$$C_{Hu}{}^{i1\_i2\_} \to \hbar \ \Big(-\frac{1}{216}\ \frac{1}{m_{\Phi}{}^2}$$
$$\Big(18\, s_\gamma{}^2\, \overline{y_d}^{pr}\, y_d{}^{sr}\, \overline{y_u}^{si1}\, y_u{}^{pi2}\, \left(6\, c_\gamma{}^2 + s_\gamma{}^2\right) + c_\gamma{}^2\, \overline{y_u}^{pi1}\, \left(7\, g_1{}^2\, y_u{}^{pi2} + 18\, s_\gamma{}^2\, \overline{y_u}^{rs}\, y_u{}^{ps}\, y_u{}^{ri2}\right)\Big) +$$
$$\frac{4}{81}\sum_p g_1{}^4\, LF_{3,0}[m_{\tilde{d}}{}^p]\, \delta_{i1i2} - \frac{5}{54}\sum_p g_1{}^4\, LF_{4,-1}[m_{\tilde{d}}{}^p]\, \delta_{i1i2} + \frac{16}{405}\sum_p g_1{}^4\, LF_{5,-2}[m_{\tilde{d}}{}^p]\, \delta_{i1i2} +$$
$$\frac{4}{27}\sum_p g_1{}^4\, LF_{3,0}[m_{\tilde{e}}{}^p]\, \delta_{i1i2} - \frac{5}{18}\sum_p g_1{}^4\, LF_{4,-1}[m_{\tilde{e}}{}^p]\, \delta_{i1i2} + \frac{16}{135}\sum_p g_1{}^4\, LF_{5,-2}[m_{\tilde{e}}{}^p]\, \delta_{i1i2} +$$
$$\frac{2}{27}\sum_p g_1{}^4\, LF_{3,0}[m_{\tilde{l}}{}^p]\, \delta_{i1i2} - \frac{5}{36}\sum_p g_1{}^4\, LF_{4,-1}[m_{\tilde{l}}{}^p]\, \delta_{i1i2} + \frac{8}{135}\sum_p g_1{}^4\, LF_{5,-2}[m_{\tilde{l}}{}^p]\, \delta_{i1i2} +$$
$$\frac{2}{81}\sum_p g_1{}^4\, LF_{3,0}[m_{\tilde{q}}{}^p]\, \delta_{i1i2} - \frac{5}{108}\sum_p g_1{}^4\, LF_{4,-1}[m_{\tilde{q}}{}^p]\, \delta_{i1i2} + \frac{8}{405}\sum_p g_1{}^4\, LF_{5,-2}[m_{\tilde{q}}{}^p]\, \delta_{i1i2} +$$
$$\frac{16}{81}\sum_p g_1{}^4\, LF_{3,0}[m_{\tilde{u}}{}^p]\, \delta_{i1i2} - \frac{10}{27}\sum_p g_1{}^4\, LF_{4,-1}[m_{\tilde{u}}{}^p]\, \delta_{i1i2} + \frac{64}{405}\sum_p g_1{}^4\, LF_{5,-2}[m_{\tilde{u}}{}^p]\, \delta_{i1i2} +$$
$$\frac{1}{18}\left(9\, c_\gamma{}^4\, \overline{y_d}^{pr}\, y_d{}^{sr}\, \overline{y_u}^{si1}\, y_u{}^{pi2} - c_\gamma{}^2\, \overline{y_u}^{pi1}\left(g_1{}^2\, y_u{}^{pi2} + 9\, s_\gamma{}^2\, \overline{y_u}^{rs}\, y_u{}^{ps}\, y_u{}^{ri2}\right)\right) LF_{1,2}[m_\Phi] -$$
$$\frac{1}{12}\, g_1{}^2\, c_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1}[m_\Phi] + \frac{1}{108}\, g_1{}^2\left(9\, c_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2} + 8\, g_1{}^2\, \delta_{i1i2}\right) LF_{3,0}[m_\Phi] -$$
$$\frac{5}{36}\, g_1{}^4\, LF_{4,-1}[m_\Phi]\, \delta_{i1i2} + \frac{8}{135}\, g_1{}^4\, LF_{5,-2}[m_\Phi]\, \delta_{i1i2} + \frac{2}{27}\, g_1{}^4\, LF_{3,0}[\tilde{\mu}]\, \delta_{i1i2} +$$
$$\frac{1}{9}\, g_1{}^4\, LF_{4,-1}[\tilde{\mu}]\, \delta_{i1i2} - \frac{16}{135}\, g_1{}^4\, LF_{5,-2}[\tilde{\mu}]\, \delta_{i1i2} + \frac{1}{36}\, g_1{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,0}[m_1, m_{\tilde{q}}{}^p] -$$
$$\frac{1}{18}\, g_1{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{3,1,-1}[m_1, m_{\tilde{q}}{}^p] + \frac{1}{36}\, g_1{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{4,1,-2}[m_1, m_{\tilde{q}}{}^p] +$$
$$\frac{4}{81}\, g_1{}^4\, LF_{2,1,0}[m_1, m_{\tilde{u}}{}^{i2}]\, \delta_{i1i2} + \frac{4}{81}\, g_1{}^4\, LF_{2,2,-1}[m_1, m_{\tilde{u}}{}^{i2}]\, \delta_{i1i2} -$$
$$\frac{8}{81}\, g_1{}^4\, LF_{3,1,-1}[m_1, m_{\tilde{u}}{}^{i2}]\, \delta_{i1i2} + \frac{4}{81}\, g_1{}^4\, LF_{4,1,-2}[m_1, m_{\tilde{u}}{}^{i2}]\, \delta_{i1i2} +$$
$$\frac{3}{4}\, g_2{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,0}[m_2, m_{\tilde{q}}{}^p] - \frac{3}{2}\, g_2{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{3,1,-1}[m_2, m_{\tilde{q}}{}^p] +$$
$$\frac{3}{4}\, g_2{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{4,1,-2}[m_2, m_{\tilde{q}}{}^p] + \frac{4}{3}\, g_3{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,0}[m_3, m_{\tilde{q}}{}^p] -$$
$$\frac{8}{3}\, g_3{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{3,1,-1}[m_3, m_{\tilde{q}}{}^p] + \frac{4}{3}\, g_3{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{4,1,-2}[m_3, m_{\tilde{q}}{}^p] +$$
$$\frac{4}{27}\, g_1{}^2\, g_3{}^2\, LF_{2,1,0}[m_3, m_{\tilde{u}}{}^{i2}]\, \delta_{i1i2} + \frac{4}{27}\, g_1{}^2\, g_3{}^2\, LF_{2,2,-1}[m_3, m_{\tilde{u}}{}^{i2}]\, \delta_{i1i2} -$$
$$\frac{8}{27}\, g_1{}^2\, g_3{}^2\, LF_{3,1,-1}[m_3, m_{\tilde{u}}{}^{i2}]\, \delta_{i1i2} + \frac{4}{27}\, g_1{}^2\, g_3{}^2\, LF_{4,1,-2}[m_3, m_{\tilde{u}}{}^{i2}]\, \delta_{i1i2} +$$
$$\frac{2}{9}\, g_1{}^2\left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right)\left(c_\gamma\, a_d{}^{pr} - s_\gamma\, \tilde{\mu}\, y_d{}^{pr}\right) LF_{2,2,0}[m_{\tilde{d}}{}^r, m_{\tilde{q}}{}^p]\, \delta_{i1i2} -$$
$$\frac{1}{9}\, g_1{}^2\left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right)\left(c_\gamma\, a_d{}^{pr} - s_\gamma\, \tilde{\mu}\, y_d{}^{pr}\right) LF_{3,2,-1}[m_{\tilde{d}}{}^r, m_{\tilde{q}}{}^p]\, \delta_{i1i2} +$$
$$\frac{2}{9}\, g_1{}^2\left(c_\gamma\, \overline{a_e}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_e}^{pr}\right)\left(c_\gamma\, a_e{}^{pr} - s_\gamma\, \tilde{\mu}\, y_e{}^{pr}\right) LF_{2,2,0}[m_{\tilde{e}}{}^r, m_{\tilde{l}}{}^p]\, \delta_{i1i2} -$$
$$\frac{1}{9}\, g_1{}^2\left(c_\gamma\, \overline{a_e}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_e}^{pr}\right)\left(c_\gamma\, a_e{}^{pr} - s_\gamma\, \tilde{\mu}\, y_e{}^{pr}\right) LF_{3,2,-1}[m_{\tilde{e}}{}^r, m_{\tilde{l}}{}^p]\, \delta_{i1i2} -$$
$$\frac{2}{9}\, g_1{}^2\left(c_\gamma\, \overline{a_e}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_e}^{pr}\right)\left(c_\gamma\, a_e{}^{pr} - s_\gamma\, \tilde{\mu}\, y_e{}^{pr}\right) LF_{3,1,0}[m_{\tilde{l}}{}^p, m_{\tilde{e}}{}^r]\, \delta_{i1i2} -$$
$$\frac{2}{9}\, g_1{}^2\left(c_\gamma\, \overline{a_e}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_e}^{pr}\right)\left(c_\gamma\, a_e{}^{pr} - s_\gamma\, \tilde{\mu}\, y_e{}^{pr}\right) LF_{3,2,-1}[m_{\tilde{l}}{}^p, m_{\tilde{e}}{}^r]\, \delta_{i1i2} +$$
$$\frac{1}{2}\, g_1{}^2\left(c_\gamma\, \overline{a_e}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_e}^{pr}\right)\left(c_\gamma\, a_e{}^{pr} - s_\gamma\, \tilde{\mu}\, y_e{}^{pr}\right) LF_{4,1,-1}[m_{\tilde{l}}{}^p, m_{\tilde{e}}{}^r]\, \delta_{i1i2} -$$
$$\frac{2}{9}\, g_1{}^2\left(c_\gamma\, \overline{a_e}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_e}^{pr}\right)\left(c_\gamma\, a_e{}^{pr} - s_\gamma\, \tilde{\mu}\, y_e{}^{pr}\right) LF_{5,1,-2}[m_{\tilde{l}}{}^p, m_{\tilde{e}}{}^r]\, \delta_{i1i2} -$$
$$\frac{2}{9}\, g_1{}^2\left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right)\left(c_\gamma\, a_d{}^{pr} - s_\gamma\, \tilde{\mu}\, y_d{}^{pr}\right) LF_{3,1,0}[m_{\tilde{q}}{}^p, m_{\tilde{d}}{}^r]\, \delta_{i1i2} -$$
$$\frac{2}{9}\, g_1{}^2\left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right)\left(c_\gamma\, a_d{}^{pr} - s_\gamma\, \tilde{\mu}\, y_d{}^{pr}\right) LF_{3,2,-1}[m_{\tilde{q}}{}^p, m_{\tilde{d}}{}^r]\, \delta_{i1i2} +$$
$$\frac{5}{6}\, g_1{}^2\left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right)\left(c_\gamma\, a_d{}^{pr} - s_\gamma\, \tilde{\mu}\, y_d{}^{pr}\right) LF_{4,1,-1}[m_{\tilde{q}}{}^p, m_{\tilde{d}}{}^r]\, \delta_{i1i2} -$$
$$\frac{2}{3}\, g_1{}^2\left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right)\left(c_\gamma\, a_d{}^{pr} - s_\gamma\, \tilde{\mu}\, y_d{}^{pr}\right) LF_{5,1,-2}[m_{\tilde{q}}{}^p, m_{\tilde{d}}{}^r]\, \delta_{i1i2} -$$
$$\frac{1}{9}\, g_1{}^2\left(s_\gamma\, \overline{a_u}^{pr} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pr}\right)\left(s_\gamma\, a_u{}^{pr} - \tilde{\mu}\, c_\gamma\, y_u{}^{pr}\right) LF_{2,2,0}[m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^r]\, \delta_{i1i2} +$$
$$\frac{1}{18}\, g_1{}^2\left(s_\gamma\, \overline{a_u}^{pr} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pr}\right)\left(s_\gamma\, a_u{}^{pr} - \tilde{\mu}\, c_\gamma\, y_u{}^{pr}\right) LF_{3,2,-1}[m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^r]\, \delta_{i1i2} -$$
$$\frac{1}{18}\, g_1{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,0}[m_{\tilde{q}}{}^p, \tilde{\mu}] + \frac{1}{36}\, g_1{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,2,-1}[m_{\tilde{q}}{}^p, \tilde{\mu}] + \frac{1}{36}\, g_1{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}$$
$$LF_{3,1,-1}[m_{\tilde{q}}{}^p, \tilde{\mu}] + \frac{1}{9}\, g_1{}^2\left(s_\gamma\, \overline{a_u}^{pr} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pr}\right)\left(s_\gamma\, a_u{}^{pr} - \tilde{\mu}\, c_\gamma\, y_u{}^{pr}\right) LF_{3,1,0}[m_{\tilde{u}}{}^r, m_{\tilde{q}}{}^p]\, \delta_{i1i2} +$$
$$\frac{1}{9}\, g_1{}^2\left(s_\gamma\, \overline{a_u}^{pr} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pr}\right)\left(s_\gamma\, a_u{}^{pr} - \tilde{\mu}\, c_\gamma\, y_u{}^{pr}\right) LF_{3,2,-1}[m_{\tilde{u}}{}^r, m_{\tilde{q}}{}^p]\, \delta_{i1i2} +$$
$$\frac{1}{3}\, g_1{}^2\left(s_\gamma\, \overline{a_u}^{pr} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pr}\right)\left(s_\gamma\, a_u{}^{pr} - \tilde{\mu}\, c_\gamma\, y_u{}^{pr}\right) LF_{4,1,-1}[m_{\tilde{u}}{}^r, m_{\tilde{q}}{}^p]\, \delta_{i1i2} -$$
$$\frac{2}{3}\, g_1{}^2\left(s_\gamma\, \overline{a_u}^{pr} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pr}\right)\left(s_\gamma\, a_u{}^{pr} - \tilde{\mu}\, c_\gamma\, y_u{}^{pr}\right) LF_{5,1,-2}[m_{\tilde{u}}{}^r, m_{\tilde{q}}{}^p]\, \delta_{i1i2} -$$
$$\frac{8}{81}\, g_1{}^4\, LF_{2,1,0}[m_{\tilde{u}}{}^{i2}, m_1]\, \delta_{i1i2} + \frac{4}{81}\, g_1{}^4\, LF_{3,1,-1}[m_{\tilde{u}}{}^{i2}, m_1]\, \delta_{i1i2} -$$
$$\frac{8}{27}\, g_1{}^2\, g_3{}^2\, LF_{2,1,0}[m_{\tilde{u}}{}^{i2}, m_3]\, \delta_{i1i2} + \frac{4}{27}\, g_1{}^2\, g_3{}^2\, LF_{3,1,-1}[m_{\tilde{u}}{}^{i2}, m_3]\, \delta_{i1i2} -$$
$$\frac{5}{18}\, g_1{}^4\, LF_{4,1,-2}[\tilde{\mu}, m_1]\, \delta_{i1i2} - \frac{1}{3}\, m_1\, s_\gamma\, \tilde{\mu}\, c_\gamma\, g_1{}^4\, LF_{4,1,-1}[\tilde{\mu}, m_1]\, \delta_{i1i2} + \frac{2}{9}\, g_1{}^4\, LF_{5,1,-3}[\tilde{\mu}, m_1]\, \delta_{i1i2} +$$
$$\frac{4}{9}\, m_1\, s_\gamma\, \tilde{\mu}\, c_\gamma\, g_1{}^4\, LF_{5,1,-2}[\tilde{\mu}, m_1]\, \delta_{i1i2} - \frac{5}{6}\, g_1{}^2\, g_2{}^2\, LF_{4,1,-2}[\tilde{\mu}, m_2]\, \delta_{i1i2} -$$
$$m_2\, s_\gamma\, \tilde{\mu}\, c_\gamma\, g_1{}^2\, g_2{}^2\, LF_{4,1,-1}[\tilde{\mu}, m_2]\, \delta_{i1i2} + \frac{2}{3}\, g_1{}^2\, g_2{}^2\, LF_{5,1,-3}[\tilde{\mu}, m_2]\, \delta_{i1i2} +$$
$$\frac{4}{3}\, m_2\, s_\gamma\, \tilde{\mu}\, c_\gamma\, g_1{}^2\, g_2{}^2\, LF_{5,1,-2}[\tilde{\mu}, m_2]\, \delta_{i1i2} + \frac{1}{2}\, s_\gamma{}^2\, \overline{y_d}^{pr}\, y_d{}^{sr}\, \overline{y_u}^{si1}\, y_u{}^{pi2}\, LF_{2,1,0}[\tilde{\mu}, m_{\tilde{d}}{}^r] -$$
$$s_\gamma{}^2\, \overline{y_d}^{pr}\, y_d{}^{sr}\, \overline{y_u}^{si1}\, y_u{}^{pi2}\, LF_{3,1,-1}[\tilde{\mu}, m_{\tilde{d}}{}^r] + \frac{1}{2}\, s_\gamma{}^2\, \overline{y_d}^{pr}\, y_d{}^{sr}\, \overline{y_u}^{si1}\, y_u{}^{pi2}\, LF_{4,1,-2}[\tilde{\mu}, m_{\tilde{d}}{}^r] +$$
$$\frac{1}{36}\, g_1{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,0}[\tilde{\mu}, m_{\tilde{q}}{}^p] - \frac{11}{36}\, g_1{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{3,1,-1}[\tilde{\mu}, m_{\tilde{q}}{}^p] +$$
$$\frac{1}{9}\, g_1{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{4,1,-2}[\tilde{\mu}, m_{\tilde{q}}{}^p] + \frac{1}{2}\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, \overline{y_u}^{rs}\, y_u{}^{ps}\, y_u{}^{ri2}\, LF_{2,1,0}[\tilde{\mu}, m_{\tilde{u}}{}^s] -$$
$$s_\gamma{}^2\, \overline{y_u}^{pi1}\, \overline{y_u}^{rs}\, y_u{}^{ps}\, y_u{}^{ri2}\, LF_{3,1,-1}[\tilde{\mu}, m_{\tilde{u}}{}^s] + \frac{1}{2}\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, \overline{y_u}^{rs}\, y_u{}^{ps}\, y_u{}^{ri2}\, LF_{4,1,-2}[\tilde{\mu}, m_{\tilde{u}}{}^s] +$$
$$\frac{1}{18}\, m_1\, s_\gamma\, g_1{}^2\, y_u{}^{pi2}\left(-s_\gamma\, \overline{a_u}^{pi1} + \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\right) LF_{2,1,1,0}[m_1, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i1}] +$$
$$\frac{1}{36}\, m_1\, s_\gamma\, g_1{}^2\, y_u{}^{pi2}\left(-s_\gamma\, \overline{a_u}^{pi1} + \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\right) LF_{2,2,1,-1}[m_1, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i1}] +$$
$$\frac{1}{18}\, m_1\, s_\gamma\, g_1{}^2\, y_u{}^{pi2}\left(s_\gamma\, \overline{a_u}^{pi1} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\right) LF_{3,1,1,-1}[m_1, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i1}] +$$
$$\frac{1}{18}\, m_1\, s_\gamma\, g_1{}^2\, \overline{y_u}^{pi1}\left(-s_\gamma\, a_u{}^{pi2} + \tilde{\mu}\, c_\gamma\, y_u{}^{pi2}\right) LF_{2,1,1,0}[m_1, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i2}] +$$
$$\frac{1}{36}\, m_1\, s_\gamma\, g_1{}^2\, \overline{y_u}^{pi1}\left(-s_\gamma\, a_u{}^{pi2} + \tilde{\mu}\, c_\gamma\, y_u{}^{pi2}\right) LF_{2,2,1,-1}[m_1, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i2}] +$$
$$\frac{1}{18}\, m_1\, s_\gamma\, g_1{}^2\, \overline{y_u}^{pi1}\left(s_\gamma\, a_u{}^{pi2} - \tilde{\mu}\, c_\gamma\, y_u{}^{pi2}\right) LF_{3,1,1,-1}[m_1, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i2}] +$$
$$\frac{1}{4}\, g_1{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,1,-1}[m_1, m_{\tilde{q}}{}^p, \tilde{\mu}] + \frac{1}{6}\, m_1\, s_\gamma\, \tilde{\mu}\, c_\gamma\, g_1{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,1,0}[m_1, m_{\tilde{q}}{}^p, \tilde{\mu}] -$$
$$\frac{1}{6}\, g_1{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{3,1,1,-2}[m_1, m_{\tilde{q}}{}^p, \tilde{\mu}] - \frac{1}{6}\, m_1\, s_\gamma\, \tilde{\mu}\, c_\gamma\, g_1{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{3,1,1,-1}[m_1, m_{\tilde{q}}{}^p, \tilde{\mu}] +$$
$$\frac{1}{36}\, m_1\, s_\gamma\, g_1{}^2\, y_u{}^{pi2}\left(s_\gamma\, \overline{a_u}^{pi1} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\right) LF_{2,2,1,-1}[m_1, m_{\tilde{u}}{}^{i1}, m_{\tilde{q}}{}^p] +$$
$$\frac{1}{36}\, m_1\, s_\gamma\, g_1{}^2\, \overline{y_u}^{pi1}\left(s_\gamma\, a_u{}^{pi2} - \tilde{\mu}\, c_\gamma\, y_u{}^{pi2}\right) LF_{2,2,1,-1}[m_1, m_{\tilde{u}}{}^{i2}, m_{\tilde{q}}{}^p] +$$
$$\frac{1}{9}\, g_1{}^4\left(-c_\gamma{}^2 + s_\gamma{}^2\right) LF_{2,1,1,-1}[m_1, m_{\tilde{u}}{}^{i2}, \tilde{\mu}]\, \delta_{i1i2} +$$
$$\frac{2}{9}\, g_1{}^4\, m_1{}^2\left(-c_\gamma{}^2 + s_\gamma{}^2\right) LF_{2,1,1,0}[m_1, m_{\tilde{u}}{}^{i2}, \tilde{\mu}]\, \delta_{i1i2} + \frac{1}{24}\, g_1{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,2,1,-2}[m_1, \tilde{\mu}, m_{\tilde{q}}{}^p] +$$
$$\frac{1}{24}\, \tilde{\mu}\, c_\gamma\, g_1{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\left(4\, m_1\, s_\gamma + 3\, \tilde{\mu}\, c_\gamma\right) LF_{2,2,1,-1}[m_1, \tilde{\mu}, m_{\tilde{q}}{}^p] + \frac{1}{6}\, g_1{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}$$
$$LF_{2,2,1,-2}[m_1, \tilde{\mu}, m_{\tilde{u}}{}^{i1}] + \frac{1}{6}\, m_1\, s_\gamma\, \tilde{\mu}\, c_\gamma\, g_1{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,2,1,-1}[m_1, \tilde{\mu}, m_{\tilde{u}}{}^{i1}] +$$
$$\left(\frac{1}{6}\, g_1{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2} + \frac{1}{9}\, g_1{}^4\left(-c_\gamma{}^2 + s_\gamma{}^2\right)\delta_{i1i2}\right) LF_{2,2,1,-2}[m_1, \tilde{\mu}, m_{\tilde{u}}{}^{i2}] +$$
$$\frac{1}{18}\, m_1\, g_1{}^2\left(3\, s_\gamma\, \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\, y_u{}^{pi2} + 2\, m_1\, g_1{}^2\left(c_\gamma{}^2 - s_\gamma{}^2\right)\delta_{i1i2}\right) LF_{2,2,1,-1}[m_1, \tilde{\mu}, m_{\tilde{u}}{}^{i2}] -$$
$$\frac{9}{4}\, g_2{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,1,-1}[m_2, m_{\tilde{q}}{}^p, \tilde{\mu}] -$$
$$\frac{3}{2}\, m_2\, s_\gamma\, \tilde{\mu}\, c_\gamma\, g_2{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,1,0}[m_2, m_{\tilde{q}}{}^p, \tilde{\mu}] + \frac{3}{2}\, g_2{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{3,1,1,-2}[m_2, m_{\tilde{q}}{}^p, \tilde{\mu}] +$$
$$\frac{3}{2}\, m_2\, s_\gamma\, \tilde{\mu}\, c_\gamma\, g_2{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{3,1,1,-1}[m_2, m_{\tilde{q}}{}^p, \tilde{\mu}] + \frac{9}{8}\, g_2{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,2,1,-2}[m_2, \tilde{\mu}, m_{\tilde{q}}{}^p] +$$
$$\frac{3}{8}\, \tilde{\mu}\, c_\gamma\, g_2{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\left(4\, m_2\, s_\gamma + \tilde{\mu}\, c_\gamma\right) LF_{2,2,1,-1}[m_2, \tilde{\mu}, m_{\tilde{q}}{}^p] +$$
$$\frac{2}{3}\, m_3\, s_\gamma\, g_3{}^2\, y_u{}^{pi2}\left(-s_\gamma\, \overline{a_u}^{pi1} + \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\right) LF_{2,1,1,0}[m_3, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i1}] +$$
$$\frac{1}{3}\, m_3\, s_\gamma\, g_3{}^2\, y_u{}^{pi2}\left(-s_\gamma\, \overline{a_u}^{pi1} + \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\right) LF_{2,2,1,-1}[m_3, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i1}] +$$
$$\frac{2}{3}\, m_3\, s_\gamma\, g_3{}^2\, y_u{}^{pi2}\left(s_\gamma\, \overline{a_u}^{pi1} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\right) LF_{3,1,1,-1}[m_3, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i1}] +$$
$$\frac{2}{3}\, m_3\, s_\gamma\, g_3{}^2\, \overline{y_u}^{pi1}\left(-s_\gamma\, a_u{}^{pi2} + \tilde{\mu}\, c_\gamma\, y_u{}^{pi2}\right) LF_{2,1,1,0}[m_3, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i2}] +$$
$$\frac{1}{3}\, m_3\, s_\gamma\, g_3{}^2\, \overline{y_u}^{pi1}\left(-s_\gamma\, a_u{}^{pi2} + \tilde{\mu}\, c_\gamma\, y_u{}^{pi2}\right) LF_{2,2,1,-1}[m_3, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i2}] +$$
$$\frac{2}{3}\, m_3\, s_\gamma\, g_3{}^2\, \overline{y_u}^{pi1}\left(s_\gamma\, a_u{}^{pi2} - \tilde{\mu}\, c_\gamma\, y_u{}^{pi2}\right) LF_{3,1,1,-1}[m_3, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i2}] +$$
$$\frac{1}{3}\, m_3\, s_\gamma\, g_3{}^2\, y_u{}^{pi2}\left(s_\gamma\, \overline{a_u}^{pi1} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\right) LF_{2,2,1,-1}[m_3, m_{\tilde{u}}{}^{i1}, m_{\tilde{q}}{}^p] +$$
$$\frac{1}{3}\, m_3\, s_\gamma\, g_3{}^2\, \overline{y_u}^{pi1}\left(s_\gamma\, a_u{}^{pi2} - \tilde{\mu}\, c_\gamma\, y_u{}^{pi2}\right) LF_{2,2,1,-1}[m_3, m_{\tilde{u}}{}^{i2}, m_{\tilde{q}}{}^p] +$$
$$\frac{1}{8}\, s_\gamma\, \tilde{\mu}\, y_d{}^{sr}\, \overline{y_u}^{si1}\, y_u{}^{pi2}\left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right) LF_{2,2,1,-1}[m_{\tilde{d}}{}^r, \tilde{\mu}, m_{\tilde{q}}{}^p] +$$
$$\frac{1}{8}\, s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\, \overline{y_u}^{si1}\, y_u{}^{pi2}\left(c_\gamma\, a_d{}^{sr} - s_\gamma\, \tilde{\mu}\, y_d{}^{sr}\right) LF_{2,2,1,-1}[m_{\tilde{d}}{}^r, \tilde{\mu}, m_{\tilde{q}}{}^s] +$$
$$\frac{1}{8}\, s_\gamma\, \tilde{\mu}\, y_d{}^{sr}\, \overline{y_u}^{si1}\, y_u{}^{pi2}\left(-c_\gamma\, \overline{a_d}^{pr} + s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right) LF_{2,2,1,-1}[m_{\tilde{q}}{}^p, \tilde{\mu}, m_{\tilde{d}}{}^r] +$$
$$\frac{1}{8}\, s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\, \overline{y_u}^{si1}\, y_u{}^{pi2}\left(-c_\gamma\, a_d{}^{sr} + s_\gamma\, \tilde{\mu}\, y_d{}^{sr}\right) LF_{2,2,1,-1}[m_{\tilde{q}}{}^s, \tilde{\mu}, m_{\tilde{d}}{}^r] +$$
$$\frac{1}{8}\, g_1{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,1,-1}[\tilde{\mu}, m_1, m_{\tilde{q}}{}^p] - \frac{1}{4}\, g_1{}^2\, \tilde{\mu}^2\, c_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,1,0}[\tilde{\mu}, m_1, m_{\tilde{q}}{}^p] -$$
$$\frac{1}{2}\, g_1{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,1,-1}[\tilde{\mu}, m_1, m_{\tilde{u}}{}^{i1}] - \frac{1}{3}\, m_1\, s_\gamma\, \tilde{\mu}\, c_\gamma\, g_1{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,1,0}[\tilde{\mu}, m_1, m_{\tilde{u}}{}^{i1}] +$$
$$\frac{1}{3}\, g_1{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{3,1,1,-2}[\tilde{\mu}, m_1, m_{\tilde{u}}{}^{i1}] + \frac{1}{3}\, m_1\, s_\gamma\, \tilde{\mu}\, c_\gamma\, g_1{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{3,1,1,-1}[\tilde{\mu}, m_1, m_{\tilde{u}}{}^{i1}] -$$
$$\frac{1}{2}\, g_1{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,1,-1}[\tilde{\mu}, m_1, m_{\tilde{u}}{}^{i2}] - \frac{1}{3}\, m_1\, s_\gamma\, \tilde{\mu}\, c_\gamma\, g_1{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,1,0}[\tilde{\mu}, m_1, m_{\tilde{u}}{}^{i2}] +$$
$$\frac{1}{3}\, g_1{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{3,1,1,-2}[\tilde{\mu}, m_1, m_{\tilde{u}}{}^{i2}] + \frac{1}{3}\, m_1\, s_\gamma\, \tilde{\mu}\, c_\gamma\, g_1{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{3,1,1,-1}[\tilde{\mu}, m_1, m_{\tilde{u}}{}^{i2}] +$$
$$\frac{3}{8}\, g_2{}^2\, s_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,1,-1}[\tilde{\mu}, m_2, m_{\tilde{q}}{}^p] - \frac{3}{4}\, g_2{}^2\, \tilde{\mu}^2\, c_\gamma{}^2\, \overline{y_u}^{pi1}\, y_u{}^{pi2}\, LF_{2,1,1,0}[\tilde{\mu}, m_2, m_{\tilde{q}}{}^p] +$$
$$\frac{1}{4}\, s_\gamma\, \tilde{\mu}\, y_d{}^{sr}\, \overline{y_u}^{si1}\, y_u{}^{pi2}\left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right) LF_{2,1,1,0}[\tilde{\mu}, m_{\tilde{d}}{}^r, m_{\tilde{q}}{}^p] +$$
$$\frac{1}{4}\, s_\gamma\, \tilde{\mu}\, y_d{}^{sr}\, \overline{y_u}^{si1}\, y_u{}^{pi2}\left(-c_\gamma\, \overline{a_d}^{pr} + s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right) LF_{3,1,1,-1}[\tilde{\mu}, m_{\tilde{d}}{}^r, m_{\tilde{q}}{}^p] +$$
$$\frac{1}{4}\, s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\, \overline{y_u}^{si1}\, y_u{}^{pi2}\left(c_\gamma\, a_d{}^{sr} - s_\gamma\, \tilde{\mu}\, y_d{}^{sr}\right) LF_{2,1,1,0}[\tilde{\mu}, m_{\tilde{d}}{}^r, m_{\tilde{q}}{}^s] +$$
$$\frac{1}{4}\, s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\, \overline{y_u}^{si1}\, y_u{}^{pi2}\left(-c_\gamma\, a_d{}^{sr} + s_\gamma\, \tilde{\mu}\, y_d{}^{sr}\right) LF_{3,1,1,-1}[\tilde{\mu}, m_{\tilde{d}}{}^r, m_{\tilde{q}}{}^s] -$$
$$\frac{1}{6}\, g_1{}^2\, y_u{}^{pi2}\left(m_1\, s_\gamma - \tilde{\mu}\, c_\gamma\right)\left(s_\gamma\, \overline{a_u}^{pi1} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\right) LF_{1,1,1,1,0}[m_1, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i1}, \tilde{\mu}] -$$
$$\frac{1}{12}\, g_1{}^2\, y_u{}^{pi2}\left(m_1\, s_\gamma + \tilde{\mu}\, c_\gamma\right)\left(s_\gamma\, \overline{a_u}^{pi1} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\right) LF_{2,1,1,1,-1}[m_1, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i1}, \tilde{\mu}] -$$
$$\frac{1}{6}\, g_1{}^2\, \overline{y_u}^{pi1}\left(m_1\, s_\gamma - \tilde{\mu}\, c_\gamma\right)\left(s_\gamma\, a_u{}^{pi2} - \tilde{\mu}\, c_\gamma\, y_u{}^{pi2}\right) LF_{1,1,1,1,0}[m_1, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i2}, \tilde{\mu}] -$$
$$\frac{1}{12}\, g_1{}^2\, \overline{y_u}^{pi1}\left(m_1\, s_\gamma + \tilde{\mu}\, c_\gamma\right)\left(s_\gamma\, a_u{}^{pi2} - \tilde{\mu}\, c_\gamma\, y_u{}^{pi2}\right) LF_{2,1,1,1,-1}[m_1, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i2}, \tilde{\mu}] -$$
$$\frac{1}{4}\, \overline{y_u}^{si1}\, y_u{}^{pi2}\left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr}\right)\left(c_\gamma\, a_d{}^{sr} - s_\gamma\, \tilde{\mu}\, y_d{}^{sr}\right) LF_{2,1,1,1,-1}[m_{\tilde{d}}{}^r, m_{\tilde{q}}{}^p, m_{\tilde{q}}{}^s, \tilde{\mu}] +$$
$$\frac{1}{12}\, g_1{}^2\, y_u{}^{pi2}\left(m_1\, s_\gamma + \tilde{\mu}\, c_\gamma\right)\left(s_\gamma\, \overline{a_u}^{pi1} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\right) LF_{2,1,1,1,-1}[m_{\tilde{q}}{}^p, m_1, m_{\tilde{u}}{}^{i1}, \tilde{\mu}] -$$
$$\frac{2}{9}\, g_1{}^2\left(s_\gamma\, \overline{a_u}^{pi1} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\right)\left(s_\gamma\, a_u{}^{pi2} - \tilde{\mu}\, c_\gamma\, y_u{}^{pi2}\right) LF_{2,1,1,1,-1}[m_{\tilde{q}}{}^p, m_1, m_{\tilde{u}}{}^{i2}, m_{\tilde{u}}{}^{i1}] +$$
$$\frac{1}{12}\, g_1{}^2\, \overline{y_u}^{pi1}\left(m_1\, s_\gamma + \tilde{\mu}\, c_\gamma\right)\left(s_\gamma\, a_u{}^{pi2} - \tilde{\mu}\, c_\gamma\, y_u{}^{pi2}\right) LF_{2,1,1,1,-1}[m_{\tilde{q}}{}^p, m_1, m_{\tilde{u}}{}^{i2}, \tilde{\mu}] -$$
$$\frac{2}{3}\, g_3{}^2\left(s_\gamma\, \overline{a_u}^{pi1} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\right)\left(s_\gamma\, a_u{}^{pi2} - \tilde{\mu}\, c_\gamma\, y_u{}^{pi2}\right) LF_{2,1,1,1,-1}[m_{\tilde{q}}{}^p, m_3, m_{\tilde{u}}{}^{i2}, m_{\tilde{u}}{}^{i1}] +$$
$$\frac{1}{4}\, s_\gamma\, \overline{y_u}^{si1}\, y_u{}^{pi2}\, \overline{a_u}^{pr}\left(s_\gamma\, a_u{}^{sr} - \tilde{\mu}\, c_\gamma\, y_u{}^{sr}\right) LF_{2,1,1,1,-1}[m_{\tilde{u}}{}^r, m_{\tilde{q}}{}^p, m_{\tilde{q}}{}^s, \tilde{\mu}] +$$
$$\frac{1}{4}\, \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\, \overline{y_u}^{rs}\, y_u{}^{ri2}\left(-s_\gamma\, a_u{}^{ps} + \tilde{\mu}\, c_\gamma\, y_u{}^{ps}\right) LF_{2,1,1,1,-1}[m_{\tilde{u}}{}^s, m_{\tilde{q}}{}^p, m_{\tilde{q}}{}^r, \tilde{\mu}] -$$
$$\frac{1}{12}\, g_1{}^2\, y_u{}^{pi2}\left(m_1\, s_\gamma + \tilde{\mu}\, c_\gamma\right)\left(s_\gamma\, \overline{a_u}^{pi1} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\right) LF_{2,1,1,1,-1}[m_{\tilde{u}}{}^{i1}, m_1, m_{\tilde{q}}{}^p, \tilde{\mu}] -$$
$$\frac{1}{12}\, g_1{}^2\, \overline{y_u}^{pi1}\left(m_1\, s_\gamma + \tilde{\mu}\, c_\gamma\right)\left(s_\gamma\, a_u{}^{pi2} - \tilde{\mu}\, c_\gamma\, y_u{}^{pi2}\right) LF_{2,1,1,1,-1}[m_{\tilde{u}}{}^{i2}, m_1, m_{\tilde{q}}{}^p, \tilde{\mu}] +$$
$$\frac{1}{12}\, g_1{}^2\, y_u{}^{pi2}\left(m_1\, s_\gamma + \tilde{\mu}\, c_\gamma\right)\left(s_\gamma\, \overline{a_u}^{pi1} - \tilde{\mu}\, c_\gamma\, \overline{y_u}^{pi1}\right) LF_{2,1,1,1,-1}[\tilde{\mu}, m_1, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i1}] +$$
$$\frac{1}{12}\, g_1{}^2\, \overline{y_u}^{pi1}\left(m_1\, s_\gamma + \tilde{\mu}\, c_\gamma\right)\left(s_\gamma\, a_u{}^{pi2} - \tilde{\mu}\, c_\gamma\, y_u{}^{pi2}\right) LF_{2,1,1,1,-1}[\tilde{\mu}, m_1, m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^{i2}]\Big)\Big)$$