$-\frac{1}{2}\partial_{\nu}g^a_{\mu}\partial_{\nu}g^a_{\mu} - g_sf^{abc}\partial_{\mu}g^a_{\nu}g^b_{\mu}g^c_{\nu} - \frac{1}{4}g^2_sf^{abc}f^{ade}g^b_{\mu}g^c_{\nu}g^d_{\mu}g^e_{\nu} +$ $\frac{1}{2}ig_s^2(\bar{q}_i^\sigma\gamma^\mu\dot{q}_i^\sigma)g_\mu^{\dot{a}}+\bar{G}^a\partial^2G^a+g_s^{\dot{a}}f^{abc}\partial_\mu\bar{G}^aG^bg_\mu^c-\dot{\partial_\nu}W_\mu^{\dot{+}}\partial_\nu W_\mu^- M^{2}W_{\mu}^{+}W_{\mu}^{-} - \frac{1}{2}\partial_{\nu}Z_{\mu}^{0}\partial_{\nu}Z_{\mu}^{0} - \frac{1}{2c_{\nu}^{2}}M^{2}Z_{\mu}^{0}Z_{\mu}^{0} - \frac{1}{2}\partial_{\mu}A_{\nu}\partial_{\mu}A_{\nu} - \frac{1}{2}\partial_{\mu}H\partial_{\mu}H - \frac{1}{2}\partial_{\mu}H\partial_{$ $\frac{1}{2}m_{h}^{2}H^{2} - \partial_{\mu}\phi^{+}\partial_{\mu}\phi^{-} - M^{2}\phi^{+}\dot{\phi}^{-} - \frac{1}{2}\partial_{\mu}\phi^{0}\partial_{\mu}\phi^{0} - \frac{1}{2c_{c}^{2}}M\phi^{0}\phi^{0} - \beta_{h}\left[\frac{2M^{2}}{a^{2}} + \frac{1}{2c_{c}^{2}}M\phi^{0}\phi^{0}\right] + \frac{1}{2c_{c}^{2}}M\phi^{0}\phi^{0} - \frac{1}{2c_{c}^{2}}M\phi^{0}\phi^{0} + \frac{1}{2c_{c}^{2}}M\phi^{0}\phi^{0} - \frac{1}{2c_{c}^{2}}M\phi^{0}\phi^{0} + \frac{1}{2c_{c}^{2}}M\phi^{0}\phi^{0} - \frac{1}{2c_{c}^{2}}M\phi^{0}\phi^{0} - \frac{1}{2c_{c}^{2}}M\phi^{0}\phi^{0} - \frac{1}{2c_{c}^{2}}M\phi^{0}\phi^{0} + \frac{1}{2c_{c}^{2}}M\phi^{0}\phi^{0}$ $\frac{2M}{g}H + \frac{1}{2}(H^2 + \phi^0\phi^0 + 2\phi^+\phi^-)] + \frac{2M^4}{g^2}\alpha_h - igc_w[\partial_\nu Z^0_\mu(W^+_\mu W^-_\nu - W^+_\nu W^-_\mu) - Z^0_\nu(W^+_\mu \partial_\nu W^-_\mu - W^-_\mu \partial_\nu W^+_\mu) + Z^0_\mu(W^+_\nu \partial_\nu W^-_\mu - W^-_\nu \partial_\nu W^+_\mu)] - igs_w[\partial_\nu A_\mu(W^+_\mu W^-_\nu - W^+_\nu W^-_\mu) - A_\nu(W^+_\mu \partial_\nu W^-_\mu - W^-_\nu \partial_\nu W^+_\mu)] - igs_w[\partial_\nu A_\mu(W^+_\mu W^-_\nu - W^+_\nu W^-_\mu) - A_\nu(W^+_\mu \partial_\nu W^-_\mu - W^-_\nu \partial_\nu W^+_\mu)] - igs_w[\partial_\nu A_\mu(W^+_\mu W^-_\nu - W^+_\nu W^-_\mu) - A_\nu(W^+_\mu \partial_\nu W^-_\mu - W^-_\nu \partial_\nu W^-_\mu)] - igs_w[\partial_\nu A_\mu(W^+_\mu W^-_\nu - W^+_\nu W^-_\mu) - A_\nu(W^+_\mu \partial_\nu W^-_\mu - W^-_\nu \partial_\nu W^-_\mu)] - igs_w[\partial_\nu A_\mu(W^+_\mu W^-_\nu - W^-_\nu \partial_\nu W^-_\mu)] - igs_w[\partial_\nu A_\mu(W^-_\mu W^-_\nu - W^-_\nu \partial_\nu W^-_\mu)] - igs_w[\partial_\nu A_\mu W^-_\mu - W^-_\nu \partial_\nu W^-_\mu] - igs_w[\partial_\nu A_\mu W^-_\mu - W^-_\nu \partial_\nu W^-_\mu] - igs_w[\partial_\nu A_\mu W^-_\nu - W^-_\nu \partial_\nu W^-_\mu] - igs_w[\partial_\nu A_\mu W^-_\nu - W^-_\nu \partial_\nu W^-_\mu] - igs_w[\partial_\nu A_\mu W^-_\nu - W^-_\nu \partial_\nu W^-_\mu] - igs_w[\partial_\nu A_\mu W^-_\mu - W^-_\nu \partial_\nu W^-_\mu] - igs_w[\partial_\nu A_\mu W^-_\mu \partial_\nu W^-_\mu] - igs_w[\partial_\nu A_\mu W^-_\mu - W^-_\mu \partial_\nu W^-_\mu] - igs_w[\partial_\nu A_\mu W^-_\mu] - igs_w[\partial_\nu A_\mu W^-_\mu - W^-_\mu] - igs_w[\partial_\nu A_\mu W^ W_{\mu}^{-}\partial_{\nu}W_{\mu}^{+}) + A_{\mu}(W_{\nu}^{+}\partial_{\nu}W_{\mu}^{-} - W_{\nu}^{-}\partial_{\nu}W_{\mu}^{+})] - \frac{1}{2}g^{2}W_{\mu}^{+}W_{\mu}^{-}W_{\nu}^{+}W_{\nu}^{-} +$ $\frac{1}{2}g^2W_{\mu}^{+}W_{\nu}^{-}W_{\mu}^{+}W_{\nu}^{-} + g^2c_w^2(Z_{\mu}^{0}W_{\mu}^{+}Z_{\nu}^{0}W_{\nu}^{-} - Z_{\mu}^{0}Z_{\mu}^{0}W_{\nu}^{+}W_{\nu}^{-}) +$ $g^2 s_w^2 (A_\mu^{\dagger} W_\mu^+ A_\nu W_\nu^- - A_\mu A_\mu W_\nu^+ W_\nu^-) + g^2 s_w c_w [A_\mu Z_\nu^0 (W_\mu^+ W_\nu^- - A_\mu A_\mu W_\nu^+ W_\nu^-)] + g^2 s_w c_w [A_\mu Z_\nu^0 (W_\mu^+ W_\nu^- - A_\mu A_\mu W_\nu^+ W_\nu^-)] + g^2 s_w c_w [A_\mu Z_\nu^0 (W_\mu^+ W_\nu^- - A_\mu A_\mu W_\nu^+ W_\nu^-)] + g^2 s_w c_w [A_\mu Z_\nu^0 (W_\mu^+ W_\nu^- - A_\mu A_\mu W_\nu^+ W_\nu^-)] + g^2 s_w c_w [A_\mu Z_\nu^0 (W_\mu^+ W_\nu^- - A_\mu A_\mu W_\nu^+ W_\nu^-)] + g^2 s_w c_w [A_\mu Z_\nu^0 (W_\mu^+ W_\nu^- - A_\mu A_\mu W_\nu^+ W_\nu^-)] + g^2 s_w c_w [A_\mu Z_\nu^0 (W_\mu^+ W_\nu^- - A_\mu A_\mu W_\nu^+ W_\nu^-)] + g^2 s_w c_w [A_\mu Z_\nu^0 (W_\mu^+ W_\nu^- - A_\mu A_\mu W_\nu^- + A_\mu W_\nu^- + A_\mu W_\mu^- W_\nu^-]] + g^2 s_w c_w [A_\mu Z_\nu^0 (W_\mu^+ W_\nu^- - A_\mu A_\mu W_\nu^- + A_\mu W_\nu^- + A_\mu W_\mu^- + A_\mu W_\mu^-]] + g^2 s_w c_w [A_\mu Z_\nu^0 (W_\mu^+ W_\nu^- - A_\mu A_\mu W_\mu^- + A_\mu W_\mu^- + A_\mu W_\mu^-]] + g^2 s_w c_w [A_\mu Z_\nu^0 (W_\mu^+ W_\nu^- - A_\mu A_\mu W_\mu^- + A_\mu W_\mu^- + A_\mu W_\mu^- + A_\mu W_\mu^-]] + g^2 s_w c_w (A_\mu^+ W_\mu^- + A_\mu W_\mu^ W_{\nu}^{W \setminus W_{\mu}^{-}}) - 2A_{\mu}Z_{\mu}^{0}W_{\nu}^{+}W_{\nu}^{-}] - g\alpha[H^{3} + H\phi^{0}\phi^{0} + 2H\phi^{+}\phi^{-}] \frac{1}{8}g^2\alpha_h[H^4+(\phi^0)^4+4(\phi^+\phi^-)^2+4(\phi^0)^2\phi^+\phi^-+4H^2\phi^+\phi^-+2(\phi^0)^2H^2]$ $gMW_{\mu}^{+}W_{\mu}^{-}H - \frac{1}{2}g\frac{M}{c^{2}}Z_{\mu}^{0}Z_{\mu}^{0}H - \frac{1}{2}ig[W_{\mu}^{+}(\phi^{0}\partial_{\mu}\phi^{-} - \phi^{-}\partial_{\mu}\phi^{0}) W_{\mu}^{-}(\phi^{0}\partial_{\mu}\phi^{+} - \phi^{+}\partial_{\mu}\phi^{0})] + \frac{1}{2}g[W_{\mu}^{+}(H\partial_{\mu}\phi^{-} - \phi^{-}\partial_{\mu}H) - W_{\mu}^{-}(H\partial_{\mu}\phi^{+} - \phi^{-}\partial_{\mu}H)] + \frac{1}{2}g[W_{\mu}^{+}(H\partial_{\mu}\phi^{-} - \phi^{-}\partial_{\mu}H)] + \frac{1}{2}g[W_{\mu}^{+}$ $\phi^{+}\partial_{\mu}H)] + \frac{1}{2}g\frac{1}{c_{**}}(Z_{\mu}^{0}(H\partial_{\mu}\phi^{0} - \phi^{0}\partial_{\mu}H) - ig\frac{s_{n}^{2}}{c_{**}}MZ_{\mu}^{0}(W_{\mu}^{+}\phi^{-} - W_{\mu}^{-}\phi^{+}) +$ $igs_{w}MA_{\mu}(W_{\mu}^{+}\phi^{-} - W_{\mu}^{-}\phi^{+}) - ig\frac{1-2c_{w}^{2}}{2c_{w}}Z_{\mu}^{0}(\phi^{+}\partial_{\mu}\phi^{-} - \phi^{-}\partial_{\mu}\phi^{+}) + igs_{w}A_{\mu}(\phi^{+}\partial_{\mu}\phi^{-} - \phi^{-}\partial_{\mu}\phi^{+}) - \frac{1}{4}g^{2}W_{\mu}^{+}W_{\mu}^{-}[H^{2} + (\phi^{0})^{2} + 2\phi^{+}\phi^{-}] - igs_{w}A_{\mu}(\phi^{+}\partial_{\mu}\phi^{-} - \phi^{-}\partial_{\mu}\phi^{+}) - \frac{1}{4}g^{2}W_{\mu}^{+}W_{\mu}^{-}[H^{2} + (\phi^{0})^{2} + 2\phi^{+}\phi^{-}] - igs_{w}A_{\mu}(\phi^{+}\partial_{\mu}\phi^{-} - \phi^{-}\partial_{\mu}\phi^{+}) - \frac{1}{4}g^{2}W_{\mu}^{+}W_{\mu}^{-}[H^{2} + (\phi^{0})^{2} + 2\phi^{+}\phi^{-}] - igs_{w}A_{\mu}(\phi^{+}\partial_{\mu}\phi^{-} - \phi^{-}\partial_{\mu}\phi^{+}) - \frac{1}{4}g^{2}W_{\mu}^{+}W_{\mu}^{-}[H^{2} + (\phi^{0})^{2} + 2\phi^{+}\phi^{-}] - igs_{w}A_{\mu}(\phi^{+}\partial_{\mu}\phi^{-} - \phi^{-}\partial_{\mu}\phi^{+}) - \frac{1}{4}g^{2}W_{\mu}^{+}W_{\mu}^{-}[H^{2} + (\phi^{0})^{2} + 2\phi^{+}\phi^{-}] - igs_{w}A_{\mu}(\phi^{+}\partial_{\mu}\phi^{-} - \phi^{-}\partial_{\mu}\phi^{+}) - \frac{1}{4}g^{2}W_{\mu}^{+}W_{\mu}^{-}[H^{2} + (\phi^{0})^{2} + 2\phi^{+}\phi^{-}] - igs_{w}A_{\mu}(\phi^{+}\partial_{\mu}\phi^{-} - \phi^{-}\partial_{\mu}\phi^{+}) - igs_{w}A_{\mu}(\phi^$ $\frac{1}{4}g^2\frac{1}{c^2}Z_{\mu}^0Z_{\mu}^0[H^2+(\phi^0)^2+2(2s_w^2-1)^2\phi^+\phi^-]-\frac{1}{2}g^2\frac{s_w^2}{c}Z_{\mu}^0\phi^0(W_{\mu}^+\phi^-+\phi^-)$ $W_{\mu}^{-}\phi^{+}) - \frac{1}{2}ig^{2}\frac{s_{w}^{2}}{c_{w}}Z_{\mu}^{0}H(W_{\mu}^{+}\phi^{-} - W_{\mu}^{-}\phi^{+}) + \frac{1}{2}g^{2}s_{w}A_{\mu}\phi^{0}(W_{\mu}^{+}\phi^{-} + W_{\mu}^{-}\phi^{-}) + \frac{1}{2}g^{2}s_{w}A_{\mu}\phi^{0}(W_{\mu}^{+}\phi^{-}) + \frac{1}{2}g^{2}s_{w}A_{\mu}\phi^{0}(W_{\mu$ $W_{\mu}^{-}\phi^{+}) + \frac{1}{2}ig^{2}s_{w}A_{\mu}H(W_{\mu}^{+}\phi^{-} - W_{\mu}^{-}\phi^{+}) - g^{2}\frac{s_{w}}{c_{w}}(2c_{w}^{2} - 1)Z_{\mu}^{0}A_{\mu}\phi^{+}\phi^{-} - g^{1}s_{w}^{2}A_{\mu}A_{\mu}\phi^{+}\phi^{-} - \bar{e}^{\lambda}(\gamma\partial + m_{e}^{\lambda})e^{\lambda} - \bar{\nu}^{\lambda}\gamma\partial\nu^{\lambda} - \bar{u}_{j}^{\lambda}(\gamma\partial + m_{u}^{\lambda})u_{j}^{\lambda} - \bar{d}_{j}^{\lambda}(\gamma\partial + m_{u}^{\lambda})u_{j}^{\lambda} - \bar{d}_{j}^{\lambda}(\gamma\partial$ $m_d^{\lambda})d_j^{\lambda} + igs_w A_{\mu}[-(\bar{e}^{\lambda}\gamma e^{\lambda}) + \frac{2}{3}(\bar{u}_j^{\lambda}\gamma u_j^{\lambda}) - \frac{1}{3}(\bar{d}_j^{\lambda}\gamma d_j^{\lambda})] + \frac{ig}{4c_w}Z_{\mu}^0[(\bar{\nu}^{\lambda}\gamma^{\mu}(1+\bar{\nu}^{\lambda}\gamma^{\mu}))]$ $(\overline{\gamma^5})
u^{\lambda}) + (\overline{e}^{\lambda}\gamma^{\mu}(4s_w^2 - 1 - \gamma^5)e^{\lambda}) + (\overline{u}_j^{\lambda}\gamma^{\mu}(\frac{4}{3}s_w^2 - \overline{1} - \gamma^5)u_j^{\lambda}) + (\overline{u}_j^{\lambda}\gamma^{\mu}(\frac{4}{3}s_w^2 - \overline{1} - \gamma^5)u_j^{\lambda}) + (\overline{u}_j^{\lambda}\gamma^{\mu}(\frac{4}{3}s_w^2 - \overline{1} - \gamma^5)u_j^{\lambda}) + (\overline{u}_j^{\lambda}\gamma^{\mu}(\frac{4}{3}s_w^2 - \overline{1} - \gamma^5)u_j^{\lambda})$ $(\bar{d}_{j}^{\lambda}\gamma^{\mu}(1-\frac{8}{3}s_{w}^{2}-\gamma^{5})d_{j}^{\lambda})]+\frac{ig}{2\sqrt{2}}W_{\mu}^{+}[(\bar{\nu}^{\lambda}\gamma^{\mu}(1+\gamma^{5})e^{\lambda})+(\bar{u}_{j}^{\lambda}\gamma^{\mu}(1+\gamma^{5})e^{\lambda})]$ $\gamma^5)C_{\lambda\kappa}d_j^{\kappa})] + \frac{ig}{2\sqrt{2}}W_{\mu}^{-}[(\bar{e}^{\lambda}\gamma^{\mu}(1+\gamma^5)\nu^{\lambda}) + (\bar{d}_j^{\kappa}C_{\lambda\kappa}^{\dagger}\gamma^{\mu}(1+\gamma^5)u_j^{\lambda})] +$ $\frac{ig}{2\sqrt{2}} \frac{m_e^{\lambda}}{M} [-\phi^+(\bar{\nu}^{\lambda}(1-\gamma^5)e^{\lambda}) + \phi^-(\bar{e}^{\lambda}(1+\gamma^5)\nu^{\lambda})] - \frac{g}{2} \frac{m_e^{\lambda}}{M} [H(\bar{e}^{\lambda}e^{\lambda}) +$ $i\phi^0(\bar{e}^{\lambda}\gamma^5e^{\lambda})] + \frac{ig}{2M\sqrt{2}}\phi^+[-m_d^{\kappa}(\bar{u}_j^{\lambda}C_{\lambda\kappa}(1-\gamma^5)d_j^{\kappa}) + m_u^{\lambda}(\bar{u}_j^{\lambda}C_{\lambda\kappa}(1+\gamma^5)d_j^{\kappa})]$ $\gamma^5)d_j^\kappa] + \frac{ig}{2M\sqrt{2}}\phi^-[\dot{m}_d^\lambda(\bar{d}_j^\lambda C_{\lambda\kappa}^\dagger(1+\gamma^5)u_j^\kappa) - m_u^\kappa(\bar{d}_j^\lambda C_{\lambda\kappa}^\dagger(1-\gamma^5)u_j^\kappa] - m_u^\kappa(\bar{d}_j^\lambda C_{\lambda\kappa}^\dagger(1-\gamma^5)u_j^\kappa)] - m_u^\kappa(\bar{d}_j^\lambda C_{\lambda\kappa}^\dagger(1-\gamma^5)u_j^\kappa) - m_u^\kappa(\bar{d}_j^\lambda C_{\lambda\kappa}^\dagger(1-\gamma^5)u_j^\kappa)] - m_u^\kappa(\bar{d}_j^\lambda C_{\lambda\kappa}^\dagger(1-\gamma^5)u_j^\kappa) - m_u^\kappa(\bar{d}_j^\lambda C_{\lambda\kappa}^\dagger(1-\gamma^5)u_j^\kappa) - m_u^\kappa(\bar{d}_j^\lambda C_{\lambda\kappa}^\dagger(1-\gamma^5)u_j^\kappa)] - m_u^\kappa(\bar{d}_j^\lambda C_{\lambda\kappa}^\dagger(1-\gamma^5)u_j^\kappa) - m_u^\kappa(\bar{d}_j^\lambda C_{\lambda$ $\begin{array}{l} \frac{q}{2}\frac{m_w^\lambda}{M}H(\bar{u}_j^\lambda u_j^\lambda) - \frac{q}{2}\frac{m_d^\lambda}{M}H(\bar{d}_j^\lambda d_j^\lambda) + \frac{iq}{2}\frac{m_w^\lambda}{M}\phi^0(\bar{u}_j^\lambda \gamma^5 u_j^\lambda) - \frac{iq}{2}\frac{m_d^\lambda}{M}\phi^0(\bar{d}_j^\lambda \gamma^5 d_j^\lambda) + \\ \bar{X}^+(\partial^2 - M^2)X^+ + \bar{X}^-(\partial^2 - M^2)X^- + \bar{X}^0(\partial^2 - \frac{M^2}{c_w^2})X^0 + \bar{Y}\partial^2 Y + \\ \end{array}$ $igc_wW^+_{\mu}(\partial_{\mu}\bar{X}^0X^- - \partial_{\mu}\bar{X}^+X^0) + igs_wW^+_{\mu}(\partial_{\mu}\bar{Y}X^{-} - \partial_{\mu}\bar{X}^+Y) +$ $igc_w W_{\mu}^{-}(\partial_{\mu}\bar{X}^{-}X^{0} - \partial_{\mu}\bar{X}^{0}X^{+}) + igs_w W_{\mu}^{-}(\partial_{\mu}\bar{X}^{-}Y - \partial_{\mu}\bar{Y}X^{+}) +$ $igc_w Z_{\mu}^0(\partial_{\mu}\dot{X}^+X^+ - \partial_{\mu}\dot{X}^-X^-) + igs_w A_{\mu}(\partial_{\mu}\dot{X}^+X^+ - \partial_{\mu}\dot{X}^-X^-) - igs_w A_{\mu}(\partial_{\mu}\dot{X}^+X^- - \partial_{\mu}\dot{X}^-X^-) - igs_w A_{\mu}(\partial_{\mu}\dot{X}^-X^-) - igs_w A_{\mu}(\partial_{\mu}\dot{X}^-X^ \frac{1}{2}gM[\bar{X}^{+}X^{+}H + \bar{X}^{-}X^{-}H + \frac{1}{c_{w}^{2}}\bar{X}^{0}X^{0}H] + \frac{1-2c_{w}^{2}}{2c_{w}}igM[\bar{X}^{+}X^{0}\phi^{+} - \frac{1}{c_{w}^{2}}\bar{X}^{0}X^{0}] + \frac{1-2c_{w}^{2}}{2c_{w}}igM[\bar{X}^{+}X^{0}\phi^{+} - \frac{1}{c_{w}^{2}}\bar{X}^{0}X^{0}] + \frac{1-2c_{w}^{2}}{2c_{w}}igM[\bar{X}^{+}X^{0}\phi^{+} - \frac{1}{c_{w}^{2}}\bar{X}^{0}X^{0}] + \frac{1-2c_{w}^{2}}{2c_{w}}igM[\bar{X}^{+}X^{0}\phi^{+} - \frac{1}{c_{w}^{2}}\bar{X}^{0}X^{0}] + \frac{1-2c_{w}^{2}}{2c_{w}}igM[\bar{X}^{-}X^{0}\phi^{+} - \frac{1}{c_{w}^{2}}\bar{X}^{0}X^{0}] + \frac{1-2c_{w}^{2}}{2c_{w}}igM[\bar{X}^{-}X^{0}\phi^{+} - \frac{1}{c_{w}^{2}}\bar{X}^{0}X^{0}] + \frac{1-2c_{w}^{2}}{2c_{w}}igM[\bar{X}^{0}X^{0}] + \frac{1-2c_{w}^{2}}{2c_{w}^{2}}\bar{X}^{0}] + \frac{1-2c_{w}^{2}}{2c_{w}^{2}}\bar{X}^{0} + \frac{1-2c_{w}^{2}}{2c_{w}^{2}}\bar{X}^{0} + \frac{1-2c_{w}^{2}}{2c_{w}^{2}}\bar{X}^$ $[\bar{X}^-X^0\phi^-] + \frac{1}{2c_w}igM[\bar{X}^0X^-\phi^+ - \bar{X}^0X^+\phi^-] + igMs_w[\bar{X}^0X^-\phi^+ - \bar{X}^0X^+\phi^-] + igMs_w[\bar{X}^0X^-\phi^+ - \bar{X}^0X^-\phi^+] + igMs_w[\bar{X}^0X^-\phi^+] + igMs_w[\bar{X}^0X^-\phi^-] + igMs_w[\bar{X}^0X^-\phi^-]$ $[\bar{X}^{0}X^{+}\phi^{-}] + \frac{1}{2}igM[\bar{X}^{+}X^{+}\phi^{0} - \bar{X}^{-}X^{-}\phi^{0}]$