$$
C_{uG}^{i1\_i2\_} \to
$$

$$
\hbar \left(\frac{1}{12}\, g_3\, s_\gamma\, \frac{1}{m_\oplus^2}\, y_u^{pi2} \left(\overline{y_d}^{pr}\, y_d^{i1r} \left(-3\, c_\gamma^2 + s_\gamma^2 \right) + 3\, c_\gamma^2\, \overline{y_u}^{pr}\, y_u^{i1r} \right) - \frac{1}{2}\, g_3\, s_\gamma\, c_\gamma^2\, \overline{y_d}^{pr}\, y_d^{i1r}\, y_u^{pi2} \right.
$$

$$
LF_{1,2}[m_\oplus] + \frac{1}{72}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,1,0}\left[m_1, m_{\tilde{q}}^{i1}\right] - \frac{1}{36}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{3,1,-1}\left[m_1, m_{\tilde{q}}^{i1}\right] +
$$

$$
\frac{1}{72}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{4,1,-2}\left[m_1, m_{\tilde{q}}^{i1}\right] + \frac{2}{9}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,1,0}\left[m_1, m_{\tilde{u}}^{i2}\right] -
$$

$$
\frac{4}{9}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{3,1,-1}\left[m_1, m_{\tilde{u}}^{i2}\right] + \frac{2}{9}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{4,1,-2}\left[m_1, m_{\tilde{u}}^{i2}\right] +
$$

$$
\frac{3}{8}\, g_3\, s_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{2,1,0}\left[m_2, m_{\tilde{q}}^{i1}\right] - \frac{3}{4}\, g_3\, s_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{3,1,-1}\left[m_2, m_{\tilde{q}}^{i1}\right] +
$$

$$
\frac{3}{8}\, g_3\, s_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{4,1,-2}\left[m_2, m_{\tilde{q}}^{i1}\right] - \frac{1}{12}\, s_\gamma\, g_3^3\, y_u^{i1i2}\, LF_{2,1,0}\left[m_3, m_{\tilde{q}}^{i1}\right] -
$$

$$
\frac{7}{12}\, s_\gamma\, g_3^3\, y_u^{i1i2}\, LF_{3,1,-1}\left[m_3, m_{\tilde{q}}^{i1}\right] + \frac{2}{3}\, s_\gamma\, g_3^3\, y_u^{i1i2}\, LF_{4,1,-2}\left[m_3, m_{\tilde{q}}^{i1}\right] -
$$

$$
\frac{1}{12}\, s_\gamma\, g_3^3\, y_u^{i1i2}\, LF_{2,1,0}\left[m_3, m_{\tilde{u}}^{i2}\right] - \frac{7}{12}\, s_\gamma\, g_3^3\, y_u^{i1i2}\, LF_{3,1,-1}\left[m_3, m_{\tilde{u}}^{i2}\right] +
$$

$$
\frac{2}{3}\, s_\gamma\, g_3^3\, y_u^{i1i2}\, LF_{4,1,-2}\left[m_3, m_{\tilde{u}}^{i2}\right] + \frac{1}{4}\, g_3\, s_\gamma\, \overline{y_d}^{pr}\, y_d^{i1r}\, y_u^{pi2}\, LF_{2,1,0}\left[\tilde{\mu}, m_{\tilde{d}}^{r}\right] -
$$

$$
\frac{1}{2}\, g_3\, s_\gamma\, \overline{y_d}^{pr}\, y_d^{i1r}\, y_u^{pi2}\, LF_{3,1,-1}\left[\tilde{\mu}, m_{\tilde{d}}^{r}\right] + \frac{1}{4}\, g_3\, s_\gamma\, \overline{y_d}^{pr}\, y_d^{i1r}\, y_u^{pi2}\, LF_{4,1,-2}\left[\tilde{\mu}, m_{\tilde{d}}^{r}\right] +
$$

$$
\frac{1}{2}\, g_3\, s_\gamma\, \overline{y_u}^{pr}\, y_u^{pi2}\, y_u^{i1r}\, LF_{2,1,0}\left[\tilde{\mu}, m_{\tilde{q}}^{p}\right] - g_3\, s_\gamma\, \overline{y_u}^{pr}\, y_u^{pi2}\, y_u^{i1r}\, LF_{3,1,-1}\left[\tilde{\mu}, m_{\tilde{q}}^{p}\right] +
$$

$$
\frac{1}{2}\, g_3\, s_\gamma\, \overline{y_u}^{pr}\, y_u^{pi2}\, y_u^{i1r}\, LF_{4,1,-2}\left[\tilde{\mu}, m_{\tilde{q}}^{p}\right] + \frac{1}{4}\, g_3\, s_\gamma\, \overline{y_u}^{pr}\, y_u^{pi2}\, y_u^{i1r}\, LF_{2,1,0}\left[\tilde{\mu}, m_{\tilde{u}}^{r}\right] -
$$

$$
\frac{1}{2}\, g_3\, s_\gamma\, \overline{y_u}^{pr}\, y_u^{pi2}\, y_u^{i1r}\, LF_{3,1,-1}\left[\tilde{\mu}, m_{\tilde{u}}^{r}\right] + \frac{1}{4}\, g_3\, s_\gamma\, \overline{y_u}^{pr}\, y_u^{pi2}\, y_u^{i1r}\, LF_{4,1,-2}\left[\tilde{\mu}, m_{\tilde{u}}^{r}\right] +
$$

$$
\frac{1}{9}\, g_3\, m_1\, g_1^2 \left(-s_\gamma\, a_u^{i1i2} + \tilde{\mu}\, c_\gamma\, y_u^{i1i2} \right) LF_{2,1,1,0}\left[m_1, m_{\tilde{q}}^{i1}, m_{\tilde{u}}^{i2}\right] +
$$

$$
\frac{1}{9}\, g_3\, m_1\, g_1^2 \left(s_\gamma\, a_u^{i1i2} - \tilde{\mu}\, c_\gamma\, y_u^{i1i2} \right) LF_{3,1,1,-1}\left[m_1, m_{\tilde{q}}^{i1}, m_{\tilde{u}}^{i2}\right] -
$$

$$
\frac{1}{12}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{1,1,1,0}\left[m_1, m_{\tilde{q}}^{i1}, \tilde{\mu}\right] + \frac{1}{6}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,1,1,-1}\left[m_1, m_{\tilde{q}}^{i1}, \tilde{\mu}\right] +
$$

$$
\frac{1}{12}\, g_3\, m_1\, \tilde{\mu}\, c_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,1,1,0}\left[m_1, m_{\tilde{q}}^{i1}, \tilde{\mu}\right] - \frac{1}{12}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{3,1,1,-2}\left[m_1, m_{\tilde{q}}^{i1}, \tilde{\mu}\right] -
$$

$$
\frac{1}{12}\, g_3\, m_1\, \tilde{\mu}\, c_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{3,1,1,-1}\left[m_1, m_{\tilde{q}}^{i1}, \tilde{\mu}\right] + \frac{1}{3}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{1,1,1,0}\left[m_1, m_{\tilde{u}}^{i2}, \tilde{\mu}\right] -
$$

$$
\frac{2}{3}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,1,1,-1}\left[m_1, m_{\tilde{u}}^{i2}, \tilde{\mu}\right] - \frac{1}{3}\, g_3\, m_1\, \tilde{\mu}\, c_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,1,1,0}\left[m_1, m_{\tilde{u}}^{i2}, \tilde{\mu}\right] +
$$

$$
\frac{1}{3}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{3,1,1,-2}\left[m_1, m_{\tilde{u}}^{i2}, \tilde{\mu}\right] + \frac{1}{3}\, g_3\, m_1\, \tilde{\mu}\, c_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{3,1,1,-1}\left[m_1, m_{\tilde{u}}^{i2}, \tilde{\mu}\right] -
$$

$$
\frac{1}{12}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,2,1,-2}\left[m_1, \tilde{\mu}, m_{\tilde{q}}^{i1}\right] - \frac{1}{12}\, g_3\, m_1\, \tilde{\mu}\, c_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,2,1,-1}\left[m_1, \tilde{\mu}, m_{\tilde{q}}^{i1}\right] +
$$

$$
\frac{1}{3}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,2,1,-2}\left[m_1, \tilde{\mu}, m_{\tilde{u}}^{i2}\right] + \frac{1}{3}\, g_3\, m_1\, \tilde{\mu}\, c_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,2,1,-1}\left[m_1, \tilde{\mu}, m_{\tilde{u}}^{i2}\right] +
$$

$$
\frac{3}{4}\, g_3\, s_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{1,1,1,0}\left[m_2, m_{\tilde{q}}^{i1}, \tilde{\mu}\right] - \frac{3}{2}\, g_3\, s_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{2,1,1,-1}\left[m_2, m_{\tilde{q}}^{i1}, \tilde{\mu}\right] -
$$

$$
\frac{3}{4}\, g_3\, m_2\, \tilde{\mu}\, c_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{2,1,1,0}\left[m_2, m_{\tilde{q}}^{i1}, \tilde{\mu}\right] + \frac{3}{4}\, g_3\, s_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{3,1,1,-2}\left[m_2, m_{\tilde{q}}^{i1}, \tilde{\mu}\right] +
$$

$$
\frac{3}{4}\, g_3\, m_2\, \tilde{\mu}\, c_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{3,1,1,-1}\left[m_2, m_{\tilde{q}}^{i1}, \tilde{\mu}\right] + \frac{3}{4}\, g_3\, s_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{2,2,1,-2}\left[m_2, \tilde{\mu}, m_{\tilde{q}}^{i1}\right] +
$$

$$
\frac{3}{4}\, g_3\, m_2\, \tilde{\mu}\, c_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{2,2,1,-1}\left[m_2, \tilde{\mu}, m_{\tilde{q}}^{i1}\right] + \frac{1}{6}\, m_3\, g_3^3 \left(s_\gamma\, a_u^{i1i2} - \tilde{\mu}\, c_\gamma\, y_u^{i1i2} \right)
$$

$$
LF_{2,1,1,0}\left[m_3, m_{\tilde{q}}^{i1}, m_{\tilde{u}}^{i2}\right] + \frac{4}{3}\, m_3\, g_3^3 \left(s_\gamma\, a_u^{i1i2} - \tilde{\mu}\, c_\gamma\, y_u^{i1i2} \right) LF_{3,1,1,-1}\left[m_3, m_{\tilde{q}}^{i1}, m_{\tilde{u}}^{i2}\right] +
$$

$$
\frac{1}{6}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,1,1,-1}\left[\tilde{\mu}, m_1, m_{\tilde{q}}^{i1}\right] + \frac{1}{12}\, g_3\, m_1\, \tilde{\mu}\, c_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,1,1,0}\left[\tilde{\mu}, m_1, m_{\tilde{q}}^{i1}\right] -
$$

$$
\frac{1}{12}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{3,1,1,-2}\left[\tilde{\mu}, m_1, m_{\tilde{q}}^{i1}\right] - \frac{1}{12}\, g_3\, m_1\, \tilde{\mu}\, c_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{3,1,1,-1}\left[\tilde{\mu}, m_1, m_{\tilde{q}}^{i1}\right] -
$$

$$
\frac{2}{3}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,1,1,-1}\left[\tilde{\mu}, m_1, m_{\tilde{u}}^{i2}\right] - \frac{1}{3}\, g_3\, m_1\, \tilde{\mu}\, c_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{2,1,1,0}\left[\tilde{\mu}, m_1, m_{\tilde{u}}^{i2}\right] +
$$

$$
\frac{1}{3}\, g_3\, s_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{3,1,1,-2}\left[\tilde{\mu}, m_1, m_{\tilde{u}}^{i2}\right] + \frac{1}{3}\, g_3\, m_1\, \tilde{\mu}\, c_\gamma\, g_1^2\, y_u^{i1i2}\, LF_{3,1,1,-1}\left[\tilde{\mu}, m_1, m_{\tilde{u}}^{i2}\right] -
$$

$$
\frac{3}{2}\, g_3\, s_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{2,1,1,-1}\left[\tilde{\mu}, m_2, m_{\tilde{q}}^{i1}\right] - \frac{3}{4}\, g_3\, m_2\, \tilde{\mu}\, c_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{2,1,1,0}\left[\tilde{\mu}, m_2, m_{\tilde{q}}^{i1}\right] +
$$

$$
\frac{3}{4}\, g_3\, s_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{3,1,1,-2}\left[\tilde{\mu}, m_2, m_{\tilde{q}}^{i1}\right] + \frac{3}{4}\, g_3\, m_2\, \tilde{\mu}\, c_\gamma\, g_2^2\, y_u^{i1i2}\, LF_{3,1,1,-1}\left[\tilde{\mu}, m_2, m_{\tilde{q}}^{i1}\right] +
$$

$$
\frac{1}{2}\, g_3\, \tilde{\mu}\, y_d^{i1r}\, y_u^{pi2} \left(c_\gamma\, \overline{a_d}^{pr} - s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr} \right) LF_{2,1,1,0}\left[\tilde{\mu}, m_{\tilde{d}}^{r}, m_{\tilde{q}}^{p}\right] +
$$

$$
\left. \frac{1}{2}\, g_3\, \tilde{\mu}\, y_d^{i1r}\, y_u^{pi2} \left(-c_\gamma\, \overline{a_d}^{pr} + s_\gamma\, \tilde{\mu}\, \overline{y_d}^{pr} \right) LF_{3,1,1,-1}\left[\tilde{\mu}, m_{\tilde{d}}^{r}, m_{\tilde{q}}^{p}\right] \right)
$$