

$$\begin{aligned} & \left(18 s_\gamma^2 \overline{y}_d^{pr} y_d^{sr} \overline{y}_u^{si1} y_u^{pi2} \left(6 c_\gamma^2 + s_\gamma^2 \right) + c_\gamma^2 \overline{y}_u^{pi1} \left(7 g_1^2 y_u^{pi2} + 18 s_\gamma^2 \overline{y}_u^{rs} y_u^{ps} y_u^{ri2} \right) \right) + \\ & \frac{4}{81} \sum_p g_1^4 \text{LF}_{3,0} [m_d^p] \delta_{i1i2} - \frac{5}{54} \sum_p g_1^4 \text{LF}_{4,-1} [m_d^p] \delta_{i1i2} + \frac{16}{405} \sum_p g_1^4 \text{LF}_{5,-2} [m_d^p] \delta_{i1i2} + \\ & \frac{4}{27} \sum_p g_1^4 \text{LF}_{3,0} [m_e^p] \delta_{i1i2} - \frac{5}{18} \sum_p g_1^4 \text{LF}_{4,-1} [m_e^p] \delta_{i1i2} + \frac{16}{135} \sum_p g_1^4 \text{LF}_{5,-2} [m_e^p] \delta_{i1i2} + \\ & \frac{2}{27} \sum_p g_1^4 \text{LF}_{3,0} [m_l^p] \delta_{i1i2} - \frac{5}{36} \sum_p g_1^4 \text{LF}_{4,-1} [m_l^p] \delta_{i1i2} + \frac{8}{135} \sum_p g_1^4 \text{LF}_{5,-2} [m_l^p] \delta_{i1i2} + \\ & \frac{2}{81} \sum_p g_1^4 \text{LF}_{3,0} [m_q^p] \delta_{i1i2} - \frac{5}{108} \sum_p g_1^4 \text{LF}_{4,-1} [m_q^p] \delta_{i1i2} + \frac{8}{405} \sum_p g_1^4 \text{LF}_{5,-2} [m_q^p] \delta_{i1i2} + \\ & \frac{16}{81} \sum_p g_1^4 \text{LF}_{3,0} [m_u^p] \delta_{i1i2} - \frac{10}{27} \sum_p g_1^4 \text{LF}_{4,-1} [m_u^p] \delta_{i1i2} + \frac{64}{405} \sum_p g_1^4 \text{LF}_{5,-2} [m_u^p] \delta_{i1i2} + \\ & \frac{1}{18} \left(9 c_\gamma^4 \overline{y}_d^{pr} y_d^{sr} \overline{y}_u^{si1} y_u^{pi2} - c_\gamma^2 \overline{y}_u^{pi1} \left(g_1^2 y_u^{pi2} + 9 s_\gamma^2 \overline{y}_u^{rs} y_u^{ps} y_u^{ri2} \right) \right) \text{LF}_{1,2} [m_\Phi] - \\ & \frac{1}{12} g_1^2 c_\gamma^2 \overline{y}_u^{pi1} y_u^{pi2} \text{LF}_{2,1} [m_\Phi] + \frac{1}{108} g_1^2 \left(9 c_\gamma^2 \overline{y}_u^{pi1} y_u^{pi2} + 8 g_1^2 \delta_{i1i2} \right) \text{LF}_{3,0} [m_\Phi] - \\ & \frac{5}{36} g_1^4 \text{LF}_{4,-1} [m_\Phi] \delta_{i1i2} + \frac{8}{135} g_1^4 \text{LF}_{5,-2} [m_\Phi] \delta_{i1i2} + \frac{2}{27} g_1^4 \text{LF}_{3,0} [\tilde{\mu}] \delta_{i1i2} + \\ & \frac{1}{9} g_1^4 \text{LF}_{4,-1} [\tilde{\mu}] \delta_{i1i2} - \frac{16}{135} g_1^4 \text{LF}_{5,-2} [\tilde{\mu}] \delta_{i1i2} + \frac{1}{36} g_1^2 s_\gamma^2 \overline{y}_u^{pi1} y_u^{pi2} \text{LF}_{2,1,0} [m_1, m_q^p] - \\ & \frac{1}{18} g_1^2 s_\gamma^2 \overline{y}_u^{pi1} y_u^{pi2} \text{LF}_{3,1,-1} [m_1, m_q^p] + \frac{1}{36} g_1^2 s_\gamma^2 \overline{y}_u^{pi1} y_u^{pi2} \text{LF}_{4,1,-2} [m_1, m_q^p] + \\ & \frac{4}{81} g_1^4 \text{LF}_{2,1,0} [m_1, m_u^{i2}] \delta_{i1i2} + \frac{4}{81} g_1^4 \text{LF}_{2,2,-1} [m_1, m_u^{i2}] \delta_{i1i2} - \\ & \frac{8}{81} g_1^4 \text{LF}_{3,1,-1} [m_1, m_u^{i2}] \delta_{i1i2} + \frac{4}{81} g_1^4 \text{LF}_{4,1,-2} [m_1, m_u^{i2}] \delta_{i1i2} + \\ & \frac{3}{4} g_2^2 s_\gamma^2 \overline{y}_u^{pi1} y_u^{pi2} \text{LF}_{2,1,0} [m_2, m_q^p] - \frac{3}{2} g_2^2 s_\gamma^2 \overline{y}_u^{pi1} y_u^{pi2} \text{LF}_{3,1,-1} [m_2, m_q^p] + \\ & \frac{3}{4} g_2^2 s_\gamma^2 \overline{y}_u^{pi1} y_u^{pi2} \text{LF}_{4,1,-2} [m_2, m_q^p] + \frac{4}{3} g_3^2 s_\gamma^2 \overline{y}_u^{pi1} y_u^{pi2} \text{LF}_{2,1,0} [m_3, m_q^p] - \\ & \frac{8}{3} g_3^2 s_\gamma^2 \overline{y}_u^{pi1} y_u^{pi2} \text{LF}_{3,1,-1} [m_3, m_q^p] + \frac{4}{3} g_3^2 s_\gamma^2 \overline{y}_u^{pi1} y_u^{pi2} \text{LF}_{4,1,-2} [m_3, m_q^p] + \\ & \frac{4}{27} g_1^2 g_3^2 \text{LF}_{2,1,0} [m_3, m_u^{i2}] \delta_{i1i2} + \frac{4}{27} g_1^2 g_3^2 \text{LF}_{2,2,-1} [m_3, m_u^{i2}] \delta_{i1i2} - \\ & \frac{8}{27} g_1^2 g_3^2 \text{LF}_{3,1,-1} [m_3, m_u^{i2}] \delta_{i1i2} + \frac{4}{27} g_1^2 g_3^2 \text{LF}_{4,1,-2} [m_3, m_u^{i2}] \delta_{i1i2} + \\ & \frac{2}{9} g_1^2 (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}_{2,2,0} [m_d^r, m_q^p] \delta_{i1i2} - \\ & \frac{1}{9} g_1^2 (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}_{3,2,-1} [m_d^r, m_q^p] \delta_{i1i2} + \\ & \frac{2}{9} g_1^2 (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}_{2,2,0} [m_e^r, m_l^p] \delta_{i1i2} - \\ & \frac{1}{9} g_1^2 (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}_{3,2,-1} [m_e^r, m_l^p] \delta_{i1i2} - \\ & \frac{2}{9} g_1^2 (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}_{3,1,0} [m_l^p, m_e^r] \delta_{i1i2} - \\ & \frac{2}{9} g_1^2 (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}_{3,2,-1} [m_l^p, m_e^r] \delta_{i1i2} + \\ & \frac{1}{2} g_1^2 (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_l^p, m_e^r] \delta_{i1i2} - \\ & \frac{2}{9} g_1^2 (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_l^p, m_e^r] \delta_{i1i2} - \\ & \frac{2}{9} g_1^2 (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}_{3,1,0} [m_q^p, m_d^r] \delta_{i1i2} - \\ & \frac{2}{9} g_1^2 (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}_{3,2,-1} [m_q^p, m_d^r] \delta_{i1i2} + \\ & \frac{5}{6} g_1^2 (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} - \\ & \frac{2}{3} g_1^2 (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} - \\ & \frac{1}{9} g_1^2 (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} + \\ & \frac{1}{18} g_1^2 (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} - \\ & \frac{1}{18} g_1^2 \overline{y}_u^{pi1} y_u^{pi2} \text{LF}_{2,1,0} [m_q^p, \tilde{\mu}] + \frac{1}{36} g_1^2 \overline{y}_u^{pi1} y_u^{pi2} \text{LF}_{2,2,-1} [m_q^p, \tilde{\mu}] + \frac{1}{36} g_1^2 \overline{y}_u^{pi1} y_u^{pi2} \\ & \text{LF}_{3,1,-1} [m_q^p, \tilde{\mu}] + \frac{1}{9} g_1^2 (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} + \\ & \frac{1}{9} g_1^2 (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} + \\ & \frac{1}{3} g_1^2 (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} -$$