

$$\begin{aligned} & \frac{1}{2} \hbar \cdot \text{B}^{\mu\nu 2} - \frac{1}{4} \frac{1}{g_Y^2} \text{B}^{\mu\nu 2} - \frac{1}{24} \frac{1}{\epsilon} \text{G}^{\mu\nu A 2} - \frac{1}{4} \frac{1}{g_5^2} \text{G}^{\mu\nu A 2} - \frac{1}{4} \frac{1}{g_L^2} \text{W}^{\mu\nu 12} - \frac{1}{36} \hbar \text{B}^{\mu\nu 2} \text{Log} \left[\frac{\overline{\mu}^2}{M_\phi^2} \right] - \\ & \frac{1}{24} \hbar \text{G}^{\mu\nu A 2} \text{Log} \left[\frac{\overline{\mu}^2}{M_\phi^2} \right] + \text{D}_\mu \overline{\text{H}}_i \text{D}_\mu \text{H}^i + \text{C}_{\text{H}^2} \overline{\text{H}}_i \text{H}^i + \text{i} \left(\overline{\text{Q}}_a^s \cdot \gamma_\mu \text{P}_R \cdot \text{D}_\mu \text{u}^{\text{a}r} \right) + \text{i} \left(\overline{\text{e}}^r \cdot \gamma_\mu \text{P}_R \cdot \text{D}_\mu \text{e}^r \right) + \\ & \text{i} \left(\overline{\text{L}}_i^r \cdot \gamma_\mu \text{P}_L \cdot \text{D}_\mu \text{l}^{\text{i}r} \right) + \text{i} \left(\overline{\text{Q}}_{\text{a}i}^r \cdot \gamma_\mu \text{P}_L \cdot \text{D}_\mu \text{q}^{\text{a}ir} \right) + \text{i} \left(\overline{\text{U}}_a^r \cdot \gamma_\mu \text{P}_R \cdot \text{D}_\mu \text{u}^{\text{a}r} \right) - \frac{1}{2} \hbar \overline{\text{H}}_i \overline{\text{H}}_j \text{H}^i \text{H}^j + \\ & \frac{3}{2} \frac{1}{\epsilon} \hbar \lambda_{\text{H}\chi}{}^2 \overline{\text{H}}_i \overline{\text{H}}_j \text{H}^i \text{H}^j + \frac{3}{2} \frac{1}{\epsilon} \hbar \lambda_{\text{H}\chi}{}^2 \overline{\text{H}}_i \overline{\text{H}}_j \text{H}^i \text{H}^j \text{Log} \left[\frac{\overline{\mu}^2}{M_\phi^2} \right] - \overline{\text{Y}}_d^{\text{p}r} \overline{\text{H}}_i \left(\overline{\text{d}}_a^r \cdot \text{P}_L \cdot \text{q}^{\text{a}ip} \right) - \\ & \frac{1}{8} \frac{1}{\hbar} \overline{\text{Y}}_d^{\text{p}s} \overline{\lambda}_{\psi\chi} \overline{\text{st}} \lambda_{\psi\chi}^{\text{rt}} \overline{\text{H}}_i \left(\overline{\text{d}}_a^r \cdot \text{P}_L \cdot \text{q}^{\text{a}ip} \right) + \frac{1}{4} \frac{1}{\hbar} \frac{1}{\overline{\text{Y}}_d^{\text{p}s} \overline{\lambda}_{\psi\chi}^{\text{st}} \lambda_{\psi\chi}^{\text{rt}}} \overline{\text{H}}_i \left(\overline{\text{d}}_a^r \cdot \text{P}_L \cdot \text{q}^{\text{a}ip} \right) + \\ & \frac{1}{2} \frac{1}{\hbar} \overline{\text{Y}}_d^{\text{p}s} \overline{\lambda}_{\psi\chi} \overline{\text{st}} \lambda_{\psi\chi}^{\text{rt}} \text{LF}_{1,1,0} \left[\text{M}_\phi, \text{M}_\chi^t \right] \overline{\text{H}}_i \left(\overline{\text{d}}_a^r \cdot \text{P}_L \cdot \text{q}^{\text{a}ip} \right) - \\ & \frac{1}{4} \frac{1}{\hbar} \overline{\text{Y}}_d^{\text{p}s} \overline{\lambda}_{\psi\chi} \overline{\text{st}} \lambda_{\psi\chi}^{\text{rt}} \text{LF}_{2,1,-1} \left[\text{M}_\chi^t, \text{M}_\phi \right] \overline{\text{H}}_i \left(\overline{\text{d}}_a^r \cdot \text{P}_L \cdot \text{q}^{\text{a}ip} \right) - \overline{\text{V}}_e^{\text{p}r} \overline{\text{H}}_i \left(\overline{\text{e}}^r \cdot \text{P}_L \cdot \text{l}^{\text{i}p} \right) - \\ & \text{Y}_e^{\text{r}p} \text{H}^i \left(\overline{\text{l}}_i^r \cdot \text{P}_R \cdot \text{e}^p \right) - \text{Y}_d^{\text{r}p} \text{H}^i \left(\overline{\text{q}}_{\text{a}i}^r \cdot \text{P}_R \cdot \text{d}^{\text{a}p} \right) - \frac{1}{8} \hbar \text{Y}_d^{\text{r}t} \overline{\lambda}_{\psi\chi}^{\text{ps}} \lambda_{\psi\chi}^{\text{ts}} \text{H}^i \left(\overline{\text{q}}_{\text{a}i}^r \cdot \text{P}_R \cdot \text{d}^{\text{a}p} \right) + \\ & \frac{1}{4} \frac{1}{\hbar} \frac{1}{\overline{\text{Y}}_d^{\text{r}t} \overline{\lambda}_{\psi\chi}^{\text{ps}} \lambda_{\psi\chi}^{\text{ts}}} \text{H}^i \left(\overline{\text{q}}_{\text{a}i}^r \cdot \text{P}_R \cdot \text{d}^{\text{a}p} \right) + \frac{1}{2} \hbar \text{Y}_d^{\text{r}t} \overline{\lambda}_{\psi\chi}^{\text{ps}} \lambda_{\psi\chi}^{\text{ts}} \text{LF}_{1,1,0} \left[\text{M}_\phi, \text{M}_\chi^s \right] \text{H}^i \left(\overline{\text{q}}_{\text{a}i}^r \cdot \text{P}_R \cdot \text{d}^{\text{a}p} \right) - \\ & \frac{1}{4} \hbar \text{Y}_d^{\text{r}t} \overline{\lambda}_{\psi\chi}^{\text{ps}} \lambda_{\psi\chi}^{\text{ts}} \text{LF}_{2,1,-1} \left[\text{M}_\chi^s, \text{M}_\phi \right] \text{H}^i \left(\overline{\text{q}}_{\text{a}i}^r \cdot \text{P}_R \cdot \text{d}^{\text{a}p} \right) - \text{Y}_\mu^{\text{r}p} \overline{\text{H}}_i \left(\overline{\text{q}}_{\text{a}j}^r \cdot \text{P}_R \cdot \text{u}^{\text{a}p} \right) \epsilon^{\text{j}i} - \\ & \overline{\text{V}}_\mu^{\text{r}p} \text{H}^j \left(\overline{\text{U}}_a^r \cdot \text{P}_L \cdot \text{q}^{\text{a}ip} \right) \overline{\epsilon}_{\text{a}ij} - \frac{1}{360} \hbar \frac{1}{M_\phi^2} \text{G}^{\mu\text{C}} \text{G}^{\mu\text{D}} \text{G}^{\nu\text{A}} \epsilon^{\text{ABC}} - \frac{1}{360} \hbar \text{C}_{\text{H}^2} \text{g}^{\nu 4} \frac{1}{M_\phi^2} \overline{\text{H}}_i \overline{\text{H}}_j \text{H}^i \text{H}^j - \\ & \frac{1}{2} \hbar \text{C}_{\text{H}^2} \frac{1}{M_\phi^2} \lambda_{\text{H}\chi}{}^2 \overline{\text{H}}_i \overline{\text{H}}_j \text{H}^i \text{H}^j + \frac{1}{360} \hbar \lambda \text{g}^{\nu 4} \frac{1}{M_\phi^2} \overline{\text{H}}_i \overline{\text{H}}_j \overline{\text{H}}_k \text{H}^i \text{H}^j \text{H}^k + \frac{1}{2} \hbar \lambda \frac{1}{M_\phi^2} \lambda_{\text{H}\chi}{}^2 \overline{\text{H}}_i \overline{\text{H}}_j \overline{\text{H}}_k \text{H}^i \text{H}^j \text{H}^k + \\ & \frac{1}{2} \hbar \frac{1}{M_\phi^2} \lambda_{\text{H}\chi}{}^3 \overline{\text{H}}_i \overline{\text{H}}_j \overline{\text{H}}_k \text{H}^i \text{H}^j \text{H}^k - \frac{1}{180} \hbar \text{g}^{\nu 4} \frac{1}{M_\phi^2} \text{D}_\mu \overline{\text{H}}_i \overline{\text{H}}_j \text{H}^i \text{D}_\mu \text{H}^j - \frac{1}{360} \hbar \text{g}^{\nu 4} \frac{1}{M_\phi^2} \overline{\text{H}}_i \text{D}_\mu \overline{\text{H}}_j \text{H}^i \text{D}_\mu \text{H}^j - \\ & \frac{1}{2} \hbar \frac{1}{M_\phi^2} \lambda_{\text{H}\chi}{}^2 \overline{\text{H}}_i \text{D}_\mu \overline{\text{H}}_j \text{H}^i \text{D}_\mu \text{H}^j - \frac{1}{36} \hbar \lambda_{\text{H}\chi} \frac{1}{M_\phi^2} \overline{\text{H}}_i \text{H}^i \text{B}^{\mu\nu 2} - \frac{1}{24} \hbar \lambda_{\text{H}\chi} \frac{1}{M_\phi^2} \overline{\text{H}}_i \text{H}^i \text{G}^{\mu\nu A 2} + \\ & \frac{1}{720} \hbar \text{g}^{\nu 4} \frac{1}{M_\phi^2} \overline{\text{Y}}_d^{\text{p}r} \overline{\text{H}}_i \overline{\text{H}}_j \text{H}^i \left(\overline{\text{d}}_a^r \cdot \text{P}_L \cdot \text{q}^{\text{a}ip} \right) + \frac{1}{4} \hbar \frac{1}{M_\phi^2} \lambda_{\text{H}\chi}{}^2 \overline{\text{Y}}_d^{\text{p}r} \overline{\text{H}}_i \overline{\text{H}}_j \text{H}^i \left(\overline{\text{d}}_a^r \cdot \text{P}_L \cdot \text{q}^{\text{a}ip} \right) - \\ & \frac{1}{2} \hbar \lambda_{\text{H}\chi} \overline{\text{Y}}_d^{\text{ps}} \overline{\lambda}_{\psi\chi}^{\text{st}} \lambda_{\psi\chi}^{\text{rt}} \text{LF}_{2,1,0} \left[\text{M}_\phi, \text{M}_\chi^t \right] \overline{\text{H}}_i \overline{\text{H}}_j \text{H}^i \left(\overline{\text{d}}_a^r \cdot \text{P}_L \cdot \text{q}^{\text{a}ip} \right) + \\ & \frac{1}{4} \hbar \lambda_{\text{H}\chi} \overline{\text{Y}}_d^{\text{ps}} \overline{\lambda}_{\psi\chi}^{\text{st}} \lambda_{\psi\chi}^{\text{rt}} \text{LF}_{2,2,-1} \left[\text{M}_\phi, \text{M}_\chi^t \right] \overline{\text{H}}_i \overline{\text{H}}_j \text{H}^i \left(\overline{\text{d}}_a^r \cdot \text{P}_L \cdot \text{q}^{\text{a}ip} \right) - \\ & \frac{1}{2} \hbar \overline{\text{Y}}_d^{\text{ps}} \overline{\text{Y}}_d^{\text{tr}} \text{Y}_d^{\text{tv}} \overline{\lambda}_{\psi\chi}^{\text{su}} \lambda_{\psi\chi}^{\text{vu}} \text{LF}_{2,1,0} \left[\text{M}_\chi^u, \text{M}_\phi \right] \overline{\text{H}}_i \overline{\text{H}}_j \text{H}^i \left(\overline{\text{d}}_a^r \cdot \text{P}_L \cdot \text{q}^{\text{a}ip} \right) + \\ & \hbar \overline{\text{Y}}_d^{\text{ps}} \overline{\text{Y}}_d^{\text{tr}} \text{Y}_d^{\text{tv}} \overline{\lambda}_{\psi\chi}^{\text{su}} \lambda_{\psi\$$