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## A dispersive treatment of $K_{l4}$ decays

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$K_{l4}$  decays have several features of interest: they allow an accurate measurement of  $\pi\pi$ -scattering lengths; the decay is the best source for the determination of some low-energy constants of chiral perturbation theory ( $\chi$ PT); one form factor of the decay is connected to the chiral anomaly. We present the final results of our dispersive analysis of  $K_{l4}$  decays, which provides a resummation of  $\pi\pi$ - and  $K\pi$ -rescattering effects [1,2]. The free parameters of the dispersion relation are fitted to the data of the high-statistics experiments E865 [3,4] and NA48/2 [5,6]. The data input is corrected for additional isospin-breaking effects, which were not taken into account in the experimental analyses [7]. By matching to  $\chi$ PT at NLO and NNLO, we determine the low-energy constants  $L_{1r}$ ,  $L_{2r}$ , and  $L_{3r}$ . Recently published data [6] from NA48/2 allow even a determination of  $L_{9r}$ . In contrast to a pure chiral treatment, the dispersion relation describes the observed curvature of one of the  $K_{l4}$  form factors, which we understand as an effect of rescattering beyond NNLO.

### References

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