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Dispersive representation of the K_{π} and π_{π} form factors: application to hadronic tau decays

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In this talk, we review the recent theoretical progress towards a precise determination of some hadronic observables such as the K_{π} and π_{π} form factors. We show that significant improvement can be achieved by combining dispersive techniques with chiral perturbation theory calculations, lattice results and experimental measurements. We will then present two applications for precise tests of the Standard Model and new physics effects using the measurements of the hadronic decays of the tau lepton.

The extraction of the CKM mixing matrix element $|V_{us}|$ from $\tau \rightarrow K \pi \nu_{\tau}$ decay will be discussed. Secondly, we will show how the knowledge of the π_{π} form factor can provide a unique handle to constrain lepton flavour violation in the Higgs sector studying the $\tau \rightarrow l \pi \pi$ decays.

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