

# Gluino-mediated electroweak penguin with flavor-violating trilinear couplings

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In light of a discrepancy of the direct CP violation in  $K \rightarrow \pi\pi$  decays,  $\epsilon'/\epsilon_K$ , we investigate gluino contributions to the electroweak penguin, where flavor violations are induced by squark trilinear couplings. Top-Yukawa contributions to  $\Delta S=2$  observables are taken into account, and vacuum stability conditions are evaluated in detail. It is found that this scenario can explain the discrepancy of  $\epsilon'/\epsilon_K$  for the squark mass smaller than 5.6 TeV. We also show that the gluino contributions can amplify  $\text{Br}(K \rightarrow \pi\nu\bar{\nu})$ ,  $\text{Br}(K_S \rightarrow \mu^+ \mu^-)$  and  $\Delta A_{\text{CP}}(b \rightarrow s\gamma)$ . Such large effects could be measured in future experiments.

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**Session Classification:** Short Talks