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Lattice input on the inclusive flavor-breaking τ V_{us} puzzle KIM MALTMAN, RENWICK HUDSPITH, RANDY LEWIS, CARL WOLFE, York University, JAMES ZANOTTI, University of Adelaide — Recent versions of the standard approach to implementing the flavor-breaking finite-energy sum rule determination of V_{us} using spectral data obtained from hadronic tau decays produce values of V_{us} more than 3 sigma low relative to the expectations of 3-family unitarity. We revisit this problem, focusing on systematic issues in the treatment of OPE contributions, employing lattice data for the relevant flavor-breaking correlator combinination to help in understanding how to treat the slowly converging D=2 series and investigate potential $D > 4$ non-perturbative contributions. The results, in combination with observations from additional flavor-breaking continuum sum rules, are shown to suggest an alternate implementation of the flavor-breaking sum rule approach. This alternate analysis approach is shown to produce significantly higher V_{us} than obtained using the assumptions of the conventional implementation, for reasons that will be explained in detail. We also show that, when this approach is implemented using new preliminary results for the tau K pi branching fractions, the V_{us} obtained is in excellent agreement with that obtained from recent analyses of K_{ell3} using lattice input for $f_+(0)$.

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