

$$\begin{aligned} & \rightarrow \hbar \left(-\frac{1}{144} \frac{1}{m_q^2} (s_\gamma^2 \overline{y_d}^{i2p} (g_2^2 y_d^{i1p} + 12 c_\gamma^2 y_d^{i1p} (\overline{y_d^r s} y_d^{i1s} + 3 \overline{y_u^r s} y_u^{i1s})) + \right. \\ & \quad \left. c_\gamma^2 (36 s_\gamma^2 \overline{y_d}^{i2p} y_d^{i1r} \overline{y_u}^{i2s} y_u^{ps} + \overline{y_d}^{i2p} (g_2^2 y_u^{i1p} + 12 s_\gamma^2 \overline{y_u^r s} y_u^{i1p} y_u^{i1s})) \right) + \\ & \quad \frac{1}{9} g_2^4 \text{LF}_{3,0} [m_2] \delta_{i1i2} + \frac{1}{6} g_2^4 \text{LF}_{4,-1} [m_2] \delta_{i1i2} - \frac{8}{45} g_2^4 \text{LF}_{5,-2} [m_2] \delta_{i1i2} + \\ & \quad \frac{1}{18} \sum_p g_2^4 \text{LF}_{3,0} [m_1^p] \delta_{i1i2} - \frac{5}{48} \sum_p g_2^4 \text{LF}_{4,-1} [m_1^p] \delta_{i1i2} + \\ & \quad \frac{1}{24} \sum_p g_2^4 \text{LF}_{5,-2} [m_1^p] \delta_{i1i2} + \frac{1}{6} \sum_p g_2^4 \text{LF}_{3,0} [m_q^p] \delta_{i1i2} - \frac{5}{16} \sum_p g_2^4 \text{LF}_{4,-1} [m_q^p] \delta_{i1i2} + \\ & \quad \frac{1}{24} \sum_p g_2^4 \text{LF}_{5,-2} [m_q^p] \delta_{i1i2} - \frac{1}{24} g_2^2 (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_\phi] + \\ & \quad \frac{1}{72} g_2^2 (3 s_\gamma^2 \overline{y_d}^{i2p} y_d^{i1p} + 3 c_\gamma^2 \overline{y_u}^{i2p} y_u^{i1p} + 4 g_2^2 \delta_{i1i2}) \text{LF}_{3,0} [m_\phi] - \frac{5}{48} g_2^4 \text{LF}_{4,-1} [m_\phi] \delta_{i1i2} + \\ & \quad \frac{2}{45} g_2^4 \text{LF}_{5,-2} [m_\phi] \delta_{i1i2} + \frac{1}{18} g_2^4 \text{LF}_{3,0} [\tilde{\mu}] \delta_{i1i2} + \frac{1}{12} g_2^4 \text{LF}_{4,-1} [\tilde{\mu}] \delta_{i1i2} - \frac{4}{45} g_2^4 \text{LF}_{5,-2} [\tilde{\mu}] \delta_{i1i2} + \\ & \quad \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] - \frac{1}{9} g_1^2 c_\gamma^2 \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{3,1,-1} [m_1, m_d^p] + \\ & \quad \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] + \frac{1}{432} g_1^2 g_2^2 \text{LF}_{2,1,0} [m_1, m_q^{i2}] \delta_{i1i2} + \\ & \quad \frac{1}{432} g_1^2 g_2^2 \text{LF}_{2,2,-1} [m_1, m_q^{i2}] \delta_{i1i2} - \frac{1}{216} g_1^2 g_2^2 \text{LF}_{3,1,-1} [m_1, m_q^{i2}] \delta_{i1i2} + \\ & \quad \frac{1}{432} g_1^2 g_2^2 \text{LF}_{4,1,-2} [m_1, m_q^{i2}] \delta_{i1i2} + \frac{2}{9} g_1^2 s_\gamma^2 \overline{y_u}^{i2p} y_u^{i1p} \text{LF}_{2,1,0} [m_1, m_u^p] - \\ & \quad \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] + \frac{2}{3} g_1^2 s_\gamma^2 \overline{y_u}^{i2p} y_u^{i1p} \text{LF}_{4,1,-2} [m_1, m_u^p] - \\ & \quad \frac{1}{48} g_2^4 \text{LF}_{2,1,0} [m_2, m_q^{i2}] \delta_{i1i2} - \frac{1}{48} g_2^4 \text{LF}_{2,2,-1} [m_2, m_q^{i2}] \delta_{i1i2} - \frac{5}{24} g_2^4 \text{LF}_{3,1,-1} [m_2, m_q^{i2}] \delta_{i1i2} + \\ & \quad \frac{1}{16} g_2^4 \text{LF}_{4,1,-2} [m_2, m_q^{i2}] \delta_{i1i2} - \frac{1}{3} g_2^4 \text{LF}_{2,1,0} [m_2, \tilde{\mu}] \delta_{i1i2} - \frac{1}{3} g_2^4 \text{LF}_{2,2,-1} [m_2, \tilde{\mu}] \delta_{i1i2} - \\ & \quad \frac{2}{3} m_2 s_\gamma \tilde{\mu} c_\gamma g_2^4 \text{LF}_{2,2,0} [m_2, \tilde{\mu}] \delta_{i1i2} + \frac{1}{6} g_2^4 \text{LF}_{3,1,-1} [m_2, \tilde{\mu}] \delta_{i1i2} + \\ & \quad \frac{1}{6} g_2^4 \text{LF}_{3,2,-2} [m_2, \tilde{\mu}] \delta_{i1i2} + \frac{1}{3} m_2 s_\gamma \tilde{\mu} c_\gamma g_2^4 \text{LF}_{3,2,-1} [m_2, \tilde{\mu}] \delta_{i1i2} + \\ & \quad \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] - \frac{4}{3} g_3^2 c_\gamma^2 \overline{y_d}^{i2p} y_d^{i1p} \text{LF}_{3,1,-1} [m_3, m_d^p] + \\ & \quad \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] + \frac{1}{9} g_2^2 g_3^2 \text{LF}_{2,1,0} [m_3, m_q^{i2}] \delta_{i1i2} + \\ & \quad \frac{1}{9} g_2^2 g_3^2 \text{LF}_{2,2,-1} [m_3, m_q^{i2}] \delta_{i1i2} - \frac{2}{9} g_2^2 g_3^2 \text{LF}_{3,1,-1} [m_3, m_q^{i2}] \delta_{i1i2} + \\ & \quad \frac{1}{9} g_2^2 g_3^2 \text{LF}_{4,1,-2} [m_3, m_q^{i2}] \delta_{i1i2} + \frac{2}{3} g_3^2 s_\gamma^2 \overline{y_u}^{i2p} y_u^{i1p} \text{LF}_{2,1,0} [m_3, m_u^p] - \\ & \quad \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] + \frac{2}{3} g_3^2 s_\gamma^2 \overline{y_u}^{i2p} y_u^{i1p} \text{LF}_{4,1,-2} [m_3, m_u^p] + \\ & \quad \frac{1}{8} g_2^2 (c_\gamma \overline{a_e}^{pR} - s_\gamma \tilde{\mu} \overline{y_e}^{pR}) (c_\gamma a_e^{pR} - s_\gamma \tilde{\mu} y_e^{pR}) \text{LF}_{4,1,-1} [m_e^p, m_e^r] \delta_{i1i2} - \\ & \quad \frac{1}{6} g_2^2 (c_\gamma \overline{a_e}^{pR} - s_\gamma \tilde{\mu} \overline{y_e}^{pR}) (c_\gamma a_e^{pR} - s_\gamma \tilde{\mu} y_e^{pR}) \text{LF}_{5,1,-2} [m_e^p, m_e^r] \delta_{i1i2} + \\ & \quad \frac{3}{8} g_2^2 (c_\gamma \overline{a_d}^{pR} - s_\gamma \tilde{\mu} \overline{y_d}^{pR}) (c_\gamma a_d^{pR} - s_\gamma \tilde{\mu} y_d^{pR}) \text{LF}_{4,1,-1} [m_q^p, m_d^r] \delta_{i1i2} - \\ & \quad \frac{1}{2} g_2^2 (c_\gamma \overline{a_d}^{pR} - s_\gamma \tilde{\mu} \overline{y_d}^{pR}) (c_\gamma a_d^{pR} - s_\gamma \tilde{\mu} y_d^{pR}) \text{LF}_{5,1,-2} [m_q^p, m_d^r] \delta_{i1i2} + \\ & \quad \frac{1}{4} g_2^2 (s_\gamma \overline{a_u}^{pR} - \tilde{\mu} c_\gamma \overline{y_u}^{pR}) (s_\gamma a_u^{pR} - \tilde{\mu} c_\gamma y_u^{pR}) \text{LF}_{2,2,0} [m_q^p, m_u^r] \delta_{i1i2} - \\ & \quad \frac{1}{8} g_2^2 (s_\gamma \overline{a_u}^{pR} - \tilde{\mu} c_\gamma \overline{y_u}^{pR}) (s_\gamma a_u^{pR} - \tilde{\mu} c_\gamma y_u^{pR}) \text{LF}_{3,2,-1} [m_q^p, m_u^r] \delta_{i1i2} - \\ & \quad \frac{1}{216} g_1^2 g_2^2 \text{LF}_{2,1,0} [m_q^{i2}, m_1] \delta_{i1i2} + \frac{1}{432} g_1^2 g_2^2 \text{LF}_{3,1,-1} [m_q^{i2}, m_1] \delta_{i1i2} + \\ & \quad \frac{1}{24} g_2^4 \text{LF}_{2,1,0} [m_q^{i2}, m_2] \delta_{i1i2} - \frac{1}{48} g_2^4 \text{LF}_{3,1,-1} [m_q^{i2}, m_2] \delta_{i1i2} - \\ & \quad \frac{2}{9} g_2^2 g_3^2 \text{LF}_{2,1,0} [m_q^{i2}, m_3] \delta_{i1i2} + \frac{1}{9} g_2^2 g_3^2 \text{LF}_{3,1,-1} [m_q^{i2}, m_3] \delta_{i1i2} - \\ & \quad \frac{1}{4} g_2^2 (s_\gamma \overline{a_u}^{pR} - \tilde{\mu} c_\gamma \overline{y_u}^{pR}) (s_\gamma a_u^{pR} - \tilde{\mu} c_\gamma y_u^{pR}) \text{LF}_{3,1,0} [m_u^r, m_q^p] \delta_{i1i2} - \\ & \quad \frac{1}{4} g_2^2 (s_\gamma \overline{a_u}^{pR} - \tilde{\mu} c_\gamma \overline{y_u}^{pR}) (s_\gamma a_u^{pR} - \tilde{\mu} c_\gamma y_u^{pR}) \text{LF}_{3,2,-1} [m_u^r, m_q^p] \delta_{i1i2} + \\ & \quad \frac{3}{4} g_2^2 (s_\gamma \overline{a_u}^{pR} - \tilde{\mu} c_\gamma \overline{y_u}^{pR}) (s_\gamma a_u^{pR} - \tilde{\mu} c_\gamma y_u^{pR}) \text{LF}_{4,1,-1} [m_u^r, m_q^p] \delta_{i1i2} - \\ & \quad \frac{1}{4} g_2^2 (s_\gamma \overline{a_u}^{pR} - \tilde{\mu} c_\gamma \overline{y_u}^{pR}) (s_\gamma a_u^{pR} - \tilde{\mu} c_\gamma y_u^{pR}) \text{LF}_{5,1,-2} [m_u^r, m_q^p] \delta_{i1i2} - \\ & \quad \frac{5}{24} g_1^2 g_2^2 \text{LF}_{4,1,-2} [\tilde{\mu}, m_1] \delta_{i1i2} -$$