$$C_{He}{}^{i1\_i2\_} \to \hbar \left(\frac{1}{72} \frac{1}{m_{\Phi}{}^2} s_\gamma{}^2 \overline{y_e}^{pi1} \left(5 g_1{}^2 y_e{}^{pi2} + 6 c_\gamma{}^2 \overline{y_e}^{rs} y_e{}^{ps} y_e{}^{ri2}\right) - \right.$$

$$\frac{2}{27} \sum_p g_1{}^4 LF_{3,0}\left[m_{\tilde{d}}{}^p\right] \delta_{i1i2} + \frac{5}{36} \sum_p g_1{}^4 LF_{4,-1}\left[m_{\tilde{d}}{}^p\right] \delta_{i1i2} - \frac{8}{135} \sum_p g_1{}^4 LF_{5,-2}\left[m_{\tilde{d}}{}^p\right] \delta_{i1i2} -$$

$$\frac{2}{9} \sum_p g_1{}^4 LF_{3,0}\left[m_{\tilde{e}}{}^p\right] \delta_{i1i2} + \frac{5}{12} \sum_p g_1{}^4 LF_{4,-1}\left[m_{\tilde{e}}{}^p\right] \delta_{i1i2} - \frac{8}{45} \sum_p g_1{}^4 LF_{5,-2}\left[m_{\tilde{e}}{}^p\right] \delta_{i1i2} -$$

$$\frac{1}{9} \sum_p g_1{}^4 LF_{3,0}\left[m_{\tilde{l}}{}^p\right] \delta_{i1i2} + \frac{5}{24} \sum_p g_1{}^4 LF_{4,-1}\left[m_{\tilde{l}}{}^p\right] \delta_{i1i2} - \frac{4}{45} \sum_p g_1{}^4 LF_{5,-2}\left[m_{\tilde{l}}{}^p\right] \delta_{i1i2} -$$

$$\frac{1}{27} \sum_p g_1{}^4 LF_{3,0}\left[m_{\tilde{q}}{}^p\right] \delta_{i1i2} + \frac{5}{72} \sum_p g_1{}^4 LF_{4,-1}\left[m_{\tilde{q}}{}^p\right] \delta_{i1i2} - \frac{4}{135} \sum_p g_1{}^4 LF_{5,-2}\left[m_{\tilde{q}}{}^p\right] \delta_{i1i2} -$$

$$\frac{8}{27} \sum_p g_1{}^4 LF_{3,0}\left[m_{\tilde{u}}{}^p\right] \delta_{i1i2} + \frac{5}{9} \sum_p g_1{}^4 LF_{4,-1}\left[m_{\tilde{u}}{}^p\right] \delta_{i1i2} - \frac{32}{135} \sum_p g_1{}^4 LF_{5,-2}\left[m_{\tilde{u}}{}^p\right] \delta_{i1i2} +$$

$$\frac{1}{6} s_\gamma{}^2 \overline{y_e}^{pi1} \left(g_1{}^2 y_e{}^{pi2} + 3 c_\gamma{}^2 \overline{y_e}^{rs} y_e{}^{ps} y_e{}^{ri2}\right) LF_{1,2}[m_\Phi] + \frac{1}{12} g_1{}^2 s_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1}[m_\Phi] -$$

$$\frac{1}{36} g_1{}^2 \left(3 s_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} + 4 g_1{}^2 \delta_{i1i2}\right) LF_{3,0}[m_\Phi] + \frac{5}{24} g_1{}^4 LF_{4,-1}[m_\Phi] \delta_{i1i2} -$$

$$\frac{4}{45} g_1{}^4 LF_{5,-2}[m_\Phi] \delta_{i1i2} - \frac{1}{9} g_1{}^4 LF_{3,0}[\tilde{\mu}] \delta_{i1i2} - \frac{1}{6} g_1{}^4 LF_{4,-1}[\tilde{\mu}] \delta_{i1i2} +$$

$$\frac{8}{45} g_1{}^4 LF_{5,-2}[\tilde{\mu}] \delta_{i1i2} - \frac{1}{6} g_1{}^4 LF_{2,1,0}\left[m_1, m_{\tilde{e}}{}^{i2}\right] \delta_{i1i2} - \frac{1}{6} g_1{}^4 LF_{2,2,-1}\left[m_1, m_{\tilde{e}}{}^{i2}\right] \delta_{i1i2} +$$

$$\frac{1}{3} g_1{}^4 LF_{3,1,-1}\left[m_1, m_{\tilde{e}}{}^{i2}\right] \delta_{i1i2} - \frac{1}{6} g_1{}^4 LF_{4,1,-2}\left[m_1, m_{\tilde{e}}{}^{i2}\right] \delta_{i1i2} -$$

$$\frac{1}{4} g_1{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1,0}\left[m_1, m_{\tilde{l}}{}^p\right] + \frac{1}{2} g_1{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{3,1,-1}\left[m_1, m_{\tilde{l}}{}^p\right] -$$

$$\frac{1}{4} g_1{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{4,1,-2}\left[m_1, m_{\tilde{l}}{}^p\right] - \frac{3}{4} g_2{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1,0}\left[m_2, m_{\tilde{l}}{}^p\right] +$$

$$\frac{3}{2} g_2{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{3,1,-1}\left[m_2, m_{\tilde{l}}{}^p\right] - \frac{3}{4} g_2{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{4,1,-2}\left[m_2, m_{\tilde{l}}{}^p\right] -$$

$$\frac{1}{3} g_1{}^2 \left(c_\gamma \overline{a_d}^{pr} - s_\gamma \tilde{\mu} \overline{y_d}^{pr}\right) \left(c_\gamma a_d{}^{pr} - s_\gamma \tilde{\mu} y_d{}^{pr}\right) LF_{2,2,0}\left[m_{\tilde{d}}{}^r, m_{\tilde{q}}{}^p\right] \delta_{i1i2} +$$

$$\frac{1}{6} g_1{}^2 \left(c_\gamma \overline{a_d}^{pr} - s_\gamma \tilde{\mu} \overline{y_d}^{pr}\right) \left(c_\gamma a_d{}^{pr} - s_\gamma \tilde{\mu} y_d{}^{pr}\right) LF_{3,2,-1}\left[m_{\tilde{d}}{}^r, m_{\tilde{q}}{}^p\right] \delta_{i1i2} -$$

$$\frac{1}{3} g_1{}^2 \left(c_\gamma \overline{a_e}^{pr} - s_\gamma \tilde{\mu} \overline{y_e}^{pr}\right) \left(c_\gamma a_e{}^{pr} - s_\gamma \tilde{\mu} y_e{}^{pr}\right) LF_{2,2,0}\left[m_{\tilde{e}}{}^r, m_{\tilde{l}}{}^p\right] \delta_{i1i2} +$$

$$\frac{1}{6} g_1{}^2 \left(c_\gamma \overline{a_e}^{pr} - s_\gamma \tilde{\mu} \overline{y_e}^{pr}\right) \left(c_\gamma a_e{}^{pr} - s_\gamma \tilde{\mu} y_e{}^{pr}\right) LF_{3,2,-1}\left[m_{\tilde{e}}{}^r, m_{\tilde{l}}{}^p\right] \delta_{i1i2} +$$

$$\frac{1}{3} g_1{}^4 LF_{2,1,0}\left[m_{\tilde{e}}{}^{i2}, m_1\right] \delta_{i1i2} - \frac{1}{6} g_1{}^4 LF_{3,1,-1}\left[m_{\tilde{e}}{}^{i2}, m_1\right] \delta_{i1i2} +$$

$$\frac{1}{3} g_1{}^2 \left(c_\gamma \overline{a_e}^{pr} - s_\gamma \tilde{\mu} \overline{y_e}^{pr}\right) \left(c_\gamma a_e{}^{pr} - s_\gamma \tilde{\mu} y_e{}^{pr}\right) LF_{3,1,0}\left[m_{\tilde{l}}{}^p, m_{\tilde{e}}{}^r\right] \delta_{i1i2} +$$

$$\frac{1}{3} g_1{}^2 \left(c_\gamma \overline{a_e}^{pr} - s_\gamma \tilde{\mu} \overline{y_e}^{pr}\right) \left(c_\gamma a_e{}^{pr} - s_\gamma \tilde{\mu} y_e{}^{pr}\right) LF_{3,2,-1}\left[m_{\tilde{l}}{}^p, m_{\tilde{e}}{}^r\right] \delta_{i1i2} -$$

$$\frac{3}{4} g_1{}^2 \left(c_\gamma \overline{a_e}^{pr} - s_\gamma \tilde{\mu} \overline{y_e}^{pr}\right) \left(c_\gamma a_e{}^{pr} - s_\gamma \tilde{\mu} y_e{}^{pr}\right) LF_{4,1,-1}\left[m_{\tilde{l}}{}^p, m_{\tilde{e}}{}^r\right] \delta_{i1i2} +$$

$$\frac{1}{3} g_1{}^2 \left(c_\gamma \overline{a_e}^{pr} - s_\gamma \tilde{\mu} \overline{y_e}^{pr}\right) \left(c_\gamma a_e{}^{pr} - s_\gamma \tilde{\mu} y_e{}^{pr}\right) LF_{5,1,-2}\left[m_{\tilde{l}}{}^p, m_{\tilde{e}}{}^r\right] \delta_{i1i2} +$$

$$\frac{1}{6} g_1{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1,0}\left[m_{\tilde{l}}{}^p, \tilde{\mu}\right] - \frac{1}{12} g_1{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,2,-1}\left[m_{\tilde{l}}{}^p, \tilde{\mu}\right] - \frac{1}{12} g_1{}^2 \overline{y_e}^{pi1} y_e{}^{pi2}$$

$$LF_{3,1,-1}\left[m_{\tilde{l}}{}^p, \tilde{\mu}\right] + \frac{1}{3} g_1{}^2 \left(c_\gamma \overline{a_d}^{pr} - s_\gamma \tilde{\mu} \overline{y_d}^{pr}\right) \left(c_\gamma a_d{}^{pr} - s_\gamma \tilde{\mu} y_d{}^{pr}\right) LF_{3,1,0}\left[m_{\tilde{q}}{}^p, m_{\tilde{d}}{}^r\right] \delta_{i1i2} +$$

$$\frac{1}{3} g_1{}^2 \left(c_\gamma \overline{a_d}^{pr} - s_\gamma \tilde{\mu} \overline{y_d}^{pr}\right) \left(c_\gamma a_d{}^{pr} - s_\gamma \tilde{\mu} y_d{}^{pr}\right) LF_{3,2,-1}\left[m_{\tilde{q}}{}^p, m_{\tilde{d}}{}^r\right] \delta_{i1i2} -$$

$$\frac{5}{4} g_1{}^2 \left(c_\gamma \overline{a_d}^{pr} - s_\gamma \tilde{\mu} \overline{y_d}^{pr}\right) \left(c_\gamma a_d{}^{pr} - s_\gamma \tilde{\mu} y_d{}^{pr}\right) LF_{4,1,-1}\left[m_{\tilde{q}}{}^p, m_{\tilde{d}}{}^r\right] \delta_{i1i2} +$$

$$g_1{}^2 \left(c_\gamma \overline{a_d}^{pr} - s_\gamma \tilde{\mu} \overline{y_d}^{pr}\right) \left(c_\gamma a_d{}^{pr} - s_\gamma \tilde{\mu} y_d{}^{pr}\right) LF_{5,1,-2}\left[m_{\tilde{q}}{}^p, m_{\tilde{d}}{}^r\right] \delta_{i1i2} +$$

$$\frac{1}{6} g_1{}^2 \left(s_\gamma \overline{a_u}^{pr} - \tilde{\mu} c_\gamma \overline{y_u}^{pr}\right) \left(s_\gamma a_u{}^{pr} - \tilde{\mu} c_\gamma y_u{}^{pr}\right) LF_{2,2,0}\left[m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^r\right] \delta_{i1i2} -$$

$$\frac{1}{12} g_1{}^2 \left(s_\gamma \overline{a_u}^{pr} - \tilde{\mu} c_\gamma \overline{y_u}^{pr}\right) \left(s_\gamma a_u{}^{pr} - \tilde{\mu} c_\gamma y_u{}^{pr}\right) LF_{3,2,-1}\left[m_{\tilde{q}}{}^p, m_{\tilde{u}}{}^r\right] \delta_{i1i2} -$$

$$\frac{1}{6} g_1{}^2 \left(s_\gamma \overline{a_u}^{pr} - \tilde{\mu} c_\gamma \overline{y_u}^{pr}\right) \left(s_\gamma a_u{}^{pr} - \tilde{\mu} c_\gamma y_u{}^{pr}\right) LF_{3,1,0}\left[m_{\tilde{u}}{}^r, m_{\tilde{q}}{}^p\right] \delta_{i1i2} -$$

$$\frac{1}{6} g_1{}^2 \left(s_\gamma \overline{a_u}^{pr} - \tilde{\mu} c_\gamma \overline{y_u}^{pr}\right) \left(s_\gamma a_u{}^{pr} - \tilde{\mu} c_\gamma y_u{}^{pr}\right) LF_{3,2,-1}\left[m_{\tilde{u}}{}^r, m_{\tilde{q}}{}^p\right] \delta_{i1i2} -$$

$$\frac{1}{2} g_1{}^2 \left(s_\gamma \overline{a_u}^{pr} - \tilde{\mu} c_\gamma \overline{y_u}^{pr}\right) \left(s_\gamma a_u{}^{pr} - \tilde{\mu} c_\gamma y_u{}^{pr}\right) LF_{4,1,-1}\left[m_{\tilde{u}}{}^r, m_{\tilde{q}}{}^p\right] \delta_{i1i2} +$$

$$g_1{}^2 \left(s_\gamma \overline{a_u}^{pr} - \tilde{\mu} c_\gamma \overline{y_u}^{pr}\right) \left(s_\gamma a_u{}^{pr} - \tilde{\mu} c_\gamma y_u{}^{pr}\right) LF_{5,1,-2}\left[m_{\tilde{u}}{}^r, m_{\tilde{q}}{}^p\right] \delta_{i1i2} +$$

$$\frac{5}{12} g_1{}^4 LF_{4,1,-2}[\tilde{\mu}, m_1] \delta_{i1i2} + \frac{1}{2} m_1 s_\gamma \tilde{\mu} c_\gamma g_1{}^4 LF_{4,1,-1}[\tilde{\mu}, m_1] \delta_{i1i2} -$$

$$\frac{1}{3} g_1{}^4 LF_{5,1,-3}[\tilde{\mu}, m_1] \delta_{i1i2} - \frac{2}{3} m_1 s_\gamma \tilde{\mu} c_\gamma g_1{}^4 LF_{5,1,-2}[\tilde{\mu}, m_1] \delta_{i1i2} +$$

$$\frac{5}{4} g_1{}^2 g_2{}^2 LF_{4,1,-2}[\tilde{\mu}, m_2] \delta_{i1i2} + \frac{3}{2} m_2 s_\gamma \tilde{\mu} c_\gamma g_1{}^2 g_2{}^2 LF_{4,1,-1}[\tilde{\mu}, m_2] \delta_{i1i2} -$$

$$g_1{}^2 g_2{}^2 LF_{5,1,-3}[\tilde{\mu}, m_2] \delta_{i1i2} - 2 m_2 s_\gamma \tilde{\mu} c_\gamma g_1{}^2 g_2{}^2 LF_{5,1,-2}[\tilde{\mu}, m_2] \delta_{i1i2} -$$

$$\frac{1}{2} c_\gamma{}^2 \overline{y_e}^{pi1} \overline{y_e}^{rs} y_e{}^{ps} y_e{}^{ri2} LF_{2,1,0}\left[\tilde{\mu}, m_{\tilde{e}}{}^s\right] + c_\gamma{}^2 \overline{y_e}^{pi1} \overline{y_e}^{rs} y_e{}^{ps} y_e{}^{ri2} LF_{3,1,-1}\left[\tilde{\mu}, m_{\tilde{e}}{}^s\right] -$$

$$\frac{1}{2} c_\gamma{}^2 \overline{y_e}^{pi1} \overline{y_e}^{rs} y_e{}^{ps} y_e{}^{ri2} LF_{4,1,-2}\left[\tilde{\mu}, m_{\tilde{e}}{}^s\right] - \frac{1}{12} g_1{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1,0}\left[\tilde{\mu}, m_{\tilde{l}}{}^p\right] +$$

$$\frac{5}{12} g_1{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{3,1,-1}\left[\tilde{\mu}, m_{\tilde{l}}{}^p\right] - \frac{1}{6} g_1{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{4,1,-2}\left[\tilde{\mu}, m_{\tilde{l}}{}^p\right] +$$

$$\frac{1}{4} m_1 c_\gamma g_1{}^2 y_e{}^{pi2} \left(c_\gamma \overline{a_e}^{pi1} - s_\gamma \tilde{\mu} \overline{y_e}^{pi1}\right) LF_{2,1,1,0}\left[m_1, m_{\tilde{e}}{}^{i1}, m_{\tilde{l}}{}^p\right] +$$

$$\frac{1}{8} m_1 c_\gamma g_1{}^2 y_e{}^{pi2} \left(-c_\gamma \overline{a_e}^{pi1} + s_\gamma \tilde{\mu} \overline{y_e}^{pi1}\right) LF_{2,2,1,-1}\left[m_1, m_{\tilde{e}}{}^{i1}, m_{\tilde{l}}{}^p\right] +$$

$$\frac{1}{4} m_1 c_\gamma g_1{}^2 y_e{}^{pi2} \left(-c_\gamma \overline{a_e}^{pi1} + s_\gamma \tilde{\mu} \overline{y_e}^{pi1}\right) LF_{3,1,1,-1}\left[m_1, m_{\tilde{e}}{}^{i1}, m_{\tilde{l}}{}^p\right] +$$

$$\frac{1}{4} m_1 c_\gamma g_1{}^2 \overline{y_e}^{pi1} \left(c_\gamma a_e{}^{pi2} - s_\gamma \tilde{\mu} y_e{}^{pi2}\right) LF_{2,1,1,0}\left[m_1, m_{\tilde{e}}{}^{i2}, m_{\tilde{l}}{}^p\right] +$$

$$\frac{1}{8} m_1 c_\gamma g_1{}^2 \overline{y_e}^{pi1} \left(-c_\gamma a_e{}^{pi2} + s_\gamma \tilde{\mu} y_e{}^{pi2}\right) LF_{2,2,1,-1}\left[m_1, m_{\tilde{e}}{}^{i2}, m_{\tilde{l}}{}^p\right] +$$

$$\frac{1}{4} m_1 c_\gamma g_1{}^2 \overline{y_e}^{pi1} \left(-c_\gamma a_e{}^{pi2} + s_\gamma \tilde{\mu} y_e{}^{pi2}\right) LF_{3,1,1,-1}\left[m_1, m_{\tilde{e}}{}^{i2}, m_{\tilde{l}}{}^p\right] +$$

$$\frac{1}{4} g_1{}^4 \left(-c_\gamma{}^2 + s_\gamma{}^2\right) LF_{2,1,1,-1}\left[m_1, m_{\tilde{e}}{}^{i2}, \tilde{\mu}\right] \delta_{i1i2} + \frac{1}{2} g_1{}^4 m_1{}^2 \left(-c_\gamma{}^2 + s_\gamma{}^2\right) LF_{2,1,1,0}\left[m_1, m_{\tilde{e}}{}^{i2}, \tilde{\mu}\right]$$

$$\delta_{i1i2} + \frac{1}{8} m_1 c_\gamma g_1{}^2 y_e{}^{pi2} \left(c_\gamma \overline{a_e}^{pi1} - s_\gamma \tilde{\mu} \overline{y_e}^{pi1}\right) LF_{2,2,1,-1}\left[m_1, m_{\tilde{l}}{}^p, m_{\tilde{e}}{}^{i1}\right] +$$

$$\frac{1}{8} m_1 c_\gamma g_1{}^2 \overline{y_e}^{pi1} \left(c_\gamma a_e{}^{pi2} - s_\gamma \tilde{\mu} y_e{}^{pi2}\right) LF_{2,2,1,-1}\left[m_1, m_{\tilde{l}}{}^p, m_{\tilde{e}}{}^{i2}\right] -$$

$$\frac{3}{4} g_1{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1,1,-1}\left[m_1, m_{\tilde{l}}{}^p, \tilde{\mu}\right] - \frac{1}{2} m_1 s_\gamma \tilde{\mu} c_\gamma g_1{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1,1,0}\left[m_1, m_{\tilde{l}}{}^p, \tilde{\mu}\right] +$$

$$\frac{1}{2} g_1{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{3,1,1,-2}\left[m_1, m_{\tilde{l}}{}^p, \tilde{\mu}\right] + \frac{1}{2} m_1 s_\gamma \tilde{\mu} c_\gamma g_1{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{3,1,1,-1}\left[m_1, m_{\tilde{l}}{}^p, \tilde{\mu}\right] -$$

$$\frac{1}{4} g_1{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,2,1,-2}\left[m_1, \tilde{\mu}, m_{\tilde{e}}{}^{i1}\right] - \frac{1}{4} m_1 s_\gamma \tilde{\mu} c_\gamma g_1{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,2,1,-1}\left[m_1, \tilde{\mu}, m_{\tilde{e}}{}^{i1}\right] +$$

$$\frac{1}{4} \left(-g_1{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} + g_1{}^4 \left(-c_\gamma{}^2 + s_\gamma{}^2\right) \delta_{i1i2}\right) LF_{2,2,1,-2}\left[m_1, \tilde{\mu}, m_{\tilde{e}}{}^{i2}\right] +$$

$$\frac{1}{4} m_1 g_1{}^2 \left(-s_\gamma \tilde{\mu} c_\gamma \overline{y_e}^{pi1} y_e{}^{pi2} + m_1 g_1{}^2 \left(c_\gamma{}^2 - s_\gamma{}^2\right) \delta_{i1i2}\right) LF_{2,2,1,-1}\left[m_1, \tilde{\mu}, m_{\tilde{e}}{}^{i2}\right] +$$

$$\frac{1}{8} g_1{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,2,1,-2}\left[m_1, \tilde{\mu}, m_{\tilde{l}}{}^p\right] -$$

$$\frac{1}{8} g_1{}^2 s_\gamma{}^2 \tilde{\mu}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,2,1,-1}\left[m_1, \tilde{\mu}, m_{\tilde{l}}{}^p\right] + \frac{9}{4} g_2{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1,1,-1}\left[m_2, m_{\tilde{l}}{}^p, \tilde{\mu}\right] +$$

$$\frac{3}{2} m_2 s_\gamma \tilde{\mu} c_\gamma g_2{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1,1,0}\left[m_2, m_{\tilde{l}}{}^p, \tilde{\mu}\right] - \frac{3}{2} g_2{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{3,1,1,-2}\left[m_2, m_{\tilde{l}}{}^p, \tilde{\mu}\right] -$$

$$\frac{3}{2} m_2 s_\gamma \tilde{\mu} c_\gamma g_2{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{3,1,1,-1}\left[m_2, m_{\tilde{l}}{}^p, \tilde{\mu}\right] - \frac{9}{8} g_2{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,2,1,-2}\left[m_2, \tilde{\mu}, m_{\tilde{l}}{}^p\right] -$$

$$\frac{3}{8} s_\gamma \tilde{\mu} g_2{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} \left(4 m_2 c_\gamma + s_\gamma \tilde{\mu}\right) LF_{2,2,1,-1}\left[m_2, \tilde{\mu}, m_{\tilde{l}}{}^p\right] +$$

$$\frac{3}{4} g_1{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1,1,-1}\left[\tilde{\mu}, m_1, m_{\tilde{e}}{}^{i1}\right] + \frac{1}{2} m_1 s_\gamma \tilde{\mu} c_\gamma g_1{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1,1,0}\left[\tilde{\mu}, m_1, m_{\tilde{e}}{}^{i1}\right] -$$

$$\frac{1}{2} g_1{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{3,1,1,-2}\left[\tilde{\mu}, m_1, m_{\tilde{e}}{}^{i1}\right] - \frac{1}{2} m_1 s_\gamma \tilde{\mu} c_\gamma g_1{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{3,1,1,-1}\left[\tilde{\mu}, m_1, m_{\tilde{e}}{}^{i1}\right] +$$

$$\frac{3}{4} g_1{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1,1,-1}\left[\tilde{\mu}, m_1, m_{\tilde{e}}{}^{i2}\right] + \frac{1}{2} m_1 s_\gamma \tilde{\mu} c_\gamma g_1{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1,1,0}\left[\tilde{\mu}, m_1, m_{\tilde{e}}{}^{i2}\right] -$$

$$\frac{1}{2} g_1{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{3,1,1,-2}\left[\tilde{\mu}, m_1, m_{\tilde{e}}{}^{i2}\right] - \frac{1}{2} m_1 s_\gamma \tilde{\mu} c_\gamma g_1{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{3,1,1,-1}\left[\tilde{\mu}, m_1, m_{\tilde{e}}{}^{i2}\right] -$$

$$\frac{1}{8} g_1{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1,1,-1}\left[\tilde{\mu}, m_1, m_{\tilde{l}}{}^p\right] + \frac{1}{4} g_1{}^2 s_\gamma{}^2 \tilde{\mu}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1,1,0}\left[\tilde{\mu}, m_1, m_{\tilde{l}}{}^p\right] -$$

$$\frac{3}{8} g_2{}^2 c_\gamma{}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1,1,-1}\left[\tilde{\mu}, m_2, m_{\tilde{l}}{}^p\right] + \frac{3}{4} g_2{}^2 s_\gamma{}^2 \tilde{\mu}^2 \overline{y_e}^{pi1} y_e{}^{pi2} LF_{2,1,1,0}\left[\tilde{\mu}, m_2, m_{\tilde{l}}{}^p\right] +$$

$$\frac{1}{4} g_1{}^2 y_e{}^{pi2} \left(m_1 c_\gamma - s_\gamma \tilde{\mu}\right) \left(c_\gamma \overline{a_e}^{pi1} - s_\gamma \tilde{\mu} \overline{y_e}^{pi1}\right) LF_{1,1,1,1,0}\left[m_1, m_{\tilde{e}}{}^{i1}, m_{\tilde{l}}{}^p, \tilde{\mu}\right] +$$

$$\frac{1}{8} g_1{}^2 y_e{}^{pi2} \left(m_1 c_\gamma + s_\gamma \tilde{\mu}\right) \left(c_\gamma \overline{a_e}^{pi1} - s_\gamma \tilde{\mu} \overline{y_e}^{pi1}\right) LF_{2,1,1,1,-1}\left[m_1, m_{\tilde{e}}{}^{i1}, m_{\tilde{l}}{}^p, \tilde{\mu}\right] +$$

$$\frac{1}{4} g_1{}^2 \overline{y_e}^{pi1} \left(m_1 c_\gamma - s_\gamma \tilde{\mu}\right) \left(c_\gamma a_e{}^{pi2} - s_\gamma \tilde{\mu} y_e{}^{pi2}\right) LF_{1,1,1,1,0}\left[m_1, m_{\tilde{e}}{}^{i2}, m_{\tilde{l}}{}^p, \tilde{\mu}\right] +$$

$$\frac{1}{8} g_1{}^2 \overline{y_e}^{pi1} \left(m_1 c_\gamma + s_\gamma \tilde{\mu}\right) \left(c_\gamma a_e{}^{pi2} - s_\gamma \tilde{\mu} y_e{}^{pi2}\right) LF_{2,1,1,1,-1}\left[m_1, m_{\tilde{e}}{}^{i2}, m_{\tilde{l}}{}^p, \tilde{\mu}\right] +$$

$$\frac{1}{4} c_\gamma \overline{y_e}^{si1} y_e{}^{pi2} \overline{a_e}^{pr} \left(-c_\gamma a_e{}^{sr} + s_\gamma \tilde{\mu} y_e{}^{sr}\right) LF_{2,1,1,1,-1}\left[m_{\tilde{e}}{}^r, m_{\tilde{l}}{}^p, m_{\tilde{l}}{}^s, \tilde{\mu}\right] +$$

$$\frac{1}{4} s_\gamma \tilde{\mu} \overline{y_e}^{pi1} \overline{y_e}^{rs} y_e{}^{ri2} \left(c_\gamma a_e{}^{ps} - s_\gamma \tilde{\mu} y_e{}^{ps}\right) LF_{2,1,1,1,-1}\left[m_{\tilde{e}}{}^s, m_{\tilde{l}}{}^p, m_{\tilde{l}}{}^r, \tilde{\mu}\right] +$$

$$\frac{1}{8} g_1{}^2 y_e{}^{pi2} \left(m_1 c_\gamma + s_\gamma \tilde{\mu}\right) \left(c_\gamma \overline{a_e}^{pi1} - s_\gamma \tilde{\mu} \overline{y_e}^{pi1}\right) LF_{2,1,1,1,-1}\left[m_{\tilde{e}}{}^{i1}, m_1, m_{\tilde{l}}{}^p, \tilde{\mu}\right] +$$

$$\frac{1}{8} g_1{}^2 \overline{y_e}^{pi1} \left(m_1 c_\gamma + s_\gamma \tilde{\mu}\right) \left(c_\gamma a_e{}^{pi2} - s_\gamma \tilde{\mu} y_e{}^{pi2}\right) LF_{2,1,1,1,-1}\left[m_{\tilde{e}}{}^{i2}, m_1, m_{\tilde{l}}{}^p, \tilde{\mu}\right] -$$

$$\frac{1}{8} g_1{}^2 y_e{}^{pi2} \left(m_1 c_\gamma + s_\gamma \tilde{\mu}\right) \left(c_\gamma \overline{a_e}^{pi1} - s_\gamma \tilde{\mu} \overline{y_e}^{pi1}\right) LF_{2,1,1,1,-1}\left[m_{\tilde{l}}{}^p, m_1, m_{\tilde{e}}{}^{i1}, \tilde{\mu}\right] +$$

$$\frac{1}{2} g_1{}^2 \left(c_\gamma \overline{a_e}^{pi1} - s_\gamma \tilde{\mu} \overline{y_e}^{pi1}\right) \left(c_\gamma a_e{}^{pi2} - s_\gamma \tilde{\mu} y_e{}^{pi2}\right) LF_{2,1,1,1,-1}\left[m_{\tilde{l}}{}^p, m_1, m_{\tilde{e}}{}^{i2}, m_{\tilde{e}}{}^{i1}\right] -$$

$$\frac{1}{8} g_1{}^2 \overline{y_e}^{pi1} \left(m_1 c_\gamma + s_\gamma \tilde{\mu}\right) \left(c_\gamma a_e{}^{pi2} - s_\gamma \tilde{\mu} y_e{}^{pi2}\right) LF_{2,1,1,1,-1}\left[m_{\tilde{l}}{}^p, m_1, m_{\tilde{e}}{}^{i2}, \tilde{\mu}\right] -$$

$$\frac{1}{8} g_1{}^2 y_e{}^{pi2} \left(m_1 c_\gamma + s_\gamma \tilde{\mu}\right) \left(c_\gamma \overline{a_e}^{pi1} - s_\gamma \tilde{\mu} \overline{y_e}^{pi1}\right) LF_{2,1,1,1,-1}\left[\tilde{\mu}, m_1, m_{\tilde{e}}{}^{i1}, m_{\tilde{l}}{}^p\right] -$$

$$\left. \frac{1}{8} g_1{}^2 \overline{y_e}^{pi1} \left(m_1 c_\gamma + s_\gamma \tilde{\mu}\right) \left(c_\gamma a_e{}^{pi2} - s_\gamma \tilde{\mu} y_e{}^{pi2}\right) LF_{2,1,1,1,-1}\left[\tilde{\mu}, m_1, m_{\tilde{e}}{}^{i2}, m_{\tilde{l}}{}^p\right] \right)$$