

$$c_{ew}^{i1, i2} \rightarrow$$

$$\begin{aligned}
& \frac{1}{16\pi^2} \left(-\frac{1}{48} g_2 c_Y \frac{1}{m_e^2} s_Y^2 \overline{y_e^{pr}} (y_e^{pi2} y_e^{i1r} + 6 y_e^{pr} y_e^{i1i2}) + \frac{1}{16} g_2 c_Y g_1^2 y_e^{i1i2} LF_{2,1,0} [m_1, m_l^{i1}] - \right. \\
& \frac{1}{8} g_2 c_Y g_1^2 y_e^{i1i2} LF_{3,1,-1} [m_1, m_l^{i1}] + \frac{1}{16} g_2 c_Y g_1^2 y_e^{i1i2} LF_{4,1,-2} [m_1, m_l^{i1}] - \\
& \frac{1}{16} c_Y g_2^3 y_e^{i1i2} LF_{2,1,0} [m_2, m_l^{i1}] - \frac{1}{8} c_Y g_2^3 y_e^{i1i2} LF_{3,1,-1} [m_2, m_l^{i1}] + \\
& \frac{3}{16} c_Y g_2^3 y_e^{i1i2} LF_{4,1,-2} [m_2, m_l^{i1}] - \frac{1}{8} g_2 c_Y \overline{y_e^{pr}} y_e^{pi2} y_e^{i1r} LF_{3,1,-1} [\tilde{\mu}, m_e^r] + \\
& \frac{1}{8} g_2 c_Y \overline{y_e^{pr}} y_e^{pi2} y_e^{i1r} LF_{4,1,-2} [\tilde{\mu}, m_e^r] + \frac{1}{8} g_2 m_1 g_1^2 (-c_Y a_e^{i1i2} + s_Y \tilde{\mu} y_e^{i1i2}) \\
& LF_{2,1,1,0} [m_1, m_e^{i2}, m_l^{i1}] + \frac{1}{16} g_2 m_1 g_1^2 (c_Y a_e^{i1i2} - s_Y \tilde{\mu} y_e^{i1i2}) LF_{2,2,1,-1} [m_1, m_e^{i2}, m_l^{i1}] + \\
& \frac{1}{8} g_2 m_1 g_1^2 (c_Y a_e^{i1i2} - s_Y \tilde{\mu} y_e^{i1i2}) LF_{3,1,1,-1} [m_1, m_e^{i2}, m_l^{i1}] + \\
& \frac{1}{16} g_2 m_1 g_1^2 (-c_Y a_e^{i1i2} + s_Y \tilde{\mu} y_e^{i1i2}) LF_{2,2,1,-1} [m_1, m_l^{i1}, m_e^{i2}] - \\
& \frac{1}{8} g_2 c_Y g_1^2 y_e^{i1i2} LF_{1,1,1,0} [m_1, m_l^{i1}, \tilde{\mu}] + \frac{1}{4} g_2 c_Y g_1^2 y_e^{i1i2} LF_{2,1,1,-1} [m_1, m_l^{i1}, \tilde{\mu}] + \\
& \frac{1}{8} g_2 m_1 s_Y \tilde{\mu} g_1^2 y_e^{i1i2} LF_{2,1,1,0} [m_1, m_l^{i1}, \tilde{\mu}] - \frac{1}{8} g_2 c_Y g_1^2 y_e^{i1i2} LF_{3,1,1,-2} [m_1, m_l^{i1}, \tilde{\mu}] - \\
& \frac{1}{8} g_2 m_1 s_Y \tilde{\mu} g_1^2 y_e^{i1i2} LF_{3,1,1,-1} [m_1, m_l^{i1}, \tilde{\mu}] + \frac{1}{8} g_2 c_Y g_1^2 y_e^{i1i2} LF_{2,2,1,-2} [m_1, \tilde{\mu}, m_e^{i2}] + \\
& \frac{1}{8} g_2 m_1 s_Y \tilde{\mu} g_1^2 y_e^{i1i2} LF_{2,2,1,-1} [m_1, \tilde{\mu}, m_e^{i2}] - \frac{1}{16} g_2 c_Y g_1^2 y_e^{i1i2} LF_{2,2,1,-2} [m_1, \tilde{\mu}, m_l^{i1}] - \\
& \frac{1}{16} g_2 m_1 s_Y \tilde{\mu} g_1^2 y_e^{i1i2} LF_{2,2,1,-1} [m_1, \tilde{\mu}, m_l^{i1}] - \\
& \frac{1}{8} c_Y g_2^3 y_e^{i1i2} LF_{1,1,1,0} [m_2, m_l^{i1}, \tilde{\mu}] - \frac{1}{4} c_Y g_2^3 y_e^{i1i2} LF_{2,1,1,-1} [m_2, m_l^{i1}, \tilde{\mu}] + \\
& \frac{1}{8} m_2 s_Y \tilde{\mu} g_2^3 y_e^{i1i2} LF_{2,1,1,0} [m_2, m_l^{i1}, \tilde{\mu}] + \frac{3}{8} c_Y g_2^3 y_e^{i1i2} LF_{3,1,1,-2} [m_2, m_l^{i1}, \tilde{\mu}] + \\
& \frac{3}{8} m_2 s_Y \tilde{\mu} g_2^3 y_e^{i1i2} LF_{3,1,1,-1} [m_2, m_l^{i1}, \tilde{\mu}] + \frac{3}{16} c_Y g_2^3 y_e^{i1i2} LF_{2,2,1,-2} [m_2, \tilde{\mu}, m_l^{i1}] + \\
& \frac{3}{16} m_2 s_Y \tilde{\mu} g_2^3 y_e^{i1i2} LF_{2,2,1,-1} [m_2, \tilde{\mu}, m_l^{i1}] - \frac{1}{4} g_2 c_Y g_1^2 y_e^{i1i2} LF_{2,1,1,-1} [\tilde{\mu}, m_1, m_e^{i2}] + \\
& \frac{1}{4} g_2 c_Y g_1^2 y_e^{i1i2} LF_{3,1,1,-2} [\tilde{\mu}, m_1, m_e^{i2}] + \frac{1}{4} g_2 m_1 s_Y \tilde{\mu} g_1^2 y_e^{i1i2} LF_{3,1,1,-1} [\tilde{\mu}, m_1, m_e^{i2}] + \\
& \frac{1}{8} g_2 c_Y g_1^2 y_e^{i1i2} LF_{2,1,1,-1} [\tilde{\mu}, m_1, m_l^{i1}] + \frac{1}{8} g_2 m_1 s_Y \tilde{\mu} g_1^2 y_e^{i1i2} LF_{2,1,1,0} [\tilde{\mu}, m_1, m_l^{i1}] + \\
& \left. \frac{1}{8} c_Y g_2^3 y_e^{i1i2} LF_{2,1,1,-1} [\tilde{\mu}, m_2, m_l^{i1}] + \frac{1}{8} m_2 s_Y \tilde{\mu} g_2^3 y_e^{i1i2} LF_{2,1,1,0} [\tilde{\mu}, m_2, m_l^{i1}] \right)
\end{aligned}$$