$$-\frac{1}{18}\hbar\frac{1}{\epsilon}B^{\mu\nu 2}-\frac{1}{4}\frac{1}{g_Y{}^2}B^{\mu\nu 2}-\frac{1}{3}\hbar\frac{1}{\epsilon}G^{\mu\nu A2}-\frac{1}{4}\frac{1}{g_s{}^2}G^{\mu\nu A2}-\frac{1}{2}\hbar\frac{1}{\epsilon}W^{\mu\nu I2}-$$

$$\frac{1}{4}\frac{1}{g_L{}^2}W^{\mu\nu I2}-\frac{1}{18}\hbar B^{\mu\nu 2}\,\mathrm{Log}\left[\frac{\overline{\mu}^2}{M_\phi{}^2}\right]-\frac{1}{3}\hbar G^{\mu\nu A2}\,\mathrm{Log}\left[\frac{\overline{\mu}^2}{M_\phi{}^2}\right]-\frac{1}{2}\hbar W^{\mu\nu I2}\,\mathrm{Log}\left[\frac{\overline{\mu}^2}{M_\phi{}^2}\right]+$$

$$D_\mu\overline{H}_i\,D_\mu H^i+C_{H^2}\,\overline{H}_i\,H^i+\mathbb{i}\left(\overline{d}^r_a\cdot\gamma_\mu P_R\cdot D_\mu d^{ar}\right)+\mathbb{i}\left(\overline{e}^r\cdot\gamma_\mu P_R\cdot D_\mu e^r\right)+$$

$$\mathbb{i}\left(\overline{l}^r_i\cdot\gamma_\mu P_L\cdot D_\mu l^{ir}\right)+\mathbb{i}\left(\overline{q}^r_{ai}\cdot\gamma_\mu P_L\cdot D_\mu q^{air}\right)+\mathbb{i}\left(\overline{u}^r_a\cdot\gamma_\mu P_R\cdot D_\mu u^{ar}\right)-$$

$$\frac{1}{2}\lambda\,\overline{H}_i\,\overline{H}_j\,H^i\,H^j+\hbar\frac{1}{\epsilon}\left(\lambda_{H\chi}{}^{pr}\right)^2\overline{H}_i\,\overline{H}_j\,H^i\,H^j+\hbar\left(\lambda_{H\chi}{}^{pr}\right)^2\mathrm{LF}_{1,1,0}\left[M_\chi{}^p,M_\chi{}^r\right]\overline{H}_i\,\overline{H}_j\,H^i\,H^j-$$

$$\overline{Y_d}^{pr}\,\overline{H}_i\left(\overline{d}^r_a\cdot P_L\cdot q^{aip}\right)-\frac{1}{8}\hbar\,\overline{Y_d}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\overline{H}_i\left(\overline{d}^r_a\cdot P_L\cdot q^{aip}\right)+$$

$$\frac{1}{4}\hbar\frac{1}{\epsilon}\overline{Y_d}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\overline{H}_i\left(\overline{d}^r_a\cdot P_L\cdot q^{aip}\right)+\frac{1}{2}\hbar\,\overline{Y_d}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\mathrm{LF}_{1,1,0}\left[M_\phi,M_\chi{}^t\right]\overline{H}_i\left(\overline{d}^r_a\cdot P_L\cdot q^{aip}\right)-$$

$$\frac{1}{4}\hbar\,\overline{Y_d}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\mathrm{LF}_{2,1,-1}\left[M_\phi,M_\chi{}^t\right]\overline{H}_i\left(\overline{d}^r_a\cdot P_L\cdot q^{aip}\right)-\overline{Y_e}^{pr}\,\overline{H}_i\left(\overline{e}^r\cdot P_L\cdot l^{ip}\right)-$$

$$Y_e{}^{rp}\,H^i\left(\overline{l}^r_i\cdot P_R\cdot e^p\right)-Y_d{}^{rp}\,H^i\left(\overline{q}^r_{ai}\cdot P_R\cdot d^{ap}\right)-\frac{1}{8}\hbar\,Y_d{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,H^i\left(\overline{q}^r_{ai}\cdot P_R\cdot d^{ap}\right)+$$

$$\frac{1}{4}\hbar\frac{1}{\epsilon}Y_d{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,H^i\left(\overline{q}^r_{ai}\cdot P_R\cdot d^{ap}\right)+\frac{1}{2}\hbar\,Y_d{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\mathrm{LF}_{1,1,0}\left[M_\phi,M_\chi{}^t\right]H^i\left(\overline{q}^r_{ai}\cdot P_R\cdot d^{ap}\right)-$$

$$\frac{1}{4}\hbar\,Y_d{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\mathrm{LF}_{2,1,-1}\left[M_\phi,M_\chi{}^t\right]H^i\left(\overline{q}^r_{ai}\cdot P_R\cdot d^{ap}\right)-Y_u{}^{rp}\,\overline{H}_i\left(\overline{q}^r_{aj}\cdot P_R\cdot u^{ap}\right)\varepsilon^{ji}-$$

$$\frac{1}{8}\hbar\,Y_u{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\overline{H}_i\left(\overline{q}^r_{aj}\cdot P_R\cdot u^{ap}\right)\varepsilon^{ji}+\frac{1}{4}\hbar\frac{1}{\epsilon}Y_u{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\overline{H}_i\left(\overline{q}^r_{aj}\cdot P_R\cdot u^{ap}\right)\varepsilon^{ji}+$$

$$\frac{1}{2}\hbar\,Y_u{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\mathrm{LF}_{1,1,0}\left[M_\phi,M_\chi{}^t\right]\overline{H}_i\left(\overline{q}^r_{aj}\cdot P_R\cdot u^{ap}\right)\varepsilon^{ji}-$$

$$\frac{1}{4}\hbar\,Y_u{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\mathrm{LF}_{2,1,-1}\left[M_\phi,M_\chi{}^t\right]\overline{H}_i\left(\overline{q}^r_{aj}\cdot P_R\cdot u^{ap}\right)\varepsilon^{ji}-\overline{Y_u}^{pr}\,H^j\left(\overline{u}^r_a\cdot P_L\cdot q^{aip}\right)\overline{\varepsilon}_{ij}-$$

$$\frac{1}{8}\hbar\,\overline{Y_u}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,H^j\left(\overline{u}^r_a\cdot P_L\cdot q^{aip}\right)\overline{\varepsilon}_{ij}+\frac{1}{4}\hbar\frac{1}{\epsilon}\overline{Y_u}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,H^j\left(\overline{u}^r_a\cdot P_L\cdot q^{aip}\right)\overline{\varepsilon}_{ij}+$$

$$\frac{1}{2}\hbar\,\overline{Y_u}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\mathrm{LF}_{1,1,0}\left[M_\phi,M_\chi{}^t\right]H^j\left(\overline{u}^r_a\cdot P_L\cdot q^{aip}\right)\overline{\varepsilon}_{ij}-$$

$$\frac{1}{4}\hbar\,\overline{Y_u}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\mathrm{LF}_{2,1,-1}\left[M_\phi,M_\chi{}^t\right]H^j\left(\overline{u}^r_a\cdot P_L\cdot q^{aip}\right)\overline{\varepsilon}_{ij}+\frac{1}{90}\hbar\frac{1}{M_\phi{}^2}G^{\mu\nu C}\,G^{\mu\rho B}\,G^{\nu\rho A}\,f^{ABC}+$$

$$\frac{1}{60}\hbar\frac{1}{M_\phi{}^2}W^{\mu\nu K}\,W^{\mu\rho J}\,W^{\nu\rho I}\,f^{IJK}-\frac{1}{10}\hbar\,C_{H^2}\,g_L{}^4\frac{1}{M_\phi{}^2}\overline{H}_i\,\overline{H}_j\,H^i\,H^j-\frac{1}{90}\hbar\,C_{H^2}\,g_Y{}^4\frac{1}{M_\phi{}^2}\overline{H}_i\,\overline{H}_j\,H^i\,H^j+$$

$$\frac{1}{10}\hbar\,\lambda\,g_L{}^4\frac{1}{M_\phi{}^2}\overline{H}_i\,\overline{H}_j\,\overline{H}_k\,H^i\,H^j\,H^k+\frac{1}{90}\hbar\,\lambda\,g_Y{}^4\frac{1}{M_\phi{}^2}\overline{H}_i\,\overline{H}_j\,\overline{H}_k\,H^i\,H^j\,H^k+$$

$$2\hbar\,C_{H^2}\left(\lambda_{H\chi}{}^{pr}\right)^2\mathrm{LF}_{2,1,0}\left[M_\chi{}^p,M_\chi{}^r\right]\overline{H}_i\,\overline{H}_j\,H^i\,H^j-2\hbar\,\lambda\left(\lambda_{H\chi}{}^{pr}\right)^2\mathrm{LF}_{2,1,0}\left[M_\chi{}^p,M_\chi{}^r\right]\overline{H}_i\,\overline{H}_j\,\overline{H}_k\,H^i\,H^j\,H^k-$$

$$2\hbar\,C_{H^2}\left(\lambda_{H\chi}{}^{pr}\right)^2\mathrm{LF}_{3,1,-1}\left[M_\chi{}^p,M_\chi{}^r\right]\overline{H}_i\,\overline{H}_j\,H^i\,H^j+2\hbar\,\lambda\left(\lambda_{H\chi}{}^{pr}\right)^2\mathrm{LF}_{3,1,-1}\left[M_\chi{}^p,M_\chi{}^r\right]\overline{H}_i\,\overline{H}_j\,\overline{H}_k\,H^i\,H^j\,H^k-$$

$$\frac{4}{3}\hbar\,\lambda_{H\chi}{}^{pr}\,\lambda_{H\chi}{}^{ps}\,\lambda_{H\chi}{}^{rs}\,\mathrm{LF}_{1,1,1,0}\left[M_\chi{}^p,M_\chi{}^r,M_\chi{}^s\right]\overline{H}_i\,\overline{H}_j\,\overline{H}_k\,H^i\,H^j\,H^k-$$

$$\frac{3}{10}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}\overline{H}_i\,D_\mu\overline{H}_j\,H^i\,D_\mu H^j-\frac{1}{45}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}D_\mu\overline{H}_i\,\overline{H}_j\,H^i\,D_\mu H^j-\frac{1}{90}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\overline{H}_i\,D_\mu\overline{H}_j\,H^i\,D_\mu H^j+$$

$$2\hbar\left(\lambda_{H\chi}{}^{pr}\right)^2\mathrm{LF}_{2,1,0}\left[M_\chi{}^p,M_\chi{}^r\right]\overline{H}_i\,D_\mu\overline{H}_j\,H^i\,D_\mu H^j-2\hbar\left(\lambda_{H\chi}{}^{pr}\right)^2\mathrm{LF}_{3,1,-1}\left[M_\chi{}^p,M_\chi{}^r\right]\overline{H}_i\,D_\mu\overline{H}_j\,H^i\,D_\mu H^j+$$

$$\frac{1}{20}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}\overline{Y_d}^{pr}\,\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{d}^r_a\cdot P_L\cdot q^{ajp}\right)+\frac{1}{180}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\overline{Y_d}^{pr}\,\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{d}^r_a\cdot P_L\cdot q^{ajp}\right)-$$

$$\frac{1}{2}\hbar\,\overline{Y_d}^{ps}\,\overline{Y_d}^{tr}\,Y_d{}^{us}\,\overline{\lambda_{\psi\chi}}^{uv}\,\lambda_{\psi\chi}{}^{tv}\,\mathrm{LF}_{2,1,0}\left[M_\phi,M_\chi{}^v\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{d}^r_a\cdot P_L\cdot q^{ajp}\right)+$$

$$\hbar\,\overline{Y_d}^{ps}\,\overline{Y_d}^{tr}\,Y_d{}^{us}\,\overline{\lambda_{\psi\chi}}^{uv}\,\lambda_{\psi\chi}{}^{tv}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^v\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{d}^r_a\cdot P_L\cdot q^{ajp}\right)-$$

$$\frac{1}{2}\hbar\,\overline{Y_d}^{ps}\,\overline{Y_d}^{tr}\,Y_d{}^{us}\,\overline{\lambda_{\psi\chi}}^{uv}\,\lambda_{\psi\chi}{}^{tv}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^v\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{d}^r_a\cdot P_L\cdot q^{ajp}\right)-$$

$$\hbar\,\overline{Y_d}^{pr}\left(\lambda_{H\chi}{}^{st}\right)^2\mathrm{LF}_{2,1,0}\left[M_\chi{}^s,M_\chi{}^t\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{d}^r_a\cdot P_L\cdot q^{ajp}\right)+$$

$$\hbar\,\overline{Y_d}^{pr}\left(\lambda_{H\chi}{}^{st}\right)^2\mathrm{LF}_{3,1,-1}\left[M_\chi{}^s,M_\chi{}^t\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{d}^r_a\cdot P_L\cdot q^{ajp}\right)-$$

$$\hbar\,\overline{Y_d}^{sr}\,\lambda_{H\chi}{}^{tu}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{1,1,1,0}\left[M_\phi,M_\chi{}^t,M_\chi{}^u\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{d}^r_a\cdot P_L\cdot q^{ajp}\right)+$$

$$\frac{1}{2}\hbar\,\overline{Y_d}^{sr}\,\lambda_{H\chi}{}^{tu}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{2,1,1,-1}\left[M_\phi,M_\chi{}^t,M_\chi{}^u\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{d}^r_a\cdot P_L\cdot q^{ajp}\right)+$$

$$\frac{1}{2}\hbar\,\overline{Y_d}^{sr}\,\lambda_{H\chi}{}^{tu}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{2,1,1,-1}\left[M_\chi{}^t,M_\phi,M_\chi{}^u\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{d}^r_a\cdot P_L\cdot q^{ajp}\right)-$$

$$\frac{1}{2}\hbar\,\overline{Y_d}^{sr}\,\lambda_{H\chi}{}^{tu}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{2,1,1,-1}\left[M_\chi{}^u,M_\phi,M_\chi{}^t\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{d}^r_a\cdot P_L\cdot q^{ajp}\right)+$$

$$\frac{1}{20}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}\overline{Y_e}^{pr}\,\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{e}^r\cdot P_L\cdot l^{jp}\right)+\frac{1}{180}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\overline{Y_e}^{pr}\,\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{e}^r\cdot P_L\cdot l^{jp}\right)-$$

$$\hbar\,\overline{Y_e}^{pr}\left(\lambda_{H\chi}{}^{st}\right)^2\mathrm{LF}_{2,1,0}\left[M_\chi{}^s,M_\chi{}^t\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{e}^r\cdot P_L\cdot l^{jp}\right)+$$

$$\hbar\,\overline{Y_e}^{pr}\left(\lambda_{H\chi}{}^{st}\right)^2\mathrm{LF}_{3,1,-1}\left[M_\chi{}^s,M_\chi{}^t\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{e}^r\cdot P_L\cdot l^{jp}\right)+\frac{1}{20}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}Y_e{}^{rp}\,\overline{H}_i\,H^i\,H^j\left(\overline{l}^r_j\cdot P_R\cdot e^p\right)+$$

$$\frac{1}{180}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}Y_e{}^{rp}\,\overline{H}_i\,H^i\,H^j\left(\overline{l}^r_j\cdot P_R\cdot e^p\right)-\hbar\,Y_e{}^{rp}\left(\lambda_{H\chi}{}^{st}\right)^2\mathrm{LF}_{2,1,0}\left[M_\chi{}^s,M_\chi{}^t\right]\overline{H}_i\,H^i\,H^j\left(\overline{l}^r_j\cdot P_R\cdot e^p\right)+$$

$$\hbar\,Y_e{}^{rp}\left(\lambda_{H\chi}{}^{st}\right)^2\mathrm{LF}_{3,1,-1}\left[M_\chi{}^s,M_\chi{}^t\right]\overline{H}_i\,H^i\,H^j\left(\overline{l}^r_j\cdot P_R\cdot e^p\right)+$$

$$\frac{1}{20}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}Y_d{}^{rp}\,\overline{H}_i\,H^i\,H^j\left(\overline{q}^r_{aj}\cdot P_R\cdot d^{ap}\right)+\frac{1}{180}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}Y_d{}^{rp}\,\overline{H}_i\,H^i\,H^j\left(\overline{q}^r_{aj}\cdot P_R\cdot d^{ap}\right)-$$

$$\frac{1}{2}\hbar\,\overline{Y_d}^{st}\,Y_d{}^{rt}\,Y_d{}^{up}\,\overline{\lambda_{\psi\chi}}^{uv}\,\lambda_{\psi\chi}{}^{sv}\,\mathrm{LF}_{2,1,0}\left[M_\phi,M_\chi{}^v\right]\overline{H}_i\,H^i\,H^j\left(\overline{q}^r_{aj}\cdot P_R\cdot d^{ap}\right)+$$

$$\hbar\,\overline{Y_d}^{st}\,Y_d{}^{rt}\,Y_d{}^{up}\,\overline{\lambda_{\psi\chi}}^{uv}\,\lambda_{\psi\chi}{}^{sv}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^v\right]\overline{H}_i\,H^i\,H^j\left(\overline{q}^r_{aj}\cdot P_R\cdot d^{ap}\right)-$$

$$\frac{1}{2}\hbar\,\overline{Y_d}^{st}\,Y_d{}^{rt}\,Y_d{}^{up}\,\overline{\lambda_{\psi\chi}}^{uv}\,\lambda_{\psi\chi}{}^{sv}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^v\right]\overline{H}_i\,H^i\,H^j\left(\overline{q}^r_{aj}\cdot P_R\cdot d^{ap}\right)-$$

$$\hbar\,Y_d{}^{rp}\left(\lambda_{H\chi}{}^{st}\right)^2\mathrm{LF}_{2,1,0}\left[M_\chi{}^s,M_\chi{}^t\right]\overline{H}_i\,H^i\,H^j\left(\overline{q}^r_{aj}\cdot P_R\cdot d^{ap}\right)+$$

$$\hbar\,Y_d{}^{rp}\left(\lambda_{H\chi}{}^{st}\right)^2\mathrm{LF}_{3,1,-1}\left[M_\chi{}^s,M_\chi{}^t\right]\overline{H}_i\,H^i\,H^j\left(\overline{q}^r_{aj}\cdot P_R\cdot d^{ap}\right)-$$

$$\hbar\,Y_d{}^{sp}\,\lambda_{H\chi}{}^{tu}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{ru}\,\mathrm{LF}_{1,1,1,0}\left[M_\phi,M_\chi{}^t,M_\chi{}^u\right]\overline{H}_i\,H^i\,H^j\left(\overline{q}^r_{aj}\cdot P_R\cdot d^{ap}\right)+$$

$$\frac{1}{2}\hbar\,Y_d{}^{sp}\,\lambda_{H\chi}{}^{tu}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{ru}\,\mathrm{LF}_{2,1,1,-1}\left[M_\phi,M_\chi{}^t,M_\chi{}^u\right]\overline{H}_i\,H^i\,H^j\left(\overline{q}^r_{aj}\cdot P_R\cdot d^{ap}\right)-$$

$$\frac{1}{2}\hbar\,Y_d{}^{sp}\,\lambda_{H\chi}{}^{tu}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{ru}\,\mathrm{LF}_{2,1,1,-1}\left[M_\chi{}^t,M_\phi,M_\chi{}^u\right]\overline{H}_i\,H^i\,H^j\left(\overline{q}^r_{aj}\cdot P_R\cdot d^{ap}\right)+$$

$$\frac{1}{2}\hbar\,Y_d{}^{sp}\,\lambda_{H\chi}{}^{tu}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{ru}\,\mathrm{LF}_{2,1,1,-1}\left[M_\chi{}^u,M_\phi,M_\chi{}^t\right]\overline{H}_i\,H^i\,H^j\left(\overline{q}^r_{aj}\cdot P_R\cdot d^{ap}\right)+$$

$$\frac{1}{20}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}Y_u{}^{rp}\,\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{q}^r_{ak}\cdot P_R\cdot u^{ap}\right)\varepsilon^{kj}+\frac{1}{180}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}Y_u{}^{rp}\,\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{q}^r_{ak}\cdot P_R\cdot u^{ap}\right)\varepsilon^{kj}-$$

$$\frac{1}{2}\hbar\,\overline{Y_u}^{st}\,Y_u{}^{rt}\,Y_u{}^{up}\,\overline{\lambda_{\psi\chi}}^{uv}\,\lambda_{\psi\chi}{}^{sv}\,\mathrm{LF}_{2,1,0}\left[M_\phi,M_\chi{}^v\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{q}^r_{ak}\cdot P_R\cdot u^{ap}\right)\varepsilon^{kj}+$$

$$\hbar\,\overline{Y_u}^{st}\,Y_u{}^{rt}\,Y_u{}^{up}\,\overline{\lambda_{\psi\chi}}^{uv}\,\lambda_{\psi\chi}{}^{sv}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^v\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{q}^r_{ak}\cdot P_R\cdot u^{ap}\right)\varepsilon^{kj}-$$

$$\frac{1}{2}\hbar\,\overline{Y_u}^{st}\,Y_u{}^{rt}\,Y_u{}^{up}\,\overline{\lambda_{\psi\chi}}^{uv}\,\lambda_{\psi\chi}{}^{sv}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^v\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{q}^r_{ak}\cdot P_R\cdot u^{ap}\right)\varepsilon^{kj}-$$

$$\hbar\,Y_u{}^{rp}\left(\lambda_{H\chi}{}^{st}\right)^2\mathrm{LF}_{2,1,0}\left[M_\chi{}^s,M_\chi{}^t\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{q}^r_{ak}\cdot P_R\cdot u^{ap}\right)\varepsilon^{kj}+$$

$$\hbar\,Y_u{}^{rp}\left(\lambda_{H\chi}{}^{st}\right)^2\mathrm{LF}_{3,1,-1}\left[M_\chi{}^s,M_\chi{}^t\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{q}^r_{ak}\cdot P_R\cdot u^{ap}\right)\varepsilon^{kj}-$$

$$\hbar\,Y_u{}^{sp}\,\lambda_{H\chi}{}^{tu}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{ru}\,\mathrm{LF}_{1,1,1,0}\left[M_\phi,M_\chi{}^t,M_\chi{}^u\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{q}^r_{ak}\cdot P_R\cdot u^{ap}\right)\varepsilon^{kj}+$$

$$\frac{1}{2}\hbar\,Y_u{}^{sp}\,\lambda_{H\chi}{}^{tu}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{ru}\,\mathrm{LF}_{2,1,1,-1}\left[M_\phi,M_\chi{}^t,M_\chi{}^u\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{q}^r_{ak}\cdot P_R\cdot u^{ap}\right)\varepsilon^{kj}-$$

$$\frac{1}{2}\hbar\,Y_u{}^{sp}\,\lambda_{H\chi}{}^{tu}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{ru}\,\mathrm{LF}_{2,1,1,-1}\left[M_\chi{}^t,M_\phi,M_\chi{}^u\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{q}^r_{ak}\cdot P_R\cdot u^{ap}\right)\varepsilon^{kj}+$$

$$\frac{1}{2}\hbar\,Y_u{}^{sp}\,\lambda_{H\chi}{}^{tu}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{ru}\,\mathrm{LF}_{2,1,1,-1}\left[M_\chi{}^u,M_\phi,M_\chi{}^t\right]\overline{H}_i\,\overline{H}_j\,H^i\left(\overline{q}^r_{ak}\cdot P_R\cdot u^{ap}\right)\varepsilon^{kj}+$$

$$\frac{1}{20}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}\overline{Y_u}^{pr}\,\overline{H}_i\,H^i\,H^k\left(\overline{u}^r_a\cdot P_L\cdot q^{ajp}\right)\overline{\varepsilon}_{jk}+\frac{1}{180}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\overline{Y_u}^{pr}\,\overline{H}_i\,H^i\,H^k\left(\overline{u}^r_a\cdot P_L\cdot q^{ajp}\right)\overline{\varepsilon}_{jk}-$$

$$\frac{1}{2}\hbar\,\overline{Y_u}^{ps}\,\overline{Y_u}^{tr}\,Y_u{}^{us}\,\overline{\lambda_{\psi\chi}}^{uv}\,\lambda_{\psi\chi}{}^{tv}\,\mathrm{LF}_{2,1,0}\left[M_\phi,M_\chi{}^v\right]\overline{H}_i\,H^i\,H^k\left(\overline{u}^r_a\cdot P_L\cdot q^{ajp}\right)\overline{\varepsilon}_{jk}+$$

$$\hbar\,\overline{Y_u}^{ps}\,\overline{Y_u}^{tr}\,Y_u{}^{us}\,\overline{\lambda_{\psi\chi}}^{uv}\,\lambda_{\psi\chi}{}^{tv}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^v\right]\overline{H}_i\,H^i\,H^k\left(\overline{u}^r_a\cdot P_L\cdot q^{ajp}\right)\overline{\varepsilon}_{jk}-$$

$$\frac{1}{2}\hbar\,\overline{Y_u}^{ps}\,\overline{Y_u}^{tr}\,Y_u{}^{us}\,\overline{\lambda_{\psi\chi}}^{uv}\,\lambda_{\psi\chi}{}^{tv}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^v\right]\overline{H}_i\,H^i\,H^k\left(\overline{u}^r_a\cdot P_L\cdot q^{ajp}\right)\overline{\varepsilon}_{jk}-$$

$$\hbar\,\overline{Y_u}^{pr}\left(\lambda_{H\chi}{}^{st}\right)^2\mathrm{LF}_{2,1,0}\left[M_\chi{}^s,M_\chi{}^t\right]\overline{H}_i\,H^i\,H^k\left(\overline{u}^r_a\cdot P_L\cdot q^{ajp}\right)\overline{\varepsilon}_{jk}+$$

$$\hbar\,\overline{Y_u}^{pr}\left(\lambda_{H\chi}{}^{st}\right)^2\mathrm{LF}_{3,1,-1}\left[M_\chi{}^s,M_\chi{}^t\right]\overline{H}_i\,H^i\,H^k\left(\overline{u}^r_a\cdot P_L\cdot q^{ajp}\right)\overline{\varepsilon}_{jk}-$$

$$\hbar\,\overline{Y_u}^{sr}\,\lambda_{H\chi}{}^{tu}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{1,1,1,0}\left[M_\phi,M_\chi{}^t,M_\chi{}^u\right]\overline{H}_i\,H^i\,H^k\left(\overline{u}^r_a\cdot P_L\cdot q^{ajp}\right)\overline{\varepsilon}_{jk}+$$

$$\frac{1}{2}\hbar\,\overline{Y_u}^{sr}\,\lambda_{H\chi}{}^{tu}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{2,1,1,-1}\left[M_\phi,M_\chi{}^t,M_\chi{}^u\right]\overline{H}_i\,H^i\,H^k\left(\overline{u}^r_a\cdot P_L\cdot q^{ajp}\right)\overline{\varepsilon}_{jk}+$$

$$\frac{1}{2}\hbar\,\overline{Y_u}^{sr}\,\lambda_{H\chi}{}^{tu}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{2,1,1,-1}\left[M_\chi{}^t,M_\phi,M_\chi{}^u\right]\overline{H}_i\,H^i\,H^k\left(\overline{u}^r_a\cdot P_L\cdot q^{ajp}\right)\overline{\varepsilon}_{jk}-$$

$$\frac{1}{2}\hbar\,\overline{Y_u}^{sr}\,\lambda_{H\chi}{}^{tu}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{2,1,1,-1}\left[M_\chi{}^u,M_\phi,M_\chi{}^t\right]\overline{H}_i\,H^i\,H^k\left(\overline{u}^r_a\cdot P_L\cdot q^{ajp}\right)\overline{\varepsilon}_{jk}-$$

$$\frac{\mathbb{i}}{135}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\delta_{pr}\,D_\mu\overline{H}_i\,H^i\left(\overline{d}^r_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)+\frac{\mathbb{i}}{135}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\delta_{pr}\,\overline{H}_i\,D_\mu H^i\left(\overline{d}^r_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)+$$

$$\frac{\mathbb{i}}{2}\hbar\,\overline{Y_d}^{sr}\,Y_d{}^{tp}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{2,1,0}\left[M_\phi,M_\chi{}^u\right]D_\mu\overline{H}_i\,H^i\left(\overline{d}^r_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)-$$

$$\frac{\mathbb{i}}{2}\hbar\,\overline{Y_d}^{sr}\,Y_d{}^{tp}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{2,1,0}\left[M_\phi,M_\chi{}^u\right]\overline{H}_i\,D_\mu H^i\left(\overline{d}^r_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)-$$

$$\mathbb{i}\,\hbar\,\overline{Y_d}^{sr}\,Y_d{}^{tp}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]D_\mu\overline{H}_i\,H^i\left(\overline{d}^r_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)+$$

$$\mathbb{i}\,\hbar\,\overline{Y_d}^{sr}\,Y_d{}^{tp}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\overline{H}_i\,D_\mu H^i\left(\overline{d}^r_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)+$$

$$\frac{\mathbb{i}}{2}\hbar\,\overline{Y_d}^{sr}\,Y_d{}^{tp}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]D_\mu\overline{H}_i\,H^i\left(\overline{d}^r_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)-$$

$$\frac{\mathbb{i}}{2}\hbar\,\overline{Y_d}^{sr}\,Y_d{}^{tp}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\overline{H}_i\,D_\mu H^i\left(\overline{d}^r_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)+$$

$$\mathbb{i}\,\hbar\,\overline{Y_d}^{sr}\,Y_u{}^{tp}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{2,1,0}\left[M_\phi,M_\chi{}^u\right]D_\mu\overline{H}_i\,\overline{H}_j\left(\overline{d}^r_a\cdot\gamma_\mu P_R\cdot u^{ap}\right)\varepsilon^{ij}-$$

$$2\,\mathbb{i}\,\hbar\,\overline{Y_d}^{sr}\,Y_u{}^{tp}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]D_\mu\overline{H}_i\,\overline{H}_j\left(\overline{d}^r_a\cdot\gamma_\mu P_R\cdot u^{ap}\right)\varepsilon^{ij}+$$

$$\mathbb{i}\,\hbar\,\overline{Y_d}^{sr}\,Y_u{}^{tp}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]D_\mu\overline{H}_i\,\overline{H}_j\left(\overline{d}^r_a\cdot\gamma_\mu P_R\cdot u^{ap}\right)\varepsilon^{ij}-$$

$$\frac{\mathbb{i}}{45}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}D_\mu\overline{H}_i\,H^i\left(\overline{e}^r\cdot\gamma_\mu P_R\cdot e^r\right)+\frac{\mathbb{i}}{45}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\overline{H}_i\,D_\mu H^i\left(\overline{e}^r\cdot\gamma_\mu P_R\cdot e^r\right)+$$

$$\frac{\mathbb{i}}{5}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}D_\mu\overline{H}_i\,H^j\left(\overline{l}^r_j\cdot\gamma_\mu P_L\cdot l^{ir}\right)-\frac{\mathbb{i}}{5}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}\overline{H}_i\,D_\mu H^j\left(\overline{l}^r_j\cdot\gamma_\mu P_L\cdot l^{ir}\right)-$$

$$\frac{\mathbb{i}}{10}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}D_\mu\overline{H}_i\,H^i\left(\overline{l}^r_j\cdot\gamma_\mu P_L\cdot l^{jr}\right)-\frac{\mathbb{i}}{90}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}D_\mu\overline{H}_i\,H^i\left(\overline{l}^r_j\cdot\gamma_\mu P_L\cdot l^{jr}\right)+$$

$$\frac{\mathbb{i}}{10}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}\overline{H}_i\,D_\mu H^i\left(\overline{l}^r_j\cdot\gamma_\mu P_L\cdot l^{jr}\right)+\frac{\mathbb{i}}{90}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\overline{H}_i\,D_\mu H^i\left(\overline{l}^r_j\cdot\gamma_\mu P_L\cdot l^{jr}\right)+$$

$$\frac{\mathbb{i}}{5}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}\delta_{pr}\,D_\mu\overline{H}_i\,H^j\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{aip}\right)-\frac{\mathbb{i}}{5}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}\delta_{pr}\,\overline{H}_i\,D_\mu H^j\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{aip}\right)+$$

$$\frac{\mathbb{i}}{4}\hbar\,g_L{}^2\,\overline{\lambda_{\psi\chi}}^{ps}\,\lambda_{\psi\chi}{}^{rs}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^s\right]D_\mu\overline{H}_i\,H^j\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{aip}\right)-$$

$$\frac{\mathbb{i}}{4}\hbar\,g_L{}^2\,\overline{\lambda_{\psi\chi}}^{ps}\,\lambda_{\psi\chi}{}^{rs}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^s\right]\overline{H}_i\,D_\mu H^j\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{aip}\right)-$$

$$\frac{\mathbb{i}}{12}\hbar\,g_L{}^2\,\overline{\lambda_{\psi\chi}}^{ps}\,\lambda_{\psi\chi}{}^{rs}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^s\right]D_\mu\overline{H}_i\,H^j\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{aip}\right)+$$

$$\frac{\mathbb{i}}{12}\hbar\,g_L{}^2\,\overline{\lambda_{\psi\chi}}^{ps}\,\lambda_{\psi\chi}{}^{rs}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^s\right]\overline{H}_i\,D_\mu H^j\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{aip}\right)-$$

$$\frac{\mathbb{i}}{10}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}\delta_{pr}\,D_\mu\overline{H}_i\,H^i\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)+\frac{\mathbb{i}}{270}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\delta_{pr}\,D_\mu\overline{H}_i\,H^i\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)+$$

$$\frac{\mathbb{i}}{10}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}\delta_{pr}\,\overline{H}_i\,D_\mu H^i\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)-\frac{\mathbb{i}}{270}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\delta_{pr}\,\overline{H}_i\,D_\mu H^i\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)-$$

$$\frac{\mathbb{i}}{8}\hbar\,g_L{}^2\,\overline{\lambda_{\psi\chi}}^{ps}\,\lambda_{\psi\chi}{}^{rs}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^s\right]D_\mu\overline{H}_i\,H^i\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)+$$

$$\frac{\mathbb{i}}{24}\hbar\,g_Y{}^2\,\overline{\lambda_{\psi\chi}}^{ps}\,\lambda_{\psi\chi}{}^{rs}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^s\right]D_\mu\overline{H}_i\,H^i\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)+$$

$$\frac{\mathbb{i}}{8}\hbar\,g_L{}^2\,\overline{\lambda_{\psi\chi}}^{ps}\,\lambda_{\psi\chi}{}^{rs}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^s\right]\overline{H}_i\,D_\mu H^i\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)-$$

$$\frac{\mathbb{i}}{24}\hbar\,g_Y{}^2\,\overline{\lambda_{\psi\chi}}^{ps}\,\lambda_{\psi\chi}{}^{rs}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^s\right]\overline{H}_i\,D_\mu H^i\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)+$$

$$\frac{\mathbb{i}}{24}\hbar\,g_L{}^2\,\overline{\lambda_{\psi\chi}}^{ps}\,\lambda_{\psi\chi}{}^{rs}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^s\right]D_\mu\overline{H}_i\,H^i\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)-$$

$$\frac{\mathbb{i}}{72}\hbar\,g_Y{}^2\,\overline{\lambda_{\psi\chi}}^{ps}\,\lambda_{\psi\chi}{}^{rs}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^s\right]D_\mu\overline{H}_i\,H^i\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)-$$

$$\frac{\mathbb{i}}{24}\hbar\,g_L{}^2\,\overline{\lambda_{\psi\chi}}^{ps}\,\lambda_{\psi\chi}{}^{rs}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^s\right]\overline{H}_i\,D_\mu H^i\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)+$$

$$\frac{\mathbb{i}}{72}\hbar\,g_Y{}^2\,\overline{\lambda_{\psi\chi}}^{ps}\,\lambda_{\psi\chi}{}^{rs}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^s\right]\overline{H}_i\,D_\mu H^i\left(\overline{q}^r_{aj}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)-$$

$$\mathbb{i}\,\hbar\,Y_d{}^{tp}\,\overline{Y_u}^{sr}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{2,1,0}\left[M_\phi,M_\chi{}^u\right]D_\mu H^i\,H^j\left(\overline{u}^r_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)\overline{\varepsilon}_{ij}+$$

$$2\,\mathbb{i}\,\hbar\,Y_d{}^{tp}\,\overline{Y_u}^{sr}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]D_\mu H^i\,H^j\left(\overline{u}^r_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)\overline{\varepsilon}_{ij}-$$

$$\mathbb{i}\,\hbar\,Y_d{}^{tp}\,\overline{Y_u}^{sr}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]D_\mu H^i\,H^j\left(\overline{u}^r_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)\overline{\varepsilon}_{ij}+$$

$$\frac{2\,\mathbb{i}}{135}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\delta_{pr}\,D_\mu\overline{H}_i\,H^i\left(\overline{u}^r_a\cdot\gamma_\mu P_R\cdot u^{ap}\right)-\frac{2\,\mathbb{i}}{135}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\delta_{pr}\,\overline{H}_i\,D_\mu H^i\left(\overline{u}^r_a\cdot\gamma_\mu P_R\cdot u^{ap}\right)-$$

$$\frac{\mathbb{i}}{2}\hbar\,\overline{Y_u}^{sr}\,Y_u{}^{tp}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{2,1,0}\left[M_\phi,M_\chi{}^u\right]D_\mu\overline{H}_i\,H^i\left(\overline{u}^r_a\cdot\gamma_\mu P_R\cdot u^{ap}\right)+$$

$$\frac{\mathbb{i}}{2}\hbar\,\overline{Y_u}^{sr}\,Y_u{}^{tp}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{2,1,0}\left[M_\phi,M_\chi{}^u\right]\overline{H}_i\,D_\mu H^i\left(\overline{u}^r_a\cdot\gamma_\mu P_R\cdot u^{ap}\right)+$$

$$\mathbb{i}\,\hbar\,\overline{Y_u}^{sr}\,Y_u{}^{tp}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]D_\mu\overline{H}_i\,H^i\left(\overline{u}^r_a\cdot\gamma_\mu P_R\cdot u^{ap}\right)-$$

$$\mathbb{i}\,\hbar\,\overline{Y_u}^{sr}\,Y_u{}^{tp}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\overline{H}_i\,D_\mu H^i\left(\overline{u}^r_a\cdot\gamma_\mu P_R\cdot u^{ap}\right)-$$

$$\frac{\mathbb{i}}{2}\hbar\,\overline{Y_u}^{sr}\,Y_u{}^{tp}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]D_\mu\overline{H}_i\,H^i\left(\overline{u}^r_a\cdot\gamma_\mu P_R\cdot u^{ap}\right)+$$

$$\frac{\mathbb{i}}{2}\hbar\,\overline{Y_u}^{sr}\,Y_u{}^{tp}\,\overline{\lambda_{\psi\chi}}^{tu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\overline{H}_i\,D_\mu H^i\left(\overline{u}^r_a\cdot\gamma_\mu P_R\cdot u^{ap}\right)-$$

$$\frac{\mathbb{i}}{24}\hbar\,\overline{Y_d}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^t\right]\overline{H}_i\,B^{\mu\nu}\left(\overline{d}^r_a\cdot\Gamma_{\mu\nu}P_L\cdot q^{aip}\right)+$$

$$\frac{\mathbb{i}}{24}\hbar\,\overline{Y_d}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^t\right]\overline{H}_i\,B^{\mu\nu}\left(\overline{d}^r_a\cdot\Gamma_{\mu\nu}P_L\cdot q^{aip}\right)-$$

$$\frac{\mathbb{i}}{4}\hbar\,\overline{Y_d}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^t\right]\overline{H}_i\,W^{\mu\nu I}\left(\overline{d}^r_a\cdot\Gamma_{\mu\nu}P_L\cdot q^{ajp}\right)T^{Ii}_j+$$

$$\frac{\mathbb{i}}{4}\hbar\,\overline{Y_d}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^t\right]\overline{H}_i\,W^{\mu\nu I}\left(\overline{d}^r_a\cdot\Gamma_{\mu\nu}P_L\cdot q^{ajp}\right)T^{Ii}_j-$$

$$\frac{\mathbb{i}}{4}\hbar\,\overline{Y_d}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^t\right]\overline{H}_i\,G^{\mu\nu A}\left(\overline{d}^r_a\cdot\Gamma_{\mu\nu}P_L\cdot q^{bip}\right)T^{Aa}_b+$$

$$\frac{\mathbb{i}}{4}\hbar\,\overline{Y_d}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^t\right]\overline{H}_i\,G^{\mu\nu A}\left(\overline{d}^r_a\cdot\Gamma_{\mu\nu}P_L\cdot q^{bip}\right)T^{Aa}_b-$$

$$\frac{\mathbb{i}}{24}\hbar\,Y_d{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^t\right]H^i\,B^{\mu\nu}\left(\overline{q}^r_{ai}\cdot\Gamma_{\mu\nu}P_R\cdot d^{ap}\right)-$$

$$\frac{\mathbb{i}}{4}\hbar\,Y_d{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^t\right]H^j\,W^{\mu\nu I}\left(\overline{q}^r_{ai}\cdot\Gamma_{\mu\nu}P_R\cdot d^{ap}\right)T^{Ii}_j+$$

$$\frac{\mathbb{i}}{24}\hbar\,Y_d{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^t\right]H^i\,B^{\mu\nu}\left(\overline{q}^r_{ai}\cdot\Gamma_{\mu\nu}P_R\cdot d^{ap}\right)+$$

$$\frac{\mathbb{i}}{4}\hbar\,Y_d{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^t\right]H^j\,W^{\mu\nu I}\left(\overline{q}^r_{ai}\cdot\Gamma_{\mu\nu}P_R\cdot d^{ap}\right)T^{Ii}_j-$$

$$\frac{\mathbb{i}}{4}\hbar\,Y_d{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^t\right]H^i\,G^{\mu\nu A}\left(\overline{q}^r_{ai}\cdot\Gamma_{\mu\nu}P_R\cdot d^{bp}\right)T^{Aa}_b+$$

$$\frac{\mathbb{i}}{4}\hbar\,Y_d{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^t\right]H^i\,G^{\mu\nu A}\left(\overline{q}^r_{ai}\cdot\Gamma_{\mu\nu}P_R\cdot d^{bp}\right)T^{Aa}_b-$$

$$\frac{\mathbb{i}}{24}\hbar\,Y_u{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^t\right]\overline{H}_i\,B^{\mu\nu}\left(\overline{q}^r_{aj}\cdot\Gamma_{\mu\nu}P_R\cdot u^{ap}\right)\varepsilon^{ji}-$$

$$\frac{\mathbb{i}}{4}\hbar\,Y_u{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^t\right]\overline{H}_i\,W^{\mu\nu I}\left(\overline{q}^r_{aj}\cdot\Gamma_{\mu\nu}P_R\cdot u^{ap}\right)\mathrm{cg1}^{iIj}+$$

$$\frac{\mathbb{i}}{24}\hbar\,Y_u{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^t\right]\overline{H}_i\,B^{\mu\nu}\left(\overline{q}^r_{aj}\cdot\Gamma_{\mu\nu}P_R\cdot u^{ap}\right)\varepsilon^{ji}+$$

$$\frac{\mathbb{i}}{4}\hbar\,Y_u{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^t\right]\overline{H}_i\,W^{\mu\nu I}\left(\overline{q}^r_{aj}\cdot\Gamma_{\mu\nu}P_R\cdot u^{ap}\right)\mathrm{cg1}^{iIj}-$$

$$\frac{\mathbb{i}}{4}\hbar\,Y_u{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^t\right]\overline{H}_i\,G^{\mu\nu A}\left(\overline{q}^r_{aj}\cdot\Gamma_{\mu\nu}P_R\cdot u^{bp}\right)\varepsilon^{ji}\,T^{Aa}_b+$$

$$\frac{\mathbb{i}}{4}\hbar\,Y_u{}^{sp}\,\overline{\lambda_{\psi\chi}}^{st}\,\lambda_{\psi\chi}{}^{rt}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^t\right]\overline{H}_i\,G^{\mu\nu A}\left(\overline{q}^r_{aj}\cdot\Gamma_{\mu\nu}P_R\cdot u^{bp}\right)\varepsilon^{ji}\,T^{Aa}_b-$$

$$\frac{\mathbb{i}}{24}\hbar\,\overline{Y_u}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^t\right]H^j\,B^{\mu\nu}\left(\overline{u}^r_a\cdot\Gamma_{\mu\nu}P_L\cdot q^{aip}\right)\overline{\varepsilon}_{ij}+$$

$$\frac{\mathbb{i}}{24}\hbar\,\overline{Y_u}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^t\right]H^j\,B^{\mu\nu}\left(\overline{u}^r_a\cdot\Gamma_{\mu\nu}P_L\cdot q^{aip}\right)\overline{\varepsilon}_{ij}-$$

$$\frac{\mathbb{i}}{4}\hbar\,\overline{Y_u}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^t\right]H^i\,W^{\mu\nu I}\left(\overline{u}^r_a\cdot\Gamma_{\mu\nu}P_L\cdot q^{ajp}\right)\overline{\mathrm{cg1}}^{I}_{ij}+$$

$$\frac{\mathbb{i}}{4}\hbar\,\overline{Y_u}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^t\right]H^i\,W^{\mu\nu I}\left(\overline{u}^r_a\cdot\Gamma_{\mu\nu}P_L\cdot q^{ajp}\right)\overline{\mathrm{cg1}}^{I}_{ij}-$$

$$\frac{\mathbb{i}}{4}\hbar\,\overline{Y_u}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^t\right]H^j\,G^{\mu\nu A}\left(\overline{u}^r_a\cdot\Gamma_{\mu\nu}P_L\cdot q^{bip}\right)\overline{\varepsilon}_{ij}\,T^{Aa}_b+$$

$$\frac{\mathbb{i}}{4}\hbar\,\overline{Y_u}^{sr}\,\overline{\lambda_{\psi\chi}}^{pt}\,\lambda_{\psi\chi}{}^{st}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^t\right]H^j\,G^{\mu\nu A}\left(\overline{u}^r_a\cdot\Gamma_{\mu\nu}P_L\cdot q^{bip}\right)\overline{\varepsilon}_{ij}\,T^{Aa}_b-$$

$$\frac{1}{15}\hbar\,g_s{}^4\frac{1}{M_\phi{}^2}\delta_{pt}\,\delta_{rs}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)\left(\overline{d}^t_b\cdot\gamma_\mu P_R\cdot d^{br}\right)+$$

$$\frac{1}{45}\hbar\,g_s{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)\left(\overline{d}^t_b\cdot\gamma_\mu P_R\cdot d^{br}\right)-$$

$$\frac{1}{405}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)\left(\overline{d}^t_b\cdot\gamma_\mu P_R\cdot d^{br}\right)-$$

$$\frac{1}{90}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\left(\overline{e}^s\cdot\gamma_\mu P_R\cdot e^t\right)\left(\overline{e}^t\cdot\gamma_\mu P_R\cdot e^s\right)-\frac{2}{135}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{as}\right)\left(\overline{e}^t\cdot\gamma_\mu P_R\cdot e^t\right)-$$

$$\frac{1}{90}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\left(\overline{e}^s\cdot\gamma_\mu P_R\cdot e^s\right)\left(\overline{e}^t\cdot\gamma_\mu P_R\cdot e^t\right)-\frac{1}{135}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{as}\right)\left(\overline{l}^t_i\cdot\gamma_\mu P_L\cdot l^{it}\right)-$$

$$\frac{1}{45}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\left(\overline{e}^s\cdot\gamma_\mu P_R\cdot e^s\right)\left(\overline{l}^t_i\cdot\gamma_\mu P_L\cdot l^{it}\right)-$$

$$\frac{1}{10}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}\delta_{pt}\,\delta_{rs}\left(\overline{l}^s_i\cdot\gamma_\mu P_L\cdot l^{ip}\right)\left(\overline{l}^t_j\cdot\gamma_\mu P_L\cdot l^{jr}\right)+$$

$$\frac{1}{20}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{l}^s_i\cdot\gamma_\mu P_L\cdot l^{ip}\right)\left(\overline{l}^t_j\cdot\gamma_\mu P_L\cdot l^{jr}\right)-$$

$$\frac{1}{180}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{l}^s_i\cdot\gamma_\mu P_L\cdot l^{ip}\right)\left(\overline{l}^t_j\cdot\gamma_\mu P_L\cdot l^{jr}\right)+$$

$$\frac{1}{135}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{e}^s\cdot\gamma_\mu P_R\cdot e^p\right)\left(\overline{q}^t_{ai}\cdot\gamma_\mu P_L\cdot q^{air}\right)+$$

$$\frac{1}{12}\hbar\,g_Y{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{e}^s\cdot\gamma_\mu P_R\cdot e^p\right)\left(\overline{q}^t_{ai}\cdot\gamma_\mu P_L\cdot q^{air}\right)-$$

$$\frac{1}{36}\hbar\,g_Y{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{e}^s\cdot\gamma_\mu P_R\cdot e^p\right)\left(\overline{q}^t_{ai}\cdot\gamma_\mu P_L\cdot q^{air}\right)-$$

$$\frac{1}{5}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{l}^s_i\cdot\gamma_\mu P_L\cdot l^{jp}\right)\left(\overline{q}^t_{aj}\cdot\gamma_\mu P_L\cdot q^{air}\right)-$$

$$\frac{1}{4}\hbar\,g_L{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{l}^s_i\cdot\gamma_\mu P_L\cdot l^{jp}\right)\left(\overline{q}^t_{aj}\cdot\gamma_\mu P_L\cdot q^{air}\right)+$$

$$\frac{1}{12}\hbar\,g_L{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{l}^s_i\cdot\gamma_\mu P_L\cdot l^{jp}\right)\left(\overline{q}^t_{aj}\cdot\gamma_\mu P_L\cdot q^{air}\right)+$$

$$\frac{1}{10}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{l}^s_i\cdot\gamma_\mu P_L\cdot l^{ip}\right)\left(\overline{q}^t_{aj}\cdot\gamma_\mu P_L\cdot q^{ajr}\right)+$$

$$\frac{1}{270}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{l}^s_i\cdot\gamma_\mu P_L\cdot l^{ip}\right)\left(\overline{q}^t_{aj}\cdot\gamma_\mu P_L\cdot q^{ajr}\right)+$$

$$\frac{1}{8}\hbar\,g_L{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{l}^s_i\cdot\gamma_\mu P_L\cdot l^{ip}\right)\left(\overline{q}^t_{aj}\cdot\gamma_\mu P_L\cdot q^{ajr}\right)+$$

$$\frac{1}{24}\hbar\,g_Y{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{l}^s_i\cdot\gamma_\mu P_L\cdot l^{ip}\right)\left(\overline{q}^t_{aj}\cdot\gamma_\mu P_L\cdot q^{ajr}\right)-$$

$$\frac{1}{24}\hbar\,g_L{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{l}^s_i\cdot\gamma_\mu P_L\cdot l^{ip}\right)\left(\overline{q}^t_{aj}\cdot\gamma_\mu P_L\cdot q^{ajr}\right)-$$

$$\frac{1}{72}\hbar\,g_Y{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{l}^s_i\cdot\gamma_\mu P_L\cdot l^{ip}\right)\left(\overline{q}^t_{aj}\cdot\gamma_\mu P_L\cdot q^{ajr}\right)-$$

$$\frac{2}{15}\hbar\,g_s{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{bp}\right)\left(\overline{q}^t_{bi}\cdot\gamma_\mu P_L\cdot q^{air}\right)-$$

$$\frac{1}{4}\hbar\,g_s{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{bp}\right)\left(\overline{q}^t_{bi}\cdot\gamma_\mu P_L\cdot q^{air}\right)+$$

$$\frac{1}{12}\hbar\,g_s{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{bp}\right)\left(\overline{q}^t_{bi}\cdot\gamma_\mu P_L\cdot q^{air}\right)+$$

$$\frac{2}{45}\hbar\,g_s{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)\left(\overline{q}^t_{bi}\cdot\gamma_\mu P_L\cdot q^{bir}\right)+$$

$$\frac{1}{405}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)\left(\overline{q}^t_{bi}\cdot\gamma_\mu P_L\cdot q^{bir}\right)+$$

$$\frac{1}{12}\hbar\,g_s{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)\left(\overline{q}^t_{bi}\cdot\gamma_\mu P_L\cdot q^{bir}\right)+$$

$$\frac{1}{36}\hbar\,g_Y{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)\left(\overline{q}^t_{bi}\cdot\gamma_\mu P_L\cdot q^{bir}\right)-$$

$$\frac{1}{36}\hbar\,g_s{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)\left(\overline{q}^t_{bi}\cdot\gamma_\mu P_L\cdot q^{bir}\right)-$$

$$\frac{1}{108}\hbar\,g_Y{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{ap}\right)\left(\overline{q}^t_{bi}\cdot\gamma_\mu P_L\cdot q^{bir}\right)-$$

$$\frac{1}{15}\hbar\,g_s{}^4\frac{1}{M_\phi{}^2}\delta_{pt}\,\delta_{rs}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bir}\right)-$$

$$\frac{1}{10}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bir}\right)-$$

$$\frac{1}{4}\hbar\,g_L{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bir}\right)-$$

$$\frac{1}{4}\hbar\,g_s{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\delta_{pt}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bir}\right)+$$

$$\frac{1}{12}\hbar\,g_L{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bir}\right)+$$

$$\frac{1}{12}\hbar\,g_s{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\delta_{pt}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{ajp}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bir}\right)+$$

$$\frac{1}{20}\hbar\,g_L{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bjr}\right)+$$

$$\frac{1}{45}\hbar\,g_s{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bjr}\right)-$$

$$\frac{1}{1620}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bjr}\right)+$$

$$\frac{1}{8}\hbar\,g_L{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bjr}\right)+$$

$$\frac{1}{12}\hbar\,g_s{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bjr}\right)-$$

$$\frac{1}{72}\hbar\,g_Y{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bjr}\right)-$$

$$\frac{1}{24}\hbar\,g_L{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bjr}\right)-$$

$$\frac{1}{36}\hbar\,g_s{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bjr}\right)+$$

$$\frac{1}{216}\hbar\,g_Y{}^2\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\delta_{ps}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bjr}\right)+$$

$$\frac{1}{8}\hbar\,\overline{\lambda_{\psi\chi}}^{pu}\,\overline{\lambda_{\psi\chi}}^{rv}\,\lambda_{\psi\chi}{}^{sv}\,\lambda_{\psi\chi}{}^{tu}\,\mathrm{LF}_{2,1,1,-1}\left[M_\phi,M_\chi{}^u,M_\chi{}^v\right]\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bjr}\right)-$$

$$\frac{1}{8}\hbar\,\overline{\lambda_{\psi\chi}}^{pu}\,\overline{\lambda_{\psi\chi}}^{ru}\,\lambda_{\psi\chi}{}^{sv}\,\lambda_{\psi\chi}{}^{tv}\,\mathrm{LF}_{2,1,1,-1}\left[M_\phi,M_\chi{}^u,M_\chi{}^v\right]\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{q}^t_{bj}\cdot\gamma_\mu P_L\cdot q^{bjr}\right)+$$

$$\frac{4}{135}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\left(\overline{e}^s\cdot\gamma_\mu P_R\cdot e^s\right)\left(\overline{u}^t_a\cdot\gamma_\mu P_R\cdot u^{at}\right)+\frac{2}{135}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\left(\overline{l}^s_i\cdot\gamma_\mu P_L\cdot l^{is}\right)\left(\overline{u}^t_a\cdot\gamma_\mu P_R\cdot u^{at}\right)-$$

$$\frac{2}{15}\hbar\,g_s{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{bip}\right)\left(\overline{u}^t_b\cdot\gamma_\mu P_R\cdot u^{ar}\right)-$$

$$\frac{1}{4}\hbar\,g_s{}^2\,\overline{\lambda_{\psi\chi}}^{pu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\delta_{rt}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{bip}\right)\left(\overline{u}^t_b\cdot\gamma_\mu P_R\cdot u^{ar}\right)+$$

$$\frac{1}{12}\hbar\,g_s{}^2\,\overline{\lambda_{\psi\chi}}^{pu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\delta_{rt}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{bip}\right)\left(\overline{u}^t_b\cdot\gamma_\mu P_R\cdot u^{ar}\right)-$$

$$\frac{2}{15}\hbar\,g_s{}^4\frac{1}{M_\phi{}^2}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{bs}\right)\left(\overline{u}^t_b\cdot\gamma_\mu P_R\cdot u^{at}\right)+$$

$$\frac{2}{45}\hbar\,g_s{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{u}^t_b\cdot\gamma_\mu P_R\cdot u^{br}\right)-$$

$$\frac{2}{405}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{u}^t_b\cdot\gamma_\mu P_R\cdot u^{br}\right)+$$

$$\frac{1}{12}\hbar\,g_s{}^2\,\overline{\lambda_{\psi\chi}}^{pu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\delta_{rt}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{u}^t_b\cdot\gamma_\mu P_R\cdot u^{br}\right)-$$

$$\frac{1}{18}\hbar\,g_Y{}^2\,\overline{\lambda_{\psi\chi}}^{pu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{3,1,-1}\left[M_\phi,M_\chi{}^u\right]\delta_{rt}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{u}^t_b\cdot\gamma_\mu P_R\cdot u^{br}\right)-$$

$$\frac{1}{36}\hbar\,g_s{}^2\,\overline{\lambda_{\psi\chi}}^{pu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\delta_{rt}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{u}^t_b\cdot\gamma_\mu P_R\cdot u^{br}\right)+$$

$$\frac{1}{54}\hbar\,g_Y{}^2\,\overline{\lambda_{\psi\chi}}^{pu}\,\lambda_{\psi\chi}{}^{su}\,\mathrm{LF}_{4,1,-2}\left[M_\phi,M_\chi{}^u\right]\delta_{rt}\left(\overline{q}^s_{ai}\cdot\gamma_\mu P_L\cdot q^{aip}\right)\left(\overline{u}^t_b\cdot\gamma_\mu P_R\cdot u^{br}\right)-$$

$$\frac{1}{15}\hbar\,g_s{}^4\frac{1}{M_\phi{}^2}\delta_{pt}\,\delta_{rs}\left(\overline{u}^s_a\cdot\gamma_\mu P_R\cdot u^{ap}\right)\left(\overline{u}^t_b\cdot\gamma_\mu P_R\cdot u^{br}\right)+$$

$$\frac{1}{45}\hbar\,g_s{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{u}^s_a\cdot\gamma_\mu P_R\cdot u^{ap}\right)\left(\overline{u}^t_b\cdot\gamma_\mu P_R\cdot u^{br}\right)-$$

$$\frac{4}{405}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\delta_{ps}\,\delta_{rt}\left(\overline{u}^s_a\cdot\gamma_\mu P_R\cdot u^{ap}\right)\left(\overline{u}^t_b\cdot\gamma_\mu P_R\cdot u^{br}\right)+$$

$$\frac{2}{45}\hbar\,g_s{}^4\frac{1}{M_\phi{}^2}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{as}\right)\left(\overline{u}^t_b\cdot\gamma_\mu P_R\cdot u^{bt}\right)+\frac{4}{405}\hbar\,g_Y{}^4\frac{1}{M_\phi{}^2}\left(\overline{d}^s_a\cdot\gamma_\mu P_R\cdot d^{as}\right)\left(\overline{u}^t_b\cdot\gamma_\mu P_R\cdot u^{bt}\right)$$