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V_{us} and CP invariance test from Kaon decays with the KLOE detector

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The KLOE experiment has provided precise measurements of the branching ratio of the main neutral and charged kaon decay modes, of the K_L and the K^\pm lifetimes, and of the K_L vector and scalar form factors.

We present a description of the above measurements and an overall fit of all our data, with particular attention to correlations.

These data provide the basis for the determination of the value of the CKM matrix element V_{us} and a test of the unitarity of the quark mixing matrix.

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In addition our first measurement of the charge asymmetry in K_S semileptonic decays, A_S , gives us the possibility to contribute to the knowledge of $\Re(\varepsilon)$ and testing the CPT symmetry through the Bell Steinberger relation.

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