

Did one observe couplings of right - handed quarks to W?

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The recent dedicated analysis of $K^L \rightarrow \mu^+ \mu^-$ Dalitz plot by NA48 reveals a 5 σ deviation from the Callan-Treiman low-energy theorem, provided standard electroweak couplings of quarks are assumed. QCD can hardly tolerate such a huge violation of its $SU(2)_C \times SU(2)_F$ chiral symmetry. We suggest that, instead, the observed discrepancy reflects a small admixture of right - handed quark currents coupled to W (as proposed by us one year ago.) It is argued that this interpretation allows to explain the observed size of the effect and passes all electroweak tests at sub-TeV scales, both in the charged and in the neutral currents sectors. The possible impact on the tests of CKM unitarity for light quarks will be briefly discussed.

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