sum_p g_1^4 \text{LF}_{3,0} [m_e^P] \delta_{i1i2} - \\
& g_1^4 \text{LF}_{4,-1} [m_e^P] \delta_{i1i2} + \frac{4}{135} \sum_p g_1^4 \text{LF}_{5,-2} [m_e^P] \delta_{i1i2} + \frac{1}{54} \sum_p g_1^4 \text{LF}_{3,0} [m_\mu^P] \delta_{i1i2} - \\
& g_1^4 \text{LF}_{4,-1} [m_\mu^P] \delta_{i1i2} + \frac{2}{135} \sum_p g_1^4 \text{LF}_{5,-2} [m_\mu^P] \delta_{i1i2} + \\
& g_1^4 \text{LF}_{3,0} [m_q^P] \delta_{i1i2} - \frac{5}{432} \sum_p g_1^4 \text{LF}_{4,-1} [m_q^P] \delta_{i1i2} + \frac{2}{405} \sum_p g_1^4 \text{LF}_{5,-2} [m_q^P] \delta_{i1i2} + \\
& g_1^4 \text{LF}_{3,0} [m_u^P] \delta_{i1i2} - \frac{5}{54} \sum_p g_1^4 \text{LF}_{4,-1} [m_u^P] \delta_{i1i2} + \frac{16}{405} \sum_p g_1^4 \text{LF}_{5,-2} [m_u^P] \delta_{i1i2} + \\
& 2 \overline{y_d}^{i2p} (g_1^2 y_d^{i1p} - 9 c_\gamma^2 \overline{y_d}^{i1p} y_d^{i1p} y_d^{i1s}) + c_\gamma^2 \overline{y_u}^{i2p} (-2 g_1^2 y_u^{i1p} + 9 s_\gamma^2 \overline{y_u}^{i1p} y_u^{i1p} y_u^{i1s}) \\
& [m_\mu] + \frac{1}{24} g_1^2 (-s_\gamma^2 \overline{y_d}^{i2p} y_d^{i1p} + c_\gamma^2 \overline{y_u}^{i2p} y_u^{i1p}) \text{LF}_{2,1} [m_\mu] + \\
& 2 (9 s_\gamma^2 \overline{y_d}^{i2p} y_d^{i1p} - 9 c_\gamma^2 \overline{y_u}^{i2p} y_u^{i1p} + 4 g_1^2 \delta_{i1i2}) \text{LF}_{3,0} [m_\mu] - \\
& 4 \text{LF}_{4,-1} [m_\mu] \delta_{i1i2} + \frac{2}{135} g_1^4 \text{LF}_{5,-2} [m_\mu] \delta_{i1i2} + \frac{1}{54} g_1^4 \text{LF}_{3,0} [\tilde{\mu}] \delta_{i1i2} + \\
& \text{LF}_{4,-1} [\tilde{\mu}] \delta_{i1i2} - \frac{4}{135} g_1^4 \text{LF}_{5,-2} [\tilde{\mu}] \delta_{i1i2} + \frac{1}{18} g_1^2 c_\gamma^2 \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{2,1,0} [m_1, m_d^P] - \\
& c_\gamma^2 \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{3,1,-1} [m_1, m_d^P] + \frac{1}{18} g_1^2 c_\gamma^2 \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{4,1,-2} [m_1, m_d^P] + \\
& 1^4 \text{LF}_{2,1,0} [m_1, m_q^{i2}] \delta_{i1i2} + \frac{1}{1296} g_1^4 \text{LF}_{2,2,-1} [m_1, m_q^{i2}] \delta_{i1i2} - \\
& 4 \text{LF}_{3,1,-1} [m_1, m_q^{i2}] \delta_{i1i2} + \frac{1}{1296} g_1^4 \text{LF}_{4,1,-2} [m_1, m_q^{i2}] \delta_{i1i2} - \\
& s_\gamma^2 \overline{y_u}^{i2p} y_u^{i1p} \text{LF}_{2,1,0} [m_1, m_u^P] + \frac{4}{9} g_1^2 s_\gamma^2 \overline{y_u}^{i2p} y_u^{i1p} \text{LF}_{3,1,-1} [m_1, m_u^P] - \\
& s_\gamma^2 \overline{y_u}^{i2p} y_u^{i1p} \text{LF}_{4,1,-2} [m_1, m_u^P] + \frac{1}{48} g_1^2 g_2^2 \text{LF}_{2,1,0} [m_2, m_q^{i2}] \delta_{i1i2} + \\
& g_2^2 \text{LF}_{2,2,-1} [m_2, m_q^{i2}] \delta_{i1i2} - \frac{1}{24} g_1^2 g_2^2 \text{LF}_{3,1,-1} [m_2, m_q^{i2}] \delta_{i1i2} + \\
& g_2^2 \text{LF}_{4,1,-2} [m_2, m_q^{i2}] \delta_{i1i2} + \frac{2}{3} g_3^2 c_\gamma^2 \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{2,1,0} [m_3, m_d^P] - \\
& c_\gamma^2 \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{3,1,-1} [m_3, m_d^P] + \frac{2}{3} g_3^2 c_\gamma^2 \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{4,1,-2} [m_3, m_d^P] + \\
& g_3^2 \text{LF}_{2,1,0} [m_3, m_q^{i2}] \delta_{i1i2} + \frac{1}{27} g_1^2 g_3^2 \text{LF}_{2,2,-1} [m_3, m_q^{i2}] \delta_{i1i2} - \\
& g_3^2 \text{LF}_{3,1,-1} [m_3, m_q^{i2}] \delta_{i1i2} + \frac{1}{27} g_1^2 g_3^2 \text{LF}_{4,1,-2} [m_3, m_q^{i2}] \delta_{i1i2} - \\
& s_\gamma^2 \overline{y_u}^{i2p} y_u^{i1p} \text{LF}_{2,1,0} [m_3, m_u^P] + \frac{4}{3} g_3^2 s_\gamma^2 \overline{y_u}^{i2p} y_u^{i1p} \text{LF}_{3,1,-1} [m_3, m_u^P] - \\
& s_\gamma^2 \overline{y_u}^{i2p} y_u^{i1p} \text{LF}_{4,1,-2} [m_3, m_u^P] + \frac{1}{18} g_1^2 \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{2,1,0} [m_d^P, \tilde{\mu}] - \\
& \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{2,2,-1} [m_d^P, \tilde{\mu}] - \frac{1}{36} g_1^2 \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{3,1,-1} [m_d^P, \tilde{\mu}] + \\
& (c_\gamma \overline{a_d}^{i1p} - s_\gamma \tilde{\mu} \overline{y_d}^{i1p}) (c_\gamma a_d^{i1p} - s_\gamma \tilde{\mu} y_d^{i1p}) \text{LF}_{2,2,0} [m_d^r, m_q^P] \delta_{i1i2} - \\
& (c_\gamma \overline{a_d}^{i1p} - s_\gamma \tilde{\mu} \overline{y_d}^{i1p}) (c_\gamma a_d^{i1p} - s_\gamma \tilde{\mu} y_d^{i1p}) \text{LF}_{3,2,-1} [m_d^r, m_q^P] \delta_{i1i2} + \\
& (c_\gamma \overline{a_e}^{i1p} - s_\gamma \tilde{\mu} \overline{y_e}^{i1p}) (c_\gamma a_e^{i1p} - s_\gamma \tilde{\mu} y_e^{i1p}) \text{LF}_{2,2,0} [m_e^r, m_l^P] \delta_{i1i2} - \\
& (c_\gamma \overline{a_e}^{i1p} - s_\gamma \tilde{\mu} \overline{y_e}^{i1p}) (c_\gamma a_e^{i1p} - s_\gamma \tilde{\mu} y_e^{i1p}) \text{LF}_{3,2,-1} [m_e^r, m_l^P] \delta_{i1i2} - \\
& (c_\gamma \overline{a_e}^{i1p} - s_\gamma \tilde{\mu} \overline{y_e}^{i1p}) (c_\gamma a_e^{i1p} - s_\gamma \tilde{\mu} y_e^{i1p}) \text{LF}_{3,1,0} [m_l^P, m_e^r] \delta_{i1i2} - \\
& (c_\gamma \overline{a_e}^{i1p} - s_\gamma \tilde{\mu} \overline{y_e}^{i1p}) (c_\gamma a_e^{i1p} - s_\gamma \tilde{\mu} y_e^{i1p}) \text{LF}_{4,1,-1} [m_l^P, m_e^r] \delta_{i1i2} - \\
& (c_\gamma \overline{a_e}^{i1p} - s_\gamma \tilde{\mu} \overline{y_e}^{i1p}) (c_\gamma a_e^{i1p} - s_\gamma \tilde{\mu} y_e^{i1p}) \text{LF}_{5,1,-2} [m_l^P, m_e^r] \delta_{i1i2} - \\
& (c_\gamma \overline{a_d}^{i1p} - s_\gamma \tilde{\mu} \overline{y_d}^{i1p}) (c_\gamma a_d^{i1p} - s_\gamma \tilde{\mu} y_d^{i1p}) \text{LF}_{3,1,0} [m_q^P, m_d^r] \delta_{i1i2} - \\
& (c_\gamma \overline{a_d}^{i1p} - s_\gamma \tilde{\mu} \overline{y_d}^{i1p}) (c_\gamma a_d^{i1p} - s_\gamma \tilde{\mu} y_d^{i1p}) \text{LF}_{3,2,-1} [m_q^P, m_d^r] \delta_{i1i2} + \\
& (c_\gamma \overline{a_d}^{i1p} - s_\gamma \tilde{\mu} \overline{y_d}^{i1p}) (c_\gamma a_d^{i1p} - s_\gamma \tilde{\mu} y_d^{i1p}) \text{LF}_{4,1,-1} [m_q^P, m_d^r] \delta_{i1i2} - \\
& (c_\gamma \overline{a_d}^{i1p} - s_\gamma \tilde{\mu} \overline{y_d}^{i1p}) (c_\gamma a_d^{i1p} - s_\gamma \tilde{\mu} y_d^{i1p}) \text{LF}_{5,1,-2} [m_q^P, m_d^r] \delta_{i1i2} - \\
& (s_\gamma \overline{a_u}^{i1p} - \tilde{\mu} c_\gamma \overline{y_u}^{i1p}) (s_\gamma a_u^{i1p} - \tilde{\mu} c_\gamma y_u^{i1p}) \text{LF}_{2,2,0} [m_q^P, m_u^r] \delta_{i1i2} + \\
& (s_\gamma \overline{a_u}^{i1p} - \tilde{\mu} c_\gamma \overline{y_u}^{i1p}) (s_\gamma a_u^{i1p} - \tilde{\mu} c_\gamma y_u^{i1p}) \text{LF}_{3,2,-1} [m_q^P, m_u^r] \delta_{i1i2} - \\
& 4 \text{LF}_{2,1,0} [m_q^{i2}, m_1] \delta_{i1i2} + \frac{1}{1296} g_1^4 \text{LF}_{3,1,-1} [m_q^{i2}, m_1] \delta_{i1i2} - \\
& g_2^2 \text{LF}_{2,1,0} [m_q^{i2}, m_2] \delta_{i1i2} + \frac{1}{48} g_1^2 g_2^2 \text{LF}_{3,1,-1} [m_q^{i2}, m_2] \delta_{i1i2} - \\
& g_2^2 \text{LF}_{2,1,0} [m_q^{i2}, m_3] \delta_{i1i2} + \frac{1}{27} g_1^2 g_3^2 \text{LF}_{3,1$$