

$$q_e \quad 1 \quad i2 \quad i3 \quad i4 \quad \rightarrow$$

$$\begin{aligned}
& \frac{1}{16\pi^2} \left(\frac{1}{216} \frac{1}{m_e^2} (s_\gamma^2 \overline{y_e^{pi3}} y_e^{pi4} (-54 c_\gamma^2 \overline{y_u^{i2r}} y_u^{i1r} + 5 g_1^2 \delta_{i1i2}) + 13 g_1^2 c_\gamma^2 \overline{y_u^{i2p}} y_u^{i1p} \delta_{i3i4} - \right. \\
& s_\gamma^2 \overline{y_d^{i2p}} y_d^{i1p} (54 c_\gamma^2 \overline{y_e^{ri3}} y_e^{ri4} + 5 g_1^2 \delta_{i3i4})) - \frac{2}{81} \sum_p g_1^4 \text{LF}_{3,0}[m_d^p] \delta_{i1i2} \delta_{i3i4} + \\
& \frac{5}{108} \sum_p g_1^4 \text{LF}_{4,-1}[m_d^p] \delta_{i1i2} \delta_{i3i4} - \frac{8}{405} \sum_p g_1^4 \text{LF}_{5,-2}[m_d^p] \delta_{i1i2} \delta_{i3i4} - \\
& \frac{2}{27} \sum_p g_1^4 \text{LF}_{3,0}[m_e^p] \delta_{i1i2} \delta_{i3i4} + \frac{5}{36} \sum_p g_1^4 \text{LF}_{4,-1}[m_e^p] \delta_{i1i2} \delta_{i3i4} - \\
& \frac{8}{135} \sum_p g_1^4 \text{LF}_{5,-2}[m_e^p] \delta_{i1i2} \delta_{i3i4} - \frac{1}{27} \sum_p g_1^4 \text{LF}_{3,0}[m_l^p] \delta_{i1i2} \delta_{i3i4} + \\
& \frac{5}{72} \sum_p g_1^4 \text{LF}_{4,-1}[m_l^p] \delta_{i1i2} \delta_{i3i4} - \frac{4}{135} \sum_p g_1^4 \text{LF}_{5,-2}[m_l^p] \delta_{i1i2} \delta_{i3i4} - \\
& \frac{1}{81} \sum_p g_1^4 \text{LF}_{3,0}[m_q^p] \delta_{i1i2} \delta_{i3i4} + \frac{5}{216} \sum_p g_1^4 \text{LF}_{4,-1}[m_q^p] \delta_{i1i2} \delta_{i3i4} - \\
& \frac{4}{405} \sum_p g_1^4 \text{LF}_{5,-2}[m_q^p] \delta_{i1i2} \delta_{i3i4} - \frac{8}{81} \sum_p g_1^4 \text{LF}_{3,0}[m_u^p] \delta_{i1i2} \delta_{i3i4} + \\
& \frac{5}{27} \sum_p g_1^4 \text{LF}_{4,-1}[m_u^p] \delta_{i1i2} \delta_{i3i4} - \frac{32}{405} \sum_p g_1^4 \text{LF}_{5,-2}[m_u^p] \delta_{i1i2} \delta_{i3i4} + \\
& \frac{1}{18} (s_\gamma^2 \overline{y_e^{pi3}} y_e^{pi4} (-9 c_\gamma^2 \overline{y_u^{i2r}} y_u^{i1r} + g_1^2 \delta_{i1i2}) + 4 g_1^2 c_\gamma^2 \overline{y_u^{i2p}} y_u^{i1p} \delta_{i3i4} - \\
& s_\gamma^2 \overline{y_d^{i2p}} y_d^{i1p} (9 c_\gamma^2 \overline{y_e^{ri3}} y_e^{ri4} + 2 g_1^2 \delta_{i3i4})) \text{LF}_{1,2}[m_\oplus] + \\
& \frac{1}{36} (s_\gamma^2 \overline{y_e^{pi3}} y_e^{pi4} (9 c_\gamma^2 \overline{y_u^{i2r}} y_u^{i1r} + g_1^2 \delta_{i1i2}) - 3 g_1^2 c_\gamma^2 \overline{y_u^{i2p}} y_u^{i1p} \delta_{i3i4} + \\
& 3 s_\gamma^2 \overline{y_d^{i2p}} y_d^{i1p} (-3 s_\gamma^2 \overline{y_e^{ri3}} y_e^{ri4} + g_1^2 \delta_{i3i4})) \text{LF}_{2,1}[m_\oplus] - \\
& \frac{1}{108} g_1^2 (3 s_\gamma^2 \overline{y_e^{pi3}} y_e^{pi4} \delta_{i1i2} + (9 s_\gamma^2 \overline{y_d^{i2p}} y_d^{i1p} - 9 c_\gamma^2 \overline{y_u^{i2p}} y_u^{i1p} + 4 g_1^2 \delta_{i1i2}) \delta_{i3i4}) \\
& \text{LF}_{3,0}[m_\oplus] + \frac{5}{72} g_1^4 \text{LF}_{4,-1}[m_\oplus] \delta_{i1i2} \delta_{i3i4} - \frac{4}{135} g_1^4 \text{LF}_{5,-2}[m_\oplus] \delta_{i1i2} \delta_{i3i4} - \\
& \frac{1}{27} g_1^4 \text{LF}_{3,0}[\tilde{\mu}] \delta_{i1i2} \delta_{i3i4} - \frac{1}{18} g_1^4 \text{LF}_{4,-1}[\tilde{\mu}] \delta_{i1i2} \delta_{i3i4} + \frac{8}{135} g_1^4 \text{LF}_{5,-2}[\tilde{\mu}] \delta_{i1i2} \delta_{i3i4} - \\
& \frac{1}{18} g_1^4 \text{LF}_{2,1,0}[m_1, m_e^{i4}] \delta_{i1i2} \delta_{i3i4} - \frac{1}{18} g_1^4 \text{LF}_{2,2,-1}[m_1, m_e^{i4}] \delta_{i1i2} \delta_{i3i4} + \\
& \frac{1}{9} g_1^4 \text{LF}_{3,1,-1}[m_1, m_e^{i4}] \delta_{i1i2} \delta_{i3i4} - \frac{1}{18} g_1^4 \text{LF}_{4,1,-2}[m_1, m_e^{i4}] \delta_{i1i2} \delta_{i3i4} - \\
& \frac{1}{648} g_1^4 \text{LF}_{2,1,0}[m_1, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \frac{1}{648} g_1^4 \text{LF}_{2,2,-1}[m_1, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} + \\
& \frac{1}{324} g_1^4 \text{LF}_{3,1,-1}[m_1, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \frac{1}{648} g_1^4 \text{LF}_{4,1,-2}[m_1, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \\
& \frac{1}{24} g_1^2 g_2^2 \text{LF}_{2,1,0}[m_2, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \frac{1}{24} g_1^2 g_2^2 \text{LF}_{2,2,-1}[m_2, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} + \\
& \frac{1}{12} g_1^2 g_2^2 \text{LF}_{3,1,-1}[m_2, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \frac{1}{24} g_1^2 g_2^2 \text{LF}_{4,1,-2}[m_2, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \\
& \frac{2}{27} g_1^2 g_3^2 \text{LF}_{2,1,0}[m_3, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \frac{2}{27} g_1^2 g_3^2 \text{LF}_{2,2,-1}[m_3, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} + \\
& \frac{4}{27} g_1^2 g_3^2 \text{LF}_{3,1,-1}[m_3, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \frac{2}{27} g_1^2 g_3^2 \text{LF}_{4,1,-2}[m_3, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \\
& \frac{1}{9} g_1^2 \overline{y_d^{i2p}} y_d^{i1p} \text{LF}_{2,1,0}[m_d^p, \tilde{\mu}] \delta_{i3i4} + \frac{1}{18} g_1^2 \overline{y_d^{i2p}} y_d^{i1p} \text{LF}_{2,2,-1}[m_d^p, \tilde{\mu}] \delta_{i3i4} + \\
& \frac{1}{18} g_1^2 \overline{y_d^{i2p}} y_d^{i1p} \text{LF}_{3,1,-1}[m_d^p, \tilde{\mu}] \delta_{i3i4} + \frac{1}{9} g_1^4 \text{LF}_{2,1,0}[m_e^{i4}, m_1] \delta_{i1i2} \delta_{i3i4} - \\
& \frac{1}{18} g_1^4 \text{LF}_{3,1,-1}[m_e^{i4}, m_1] \delta_{i1i2} \delta_{i3i4} + \frac{1}{18} g_1^2 \overline{y_e^{pi3}} y_e^{pi4} \text{LF}_{2,1,0}[m_l^p, \tilde{\mu}] \delta_{i1i2} - \\
& \frac{1}{36} g_1^2 \overline{y_e^{pi3}} y_e^{pi4} \text{LF}_{2,2,-1}[m_l^p, \tilde{\mu}] \delta_{i1i2} - \frac{1}{36} g_1^2 \overline{y_e^{pi3}} y_e^{pi4} \text{LF}_{3,1,-1}[m_l^p, \tilde{\mu}] \delta_{i1i2} + \\
& \frac{1}{324} g_1^4 \text{LF}_{2,1,0}[m_q^{i2}, m_1] \delta_{i1i2} \delta_{i3i4} - \frac{1}{648} g_1^4 \text{LF}_{3,1,-1}[m_q^{i2}, m_1] \delta_{i1i2} \delta_{i3i4} + \\
& \frac{1}{12} g_1^2 g_2^2 \text{LF}_{2,1,0}[m_q^{i2}, m_2] \delta_{i1i2} \delta_{i3i4} - \frac{1}{24} g_1^2 g_2^2 \text{LF}_{3,1,-1}[m_q^{i2}, m_2] \delta_{i1i2} \delta_{i3i4} + \\
& \frac{4}{27} g_1^2 g_3^2 \text{LF}_{2,1,0}[m_q^{i2}, m_3] \delta_{i1i2} \delta_{i3i4} - \frac{2}{27} g_1^2 g_3^2 \text{LF}_{3,1,-1}[m_q^{i2}, m_3] \delta_{i1i2} \delta_{i3i4} + \\
& \frac{2}{9} g_1^2 \overline{y_u^{i2p}} y_u^{i1p} \text{LF}_{2,1,0}[m_u^p, \tilde{\mu}] \delta_{i3i4} - \frac{1}{9} g_1^2 \overline{y_u^{i2p}} y_u^{i1p} \text{LF}_{2,2,-1}[m_u^p, \tilde{\mu}] \delta_{i3i4} - \\
& \frac{1}{9} g_1^2 \overline{y_u^{i2p}} y_u^{i1p} \text{LF}_{3,1,-1}[m_u^p, \tilde{\mu}] \delta_{i3i4} + \frac{1}{18} g_1^2 \overline{y_d^{i2p}} y_d^{i1p} \text{LF}_{2,1,0}[\tilde{\mu}, m_d^p] \delta_{i3i4} + \\
& \frac{5}{36} g_1^2 \overline{y_d^{i2p}} y_d^{i1p} \text{LF}_{3,1,-1}[\tilde{\mu}, m_d^p] \delta_{i3i4} - \frac{1}{36} g_1^2 \overline{y_d^{i2p}} y_d^{i1p} \text{LF}_{4,1,-2}[\tilde{\mu}, m_d^p] \delta_{i3i4} - \\
& \frac{1}{36} g_1^2 \overline{y_e^{pi3}} y_e^{pi4} \text{LF}_{2,1,0}[\tilde{\mu}, m_l^p] \delta_{i1i2} + \frac{5}{36} g_1^2 \overline{y_e^{pi3}} y_e^{pi4} \text{LF}_{3,1,-1}[\tilde{\mu}, m_l^p] \delta_{i1i2} - \\
& \frac{1}{18} g_1^2 \overline{y_e^{pi3}} y_e^{pi4} \text{LF}_{4,1,-2}[\tilde{\mu}, m_l^p] \delta_{i1i2} - \frac{1}{9} g_1^2 \overline{y_u^{i2p}} y_u^{i1p} \text{LF}_{2,1,0}[\tilde{\mu}, m_u^p] \delta_{i3i4} - \\
& \frac{1}{36} g_1^2 \overline{y_u^{i2p}} y_u^{i1p} \text{LF}_{3,1,-1}[\tilde{\mu}, m_u^p] \delta_{i3i4} - \frac{1}{36} g_1^2 \overline{y_u^{i2p}} y_u^{i1p} \text{LF}_{4,1,-2}[\tilde{\mu}, m_u^p] \delta_{i3i4} - \\
& \frac{1}{36} g_1^4 \text{LF}_{2,1,1,-1}[m_1, m_e^{i4}, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \frac{1}{18} g_1^4 m_1^2 \text{LF}_{2,1,1,0}[m_1, m_e^{i4}, m_q^{i2}] \delta_{i1i2} \delta_{i3i4} - \\
& \frac{1}{4} \overline{y_d^{i2p}} y_d^{i1p} \overline{y_e^{ri3}} y_e^{ri4} \text{LF}_{2,1,1,-1}[\tilde{\mu}, m_d^p, m_l^r] - \\
& \frac{1}{2} \tilde{\mu}^2 \overline{y_e^{pi3}} y_e^{pi4} \overline{y_u^{i2r}} y_u^{i1r} \text{LF}_{2,1,1,0}[\tilde{\mu}, m_l^p, m_u^r] \Big)
\end{aligned}$$