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CKM elements from squark-gluino loops

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We compute the finite renormalisation of the CKM matrix induced by gluino-squark diagrams in the MSSM with non-minimal sources of flavour violation. Stringent bounds on the flavour-off-diagonal elements of the squark mass matrices are obtained by requiring that the radiative corrections to the CKM elements do not exceed the experimental values. Our bounds on several flavour-changing trilinear terms are stronger than those from FCNC processes if gluino and squarks are heavier than roughly 500 GeV. We point out that it is possible to generate the CKM matrix and the quark masses of the first two generations radiatively from soft SUSY-breaking terms without violating present-day FCNC constraints.

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