MSSMQCD

$$\underset{9}{C}\left(\tilde{g},\overline{u}_{\text{g2}},\tilde{u}_{\text{g3}}^{\text{s3}}\right) = \sqrt{2}ig_s\delta_{\text{g2,g3}}T^{\text{g1}}_{\text{c2,c3}}\left[\begin{array}{c}e^*_{\text{Gl}}U^{\tilde{u}_{\text{g2}}*}_{\text{s3,2}} \\ \hline -e_{\text{Gl}}U^{\tilde{u}_{\text{g2}}*}_{\text{s3,1}}\end{array}\right]$$

$$\underset{10}{C}\left(\tilde{g},\overline{d}_{\text{g2}},\tilde{d}_{\text{g3}}^{\text{s3}}\right) = \sqrt{2}ig_s\delta_{\text{g2,g3}}T^{\text{g1}}_{\text{c2,c3}}\left[\begin{array}{c}e^*_{\text{Gl}}U^{\tilde{d}_{\text{g2}}*}_{\text{s3,2}} \\ \hline -e_{\text{Gl}}U^{\tilde{d}_{\text{g2}}*}_{\text{s3,1}}\end{array}\right]$$

$$\underset{11}{C}\left(\tilde{g},u_{\text{g2}},\tilde{u}_{\text{g3}}^{\text{s3,}\dagger}\right) = \sqrt{2}ig_s\delta_{\text{g2,g3}}T^{\text{g1}}_{\text{c3,c2}}\left[\begin{array}{c}-e^*_{\text{Gl}}U^{\tilde{u}_{\text{g2}}}_{\text{s3,1}} \\ \hline e_{\text{Gl}}U^{\tilde{u}_{\text{g2}}}_{\text{s3,2}}\end{array}\right]$$

$$\underset{12}{C}\left(\tilde{g},d_{\text{g2}},\tilde{d}_{\text{g3}}^{\text{s3,}\dagger}\right) = \sqrt{2}ig_s\delta_{\text{g2,g3}}T^{\text{g1}}_{\text{c3,c2}}\left[\begin{array}{c}-e^*_{\text{Gl}}U^{\tilde{d}_{\text{g2}}}_{\text{s3,1}} \\ \hline e_{\text{Gl}}U^{\tilde{d}_{\text{g2}}}_{\text{s3,2}}\end{array}\right]$$

$$\underset{6}{C}\left(\tilde{g},\tilde{g},g\right) = -g_s f^{\text{g1,g2,g3}}\left[\begin{array}{c}1 \\ \hline 1\end{array}\right]$$

$$\underset{4}{C}\left(\overline{u}_{\text{g1}},u_{\text{g2}},g\right) = -ig_s\delta_{\text{g1,g2}}T^{\text{g3}}_{\text{c1,c2}}\left[\begin{array}{c}1 \\ \hline 1\end{array}\right]$$

$$\underset{5}{C}\left(\overline{d}_{\text{g1}},d_{\text{g2}},g\right) = -ig_s\delta_{\text{g1,g2}}T^{\text{g3}}_{\text{c1,c2}}\left[\begin{array}{c}1 \\ \hline 1\end{array}\right]$$

[SSV] **2 Squarks – Gluon**

$$\underset{7}{C}\left(\tilde{u}_{g1}^{s1}, \tilde{u}_{g2}^{s2,\dagger}, g\right) = \left[\ -ig_s\delta_{g1,g2}\delta_{s1,s2}T_{c2,c1}^{g3}\ \right]$$

$$\underset{8}{C}\left(\tilde{d}_{g1}^{s1}, \tilde{d}_{g2}^{s2,\dagger}, g\right) = \left[\ -ig_s\delta_{g1,g2}\delta_{s1,s2}T_{c2,c1}^{g3}\ \right]$$

[UUV] **2 Ghosts – Gluon**

$$\underset{3}{C}\left(\overline{u}_g, u_g, g\right) = g_s f^{g1,g2,g3}\begin{bmatrix} 1 \\ \overline{} \\ 0 \end{bmatrix}$$

[VVV] **3 Gluons**

$$\underset{2}{C}(g, g, g) = \left[\ g_s f^{g1,g2,g3}\ \right]$$

[SSVV] **2 Squarks – Gauge Boson – Gluon**

$$\underset{15}{C}\left(\tilde{u}_{g1}^{s1}, \tilde{u}_{g2}^{s2,\dagger}, g, \gamma\right) = \left[\ \frac{4}{3}ieg_s\delta_{g1,g2}\delta_{s1,s2}T_{c2,c1}^{g3}\ \right]$$

$$\underset{16}{C}\left(\tilde{d}_{g1}^{s1}, \tilde{d}_{g2}^{s2,\dagger}, g, \gamma\right) = \left[\ -\frac{2}{3}ieg_s\delta_{g1,g2}\delta_{s1,s2}T_{c2,c1}^{g3}\ \right]$$

$$\underset{17}{C}\left(\tilde{u}_{g1}^{s1}, \tilde{u}_{g2}^{s2,\dagger}, g, Z\right) = \left[\ -\frac{2ieg_s\delta_{g1,g2}T_{c2,c1}^{g3}}{c_W s_W}\left(\frac{2}{3}\delta_{s1,s2}s_W^2 - \frac{1}{2}U_{s1,1}^{\tilde{u}_{g1}*}U_{s2,1}^{\tilde{u}_{g1}}\right)\ \right]$$

$$\underset{18}{C}\left(\tilde{d}_{g1}^{s1}, \tilde{d}_{g2}^{s2,\dagger}, g, Z\right) = \left[\ \frac{2ieg_s\delta_{g1,g2}T_{c2,c1}^{g3}}{c_W s_W}\left(\frac{1}{3}\delta_{s1,s2}s_W^2 - \frac{1}{2}U_{s1,1}^{\tilde{d}_{g1}*}U_{s2,1}^{\tilde{d}_{g1}}\right)\ \right]$$

$$\underset{19}{C}\left(\tilde{u}_{g1}^{s1}, \tilde{d}_{g2}^{s2,\dagger}, g, W^-\right) = \left[\ \frac{\sqrt{2}ieg_s\text{CKM}_{g1,g2}^*T_{c2,c1}^{g3}U_{s1,1}^{\tilde{u}_{g1}*}U_{s2,1}^{\tilde{d}_{g2}}}{s_W}\ \right]$$

$$\underset{20}{C}\left(\tilde{d}_{g1}^{s1}, \tilde{u}_{g2}^{s2,\dagger}, g, W^+\right) = \left[\ \frac{\sqrt{2}ieg_s\text{CKM}_{g2,g1}T_{c2,c1}^{g3}U_{s1,1}^{\tilde{d}_{g1}*}U_{s2,1}^{\tilde{u}_{g2}}}{s_W}\ \right]$$

$$\underset{13}{C}\left(\tilde{u}_{g1}^{s1}, \tilde{u}_{g2}^{s2,\dagger}, g, g\right) = \left[\; ig_s^2 \delta_{g1,g2} \delta_{s1,s2} \left((T^{g3} T^{g4})_{c2,c1} + (T^{g4} T^{g3})_{c2,c1} \right) \; \right]$$

$$\underset{14}{C}\left(\tilde{d}_{g1}^{s1}, \tilde{d}_{g2}^{s2,\dagger}, g, g\right) = \left[\; ig_s^2 \delta_{g1,g2} \delta_{s1,s2} \left((T^{g3} T^{g4})_{c2,c1} + (T^{g4} T^{g3})_{c2,c1} \right) \; \right]$$

[VVVV] **4 Gluons**

$$\underset{1}{C}(g, g, g, g) = -ig_s^2 \left[\begin{array}{c} f^{g1,g3,x} f^{x,g2,g4} - f^{g1,g4,x} f^{x,g3,g2} \\ \hline f^{g1,g2,x} f^{x,g3,g4} + f^{g1,g4,x} f^{x,g3,g2} \\ \hline - \left(f^{g1,g2,x} f^{x,g3,g4} \right) - f^{g1,g3,x} f^{x,g2,g4} \end{array} \right]$$

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