$$Y_u^{i1\_i2\_} \to$$

$$
\begin{aligned}
&s_\gamma\, y_u^{i1i2} + \hbar\left(\frac{1}{144}\, s_\gamma\, \frac{1}{m_\Phi^2}\left(18\, y_u^{pi2}\left(\overline{y_d}^{pr}\, y_d^{i1r}\left(-2\, C_{H^2}\, c_\gamma^2 + m_\Phi^2\left(1 + s_\gamma^2\right)\right) + 3\, m_\Phi^2\, \overline{y_u}^{pr}\, y_u^{i1r}\left(1 + c_\gamma^2\right)\right) + \right.\right. \\
&\left.\left. y_u^{i1i2}\left(m_\Phi^2\left(96\, g_3^2 + 27\, g_2^2\left(1 + 2\, c_\gamma^2 + 2\, s_\gamma^2\right) + g_1^2\left(17 + 18\, c_\gamma^2 + 18\, s_\gamma^2\right)\right) - \right.\right.\right. \\
&\left.\left.\left. 216\, C_{H^2}\, c_\gamma^2\, \overline{y_u}^{pr}\, y_u^{pr}\right)\right) + \frac{1}{2}\sum_p s_{2\gamma}\, c_\gamma\, g_1^2\, \frac{1}{m_\Phi^4}\, y_u^{i1i2}\left(-C_{H^2} + m_\Phi^2\right) LF_{1,0}\left[m_d^p\right] + \right. \\
&\frac{3}{2}\, s_{2\gamma}\, c_\gamma\, \frac{1}{m_\Phi^4}\, \overline{y_d}^{pr}\, y_d^{pr}\, y_u^{i1i2}\left(C_{H^2} - m_\Phi^2\right) LF_{1,0}\left[m_d^r\right] + \frac{1}{2}\sum_p s_{2\gamma}\, c_\gamma\, g_1^2\, \frac{1}{m_\Phi^4}\, y_u^{i1i2} \\
&\left(-C_{H^2} + m_\Phi^2\right) LF_{1,0}\left[m_e^p\right] + \frac{1}{2}\, s_{2\gamma}\, c_\gamma\, \frac{1}{m_\Phi^4}\, \overline{y_e}^{pr}\, y_e^{pr}\, y_u^{i1i2}\left(C_{H^2} - m_\Phi^2\right) LF_{1,0}\left[m_e^r\right] + \\
&\frac{1}{2}\, s_{2\gamma}\, c_\gamma\, \frac{1}{m_\Phi^4}\, y_u^{i1i2}\left(C_{H^2} - m_\Phi^2\right)\left(\overline{y_e}^{pr}\, y_e^{pr} + \sum_p g_1^2\right) LF_{1,0}\left[m_l^p\right] + \\
&\frac{1}{2}\, s_{2\gamma}\, c_\gamma\, \frac{1}{m_\Phi^4}\, y_u^{i1i2}\left(-C_{H^2} + m_\Phi^2\right)\left(-3\, \overline{y_d}^{pr}\, y_d^{pr} + 3\, \overline{y_u}^{pr}\, y_u^{pr} + \sum_p g_1^2\right) LF_{1,0}\left[m_q^p\right] + \\
&\sum_p s_{2\gamma}\, c_\gamma\, g_1^2\, \frac{1}{m_\Phi^4}\, y_u^{i1i2}\left(C_{H^2} - m_\Phi^2\right) LF_{1,0}\left[m_u^p\right] + \\
&\frac{3}{2}\, s_{2\gamma}\, c_\gamma\, \frac{1}{m_\Phi^4}\, \overline{y_u}^{pr}\, y_u^{pr}\, y_u^{i1i2}\left(-C_{H^2} + m_\Phi^2\right) LF_{1,0}\left[m_u^r\right] + \\
&\frac{3}{8}\, s_{4\gamma}\, c_\gamma\, \frac{1}{m_\Phi^4}\, y_u^{i1i2}\left(g_1^2 + g_2^2\right)\left(-C_{H^2} + m_\Phi^2\right) LF_{1,0}\left[m_\Phi\right] - \\
&\frac{1}{4}\, s_\gamma\, y_u^{pi2}\left(\overline{y_d}^{pr}\, y_d^{i1r}\left(4\, c_\gamma^2 + s_\gamma^2\right) + 3\, c_\gamma^2\, \overline{y_u}^{pr}\, y_u^{i1r}\right) LF_{1,1}\left[m_\Phi\right] - \\
&\frac{1}{2}\, s_\gamma\, C_{H^2}\, c_\gamma^2\, \overline{y_d}^{pr}\, y_d^{i1r}\, y_u^{pi2}\, LF_{1,2}\left[m_\Phi\right] - \frac{1}{36}\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{1,1,0}\left[m_1, m_q^{i1}\right] + \\
&\frac{1}{72}\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,1,-1}\left[m_1, m_q^{i1}\right] - \frac{4}{9}\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{1,1,0}\left[m_1, m_u^{i2}\right] + \\
&\frac{2}{9}\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,1,-1}\left[m_1, m_u^{i2}\right] + m_1\, \tilde{\mu}\, c_\gamma\, g_1^2\, \frac{1}{m_\Phi^4}\, y_u^{i1i2}\left(C_{H^2} - m_\Phi^2\right)\left(c_\gamma^2 - s_\gamma^2\right) LF_{1,1,0}\left[m_1, \tilde{\mu}\right] - \\
&\frac{3}{4}\, s_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{1,1,0}\left[m_2, m_q^{i1}\right] + \frac{3}{8}\, s_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{2,1,-1}\left[m_2, m_q^{i1}\right] + \\
&3\, m_2\, \tilde{\mu}\, c_\gamma\, g_2^2\, \frac{1}{m_\Phi^2}\, y_u^{i1i2}\left(C_{H^2} - m_\Phi^2\right)\left(c_\gamma^2 - s_\gamma^2\right) LF_{1,1,0}\left[m_2, \tilde{\mu}\right] - \\
&\frac{4}{3}\, s_\gamma\, g_3^2\, y_u^{i1i2}\, LF_{1,1,0}\left[m_3, m_q^{i1}\right] + \frac{2}{3}\, s_\gamma\, g_3^2\, y_u^{i1i2}\, LF_{2,1,-1}\left[m_3, m_q^{i1}\right] - \\
&\frac{4}{3}\, s_\gamma\, g_3^2\, y_u^{i1i2}\, LF_{1,1,0}\left[m_3, m_u^{i2}\right] + \frac{2}{3}\, s_\gamma\, g_3^2\, y_u^{i1i2}\, LF_{2,1,-1}\left[m_3, m_u^{i2}\right] + \\
&3\, c_\gamma\, \frac{1}{m_\Phi^4}\, y_u^{i1i2}\left(C_{H^2} - m_\Phi^2\right)\left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right)\left(s_\gamma\, a_d^{pr} + \tilde{\mu}\, c_\gamma\, y_d^{pr}\right) LF_{1,1,0}\left[m_d^r, m_q^p\right] - \\
&\frac{1}{2}\, s_\gamma\, \overline{y_d}^{pr}\, y_d^{i1r}\, y_u^{pi2}\, LF_{1,1,0}\left[m_d^r, \tilde{\mu}\right] + \\
&c_\gamma\, \frac{1}{m_\Phi^4}\, y_u^{i1i2}\left(C_{H^2} - m_\Phi^2\right)\left(c_\gamma\, \overline{a_e}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_e}^{pr}\right)\left(s_\gamma\, a_e^{pr} + \tilde{\mu}\, c_\gamma\, y_e^{pr}\right) LF_{1,1,0}\left[m_e^r, m_l^p\right] - \\
&\frac{1}{2}\, \frac{1}{m_\Phi^2}\, y_u^{i1i2}\left(c_\gamma\, \overline{a_e}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_e}^{pr}\right)\left(s_\gamma\, c_\gamma\, a_e^{pr}\left(2\, C_{H^2} - m_\Phi^2\right) + \tilde{\mu}\, y_e^{pr}\left(2\, C_{H^2}\, c_\gamma^2 + m_\Phi^2\, s_\gamma^2\right)\right) \\
&LF_{2,1,0}\left[m_l^p, m_e^r\right] + \frac{1}{2}\, \frac{1}{m_\Phi^2}\, y_u^{i1i2}\left(s_\gamma\, \overline{a_e}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_e}^{pr}\right) \\
&\left(s_\gamma\, c_\gamma\, a_e^{pr}\left(2\, C_{H^2} - m_\Phi^2\right) + \tilde{\mu}\, y_e^{pr}\left(2\, C_{H^2}\, c_\gamma^2 + m_\Phi^2\, s_\gamma^2\right)\right) LF_{3,1,-1}\left[m_l^p, m_e^r\right] + \\
&s_\gamma\, C_{H^2}\, y_u^{i1i2}\left(-c_\gamma\, \overline{a_e}^{pr} + s_\gamma\, \tilde{\mu}\, \overline{y_e}^{pr}\right)\left(-c_\gamma\, a_e^{pr} + s_\gamma\, \tilde{\mu}\, y_e^{pr}\right) LF_{3,1,0}\left[m_l^p, m_e^r\right] - \\
&3\, s_\gamma\, C_{H^2}\, y_u^{i1i2}\left(-c_\gamma\, \overline{a_e}^{pr} + s_\gamma\, \tilde{\mu}\, \overline{y_e}^{pr}\right)\left(-c_\gamma\, a_e^{pr} + s_\gamma\, \tilde{\mu}\, y_e^{pr}\right) LF_{4,1,-1}\left[m_l^p, m_e^r\right] + \\
&2\, s_\gamma\, C_{H^2}\, y_u^{i1i2}\left(-c_\gamma\, \overline{a_e}^{pr} + s_\gamma\, \tilde{\mu}\, \overline{y_e}^{pr}\right)\left(-c_\gamma\, a_e^{pr} + s_\gamma\, \tilde{\mu}\, y_e^{pr}\right) LF_{5,1,-2}\left[m_l^p, m_e^r\right] - \\
&\frac{3}{2}\, \frac{1}{m_\Phi^2}\, y_u^{i1i2}\left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right)\left(s_\gamma\, c_\gamma\, a_d^{pr}\left(2\, C_{H^2} - m_\Phi^2\right) + \tilde{\mu}\, y_d^{pr}\left(2\, C_{H^2}\, c_\gamma^2 + m_\Phi^2\, s_\gamma^2\right)\right) \\
&LF_{2,1,0}\left[m_q^p, m_d^r\right] + \frac{3}{2}\, \frac{1}{m_\Phi^2}\, y_u^{i1i2}\left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right) \\
&\left(s_\gamma\, c_\gamma\, a_d^{pr}\left(2\, C_{H^2} - m_\Phi^2\right) + \tilde{\mu}\, y_d^{pr}\left(2\, C_{H^2}\, c_\gamma^2 + m_\Phi^2\, s_\gamma^2\right)\right) LF_{3,1,-1}\left[m_q^p, m_d^r\right] + \\
&3\, s_\gamma\, C_{H^2}\, y_u^{i1i2}\left(-c_\gamma\, \overline{a_d}^{pr} + s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right)\left(-c_\gamma\, a_d^{pr} + s_\gamma\, \tilde{\mu}\, y_d^{pr}\right) LF_{3,1,0}\left[m_q^p, m_d^r\right] - \\
&9\, s_\gamma\, C_{H^2}\, y_u^{i1i2}\left(-c_\gamma\, \overline{a_d}^{pr} + s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right)\left(-c_\gamma\, a_d^{pr} + s_\gamma\, \tilde{\mu}\, y_d^{pr}\right) LF_{4,1,-1}\left[m_q^p, m_d^r\right] + \\
&6\, s_\gamma\, C_{H^2}\, y_u^{i1i2}\left(-c_\gamma\, \overline{a_d}^{pr} + s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right)\left(-c_\gamma\, a_d^{pr} + s_\gamma\, \tilde{\mu}\, y_d^{pr}\right) LF_{5,1,-2}\left[m_q^p, m_d^r\right] + \\
&3\, c_\gamma\, \frac{1}{m_\Phi^4}\, y_u^{i1i2}\left(C_{H^2} - m_\Phi^2\right)\left(c_\gamma\, \overline{a_u}^{pr} + s_\gamma\, \tilde{\mu}\, \overline{y_u}^{pr}\right)\left(-s_\gamma\, a_u^{pr} + \tilde{\mu}\, c_\gamma\, y_u^{pr}\right) LF_{1,1,0}\left[m_q^p, m_u^r\right] - \\
&s_\gamma\, \overline{y_u}^{pr}\, y_u^{pi2}\, y_u^{i1r}\, LF_{1,1,0}\left[m_q^p, \tilde{\mu}\right] + \frac{3}{2}\, \frac{1}{m_\Phi^2}\, y_u^{i1i2} \\
&\left(\overline{a_u}^{pr}\left(2\, C_{H^2}\, c_\gamma^2 + m_\Phi^2\, s_\gamma^2\right) + s_\gamma\, \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pr}\left(2\, C_{H^2} - m_\Phi^2\right)\right)\left(s_\gamma\, a_u^{pr} - \tilde{\mu}\, c_\gamma\, y_u^{pr}\right) LF_{2,1,0}\left[m_u^r, m_q^p\right] + \\
&\frac{3}{2}\, \frac{1}{m_\Phi^2}\, y_u^{i1i2}\left(\overline{a_u}^{pr}\left(2\, C_{H^2}\, c_\gamma^2 + m_\Phi^2\, s_\gamma^2\right) + s_\gamma\, \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pr}\left(2\, C_{H^2} - m_\Phi^2\right)\right) \\
&\left(-s_\gamma\, a_u^{pr} + \tilde{\mu}\, c_\gamma\, y_u^{pr}\right) LF_{3,1,-1}\left[m_u^r, m_q^p\right] + \\
&3\, s_\gamma\, C_{H^2}\, y_u^{i1i2}\left(s_\gamma\, \overline{a_u}^{pr} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pr}\right)\left(s_\gamma\, a_u^{pr} - \tilde{\mu}\, c_\gamma\, y_u^{pr}\right) LF_{3,1,0}\left[m_u^r, m_q^p\right] - \\
&9\, s_\gamma\, C_{H^2}\, y_u^{i1i2}\left(s_\gamma\, \overline{a_u}^{pr} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pr}\right)\left(s_\gamma\, a_u^{pr} - \tilde{\mu}\, c_\gamma\, y_u^{pr}\right) LF_{4,1,-1}\left[m_u^r, m_q^p\right] + \\
&6\, s_\gamma\, C_{H^2}\, y_u^{i1i2}\left(s_\gamma\, \overline{a_u}^{pr} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pr}\right)\left(s_\gamma\, a_u^{pr} - \tilde{\mu}\, c_\gamma\, y_u^{pr}\right) LF_{5,1,-2}\left[m_u^r, m_q^p\right] - \\
&\frac{1}{2}\, s_\gamma\, \overline{y_u}^{pr}\, y_u^{pi2}\, y_u^{i1r}\, LF_{1,1,0}\left[m_u^r, \tilde{\mu}\right] - \frac{3}{4}\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,1,-1}\left[\tilde{\mu}, m_1\right] - m_1\, \tilde{\mu}\, c_\gamma\, g_1^2\, \frac{1}{m_\Phi^2} \\
&y_u^{i1i2}\left(C_{H^2}\, c_\gamma^2 + s_\gamma^2\left(-C_{H^2} + m_\Phi^2\right)\right) LF_{2,1,0}\left[\tilde{\mu}, m_1\right] + \frac{1}{2}\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{3,1,-2}\left[\tilde{\mu}, m_1\right] + \\
&g_1^2\, \frac{1}{m_\Phi^2}\, y_u^{i1i2}\left(-2\, s_\gamma\, C_{H^2}\, m_\Phi^2 + m_1\, \tilde{\mu}\, c_\gamma\left(C_{H^2}\, c_\gamma^2 + s_\gamma^2\left(-C_{H^2} + m_\Phi^2\right)\right)\right) LF_{3,1,-1}\left[\tilde{\mu}, m_1\right] - \\
&2\, m_1\, C_{H^2}\, \tilde{\mu}\, c_\gamma\, g_1^2\, s_\gamma^2\, y_u^{i1i2}\, LF_{3,1,0}\left[\tilde{\mu}, m_1\right] + 4\, s_\gamma\, C_{H^2}\, g_1^2\, y_u^{i1i2}\, LF_{4,1,-2}\left[\tilde{\mu}, m_1\right] + \\
&6\, m_1\, C_{H^2}\, \tilde{\mu}\, c_\gamma\, g_1^2\, s_\gamma^2\, y_u^{i1i2}\, LF_{4,1,-1}\left[\tilde{\mu}, m_1\right] - 2\, s_\gamma\, C_{H^2}\, g_1^2\, y_u^{i1i2}\, LF_{5,1,-3}\left[\tilde{\mu}, m_1\right] - \\
&4\, m_1\, C_{H^2}\, \tilde{\mu}\, c_\gamma\, g_1^2\, s_\gamma^2\, y_u^{i1i2}\, LF_{5,1,-2}\left[\tilde{\mu}, m_1\right] - \frac{9}{4}\, s_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{2,1,-1}\left[\tilde{\mu}, m_2\right] - 3\, m_2\, \tilde{\mu}\, c_\gamma\, g_2^2 \\
&\frac{1}{m_\Phi^2}\, y_u^{i1i2}\left(C_{H^2}\, c_\gamma^2 + s_\gamma^2\left(-C_{H^2} + m_\Phi^2\right)\right) LF_{2,1,0}\left[\tilde{\mu}, m_2\right] + \frac{3}{2}\, s_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{3,1,-2}\left[\tilde{\mu}, m_2\right] + \\
&3\, g_2^2\, \frac{1}{m_\Phi^2}\, y_u^{i1i2}\left(-2\, s_\gamma\, C_{H^2}\, m_\Phi^2 + m_2\, \tilde{\mu}\, c_\gamma\left(C_{H^2}\, c_\gamma^2 + s_\gamma^2\left(-C_{H^2} + m_\Phi^2\right)\right)\right) LF_{3,1,-1}\left[\tilde{\mu}, m_2\right] - \\
&6\, m_2\, C_{H^2}\, \tilde{\mu}\, c_\gamma\, g_2^2\, s_\gamma^2\, y_u^{i1i2}\, LF_{3,1,0}\left[\tilde{\mu}, m_2\right] + 12\, s_\gamma\, C_{H^2}\, g_2^2\, y_u^{i1i2}\, LF_{4,1,-2}\left[\tilde{\mu}, m_2\right] + \\
&18\, m_2\, C_{H^2}\, \tilde{\mu}\, c_\gamma\, g_2^2\, s_\gamma^2\, y_u^{i1i2}\, LF_{4,1,-1}\left[\tilde{\mu}, m_2\right] - 6\, s_\gamma\, C_{H^2}\, g_2^2\, y_u^{i1i2}\, LF_{5,1,-3}\left[\tilde{\mu}, m_2\right] - \\
&12\, m_2\, C_{H^2}\, \tilde{\mu}\, c_\gamma\, g_2^2\, s_\gamma^2\, y_u^{i1i2}\, LF_{5,1,-2}\left[\tilde{\mu}, m_2\right] + \frac{1}{4}\, s_\gamma\, \overline{y_d}^{pr}\, y_d^{i1r}\, y_u^{pi2}\, LF_{2,1,-1}\left[\tilde{\mu}, m_d^r\right] + \\
&\frac{1}{2}\, s_\gamma\, \overline{y_u}^{pr}\, y_u^{pi2}\, y_u^{i1r}\, LF_{2,1,-1}\left[\tilde{\mu}, m_q^p\right] + \frac{1}{4}\, s_\gamma\, \overline{y_u}^{pr}\, y_u^{pi2}\, y_u^{i1r}\, LF_{2,1,-1}\left[\tilde{\mu}, m_u^r\right] + \\
&\frac{2}{9}\, m_1\, g_1^2\left(s_\gamma\, a_u^{i1i2} - \tilde{\mu}\, c_\gamma\, y_u^{i1i2}\right) LF_{1,1,1,0}\left[m_1, m_q^{i1}, m_u^{i2}\right] + \\
&\frac{1}{18}\, m_1\, C_{H^2}\, g_1^2\left(-s_\gamma\, a_u^{i1i2} + \tilde{\mu}\, c_\gamma\, y_u^{i1i2}\right) LF_{2,2,1,-1}\left[m_1, m_q^{i1}, m_u^{i2}\right] - \\
&\frac{1}{6}\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{1,1,1,-1}\left[m_1, m_q^{i1}, \tilde{\mu}\right] - \frac{1}{6}\, m_1\, \tilde{\mu}\, c_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{1,1,1,0}\left[m_1, m_q^{i1}, \tilde{\mu}\right] + \\
&\frac{1}{18}\, m_1\, C_{H^2}\, g_1^2\left(-s_\gamma\, a_u^{i1i2} + \tilde{\mu}\, c_\gamma\, y_u^{i1i2}\right) LF_{2,2,1,-1}\left[m_1, m_u^{i2}, m_q^{i1}\right] + \\
&\frac{2}{3}\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{1,1,1,-1}\left[m_1, m_u^{i2}, \tilde{\mu}\right] + \frac{2}{3}\, m_1\, \tilde{\mu}\, c_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{1,1,1,0}\left[m_1, m_u^{i2}, \tilde{\mu}\right] - \\
&\frac{1}{12}\, s_\gamma\, C_{H^2}\, g_1^2\, y_u^{i1i2}\, LF_{2,2,1,-2}\left[m_1, \tilde{\mu}, m_q^{i1}\right] - \frac{1}{12}\, m_1\, C_{H^2}\, \tilde{\mu}\, c_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,2,1,-1}\left[m_1, \tilde{\mu}, m_q^{i1}\right] + \\
&\frac{1}{3}\, s_\gamma\, C_{H^2}\, g_1^2\, y_u^{i1i2}\, LF_{2,2,1,-2}\left[m_1, \tilde{\mu}, m_u^{i2}\right] + \frac{1}{3}\, m_1\, C_{H^2}\, \tilde{\mu}\, c_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,2,1,-1}\left[m_1, \tilde{\mu}, m_u^{i2}\right] + \\
&\frac{3}{2}\, s_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{1,1,1,-1}\left[m_2, m_q^{i1}, \tilde{\mu}\right] + \frac{3}{2}\, m_2\, \tilde{\mu}\, c_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{1,1,1,0}\left[m_2, m_q^{i1}, \tilde{\mu}\right] + \\
&\frac{3}{4}\, s_\gamma\, C_{H^2}\, g_2^2\, y_u^{i1i2}\, LF_{2,2,1,-2}\left[m_2, \tilde{\mu}, m_q^{i1}\right] + \frac{3}{4}\, m_2\, C_{H^2}\, \tilde{\mu}\, c_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{2,2,1,-1}\left[m_2, \tilde{\mu}, m_q^{i1}\right] + \\
&\frac{8}{3}\, m_3\, g_3^2\left(s_\gamma\, a_u^{i1i2} - \tilde{\mu}\, c_\gamma\, y_u^{i1i2}\right) LF_{1,1,1,0}\left[m_3, m_q^{i1}, m_u^{i2}\right] + \\
&\frac{2}{3}\, m_3\, C_{H^2}\, g_3^2\left(-s_\gamma\, a_u^{i1i2} + \tilde{\mu}\, c_\gamma\, y_u^{i1i2}\right) LF_{2,2,1,-1}\left[m_3, m_q^{i1}, m_u^{i2}\right] + \\
&\frac{2}{3}\, m_3\, C_{H^2}\, g_3^2\left(-s_\gamma\, a_u^{i1i2} + \tilde{\mu}\, c_\gamma\, y_u^{i1i2}\right) LF_{2,2,1,-1}\left[m_3, m_u^{i2}, m_q^{i1}\right] + \\
&\tilde{\mu}\, y_d^{i1r}\, y_u^{pi2}\left(-c_\gamma\, \overline{a_d}^{pr} + s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right) LF_{1,1,1,0}\left[m_d^r, m_q^p, \tilde{\mu}\right] + \\
&\frac{1}{2}\, C_{H^2}\, \tilde{\mu}\, y_d^{i1r}\, y_u^{pi2}\left(-c_\gamma\, \overline{a_d}^{pr} + s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right) LF_{2,1,1,0}\left[m_d^r, m_q^p, \tilde{\mu}\right] + \\
&\frac{1}{4}\, C_{H^2}\, \tilde{\mu}\, y_d^{i1r}\, y_u^{pi2}\left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right) LF_{3,1,1,-1}\left[m_d^r, m_q^p, \tilde{\mu}\right] + \\
&\frac{1}{4}\, C_{H^2}\, \tilde{\mu}\, y_d^{i1r}\, y_u^{pi2}\left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right) LF_{2,2,1,-1}\left[m_d^r, \tilde{\mu}, m_q^p\right] + \\
&\frac{1}{2}\, C_{H^2}\, \tilde{\mu}\, y_d^{i1r}\, y_u^{pi2}\left(-c_\gamma\, \overline{a_d}^{pr} + s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right) LF_{2,1,1,0}\left[m_q^p, m_d^r, \tilde{\mu}\right] + \\
&\frac{1}{2}\, C_{H^2}\, \tilde{\mu}\, y_d^{i1r}\, y_u^{pi2}\left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right) LF_{3,1,1,-1}\left[m_q^p, m_d^r, \tilde{\mu}\right] + \\
&\frac{1}{4}\, C_{H^2}\, \tilde{\mu}\, y_d^{i1r}\, y_u^{pi2}\left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right) LF_{2,2,1,-1}\left[m_q^p, \tilde{\mu}, m_d^r\right] + \\
&\frac{1}{9}\, m_1\, C_{H^2}\, g_1^2\left(s_\gamma\, a_u^{i1i2} - \tilde{\mu}\, c_\gamma\, y_u^{i1i2}\right) LF_{2,1,1,0}\left[m_q^{i1}, m_1, m_u^{i2}\right] + \\
&\frac{1}{9}\, m_1\, C_{H^2}\, g_1^2\left(-s_\gamma\, a_u^{i1i2} + \tilde{\mu}\, c_\gamma\, y_u^{i1i2}\right) LF_{3,1,1,-1}\left[m_q^{i1}, m_1, m_u^{i2}\right] + \\
&\frac{4}{3}\, m_3\, C_{H^2}\, g_3^2\left(s_\gamma\, a_u^{i1i2} - \tilde{\mu}\, c_\gamma\, y_u^{i1i2}\right) LF_{2,1,1,0}\left[m_q^{i1}, m_3, m_u^{i2}\right] + \\
&\frac{4}{3}\, m_3\, C_{H^2}\, g_3^2\left(-s_\gamma\, a_u^{i1i2} + \tilde{\mu}\, c_\gamma\, y_u^{i1i2}\right) LF_{3,1,1,-1}\left[m_q^{i1}, m_3, m_u^{i2}\right] + \\
&\frac{1}{9}\, m_1\, C_{H^2}\, g_1^2\left(s_\gamma\, a_u^{i1i2} - \tilde{\mu}\, c_\gamma\, y_u^{i1i2}\right) LF_{2,1,1,0}\left[m_u^{i2}, m_1, m_q^{i1}\right] + \\
&\frac{1}{9}\, m_1\, C_{H^2}\, g_1^2\left(-s_\gamma\, a_u^{i1i2} + \tilde{\mu}\, c_\gamma\, y_u^{i1i2}\right) LF_{3,1,1,-1}\left[m_u^{i2}, m_1, m_q^{i1}\right] + \\
&\frac{4}{3}\, m_3\, C_{H^2}\, g_3^2\left(s_\gamma\, a_u^{i1i2} - \tilde{\mu}\, c_\gamma\, y_u^{i1i2}\right) LF_{2,1,1,0}\left[m_u^{i2}, m_3, m_q^{i1}\right] + \\
&\left.\frac{4}{3}\, m_3\, C_{H^2}\, g_3^2\left(-s_\gamma\, a_u^{i1i2} + \tilde{\mu}\, c_\gamma\, y_u^{i1i2}\right) LF_{3,1,1,-1}\left[m_u^{i2}, m_3, m_q^{i1}\right]\right)
\end{aligned}
$$