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Phi K K production in electron-positron anihilation

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Abstract content

Summary

We study the electron-positron annihilation in a pair of charged kaons and a phi. The leading order electromagnetic contribution to this process involves the photon phi K K vertex function with a highly virtual photon, which we calculate at low energies using R-ChiPT with the anomalous term for the V V P interactions. We identify the physical effects as arising from K K and KK *form factors. To improve this result, valid for low photon virtualities, we replace the lowest order terms in the kaon form factors and* KK transition form factors by the form factors as obtained in U-ChiPT in the former case, and the ones extracted from recent data on e+e- to KK* in the latter case.

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We calculate rescattering effects and use unitarized
   meson-meson amplitudes containing the scalar poles. The
   calculated cross section is in reasonable agreement with
   existing data for the cross section of e+e- -> K+K-K+K- where
   one of the kaon pairs comes from the decay of a phi.
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