Particle Theory Seminar

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"Testing the Standard Model with Kaon Decays"

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Abstract:
Flavour changing particle decays, induced by the weak interaction, test interesting effects such as CP violation and can be influenced by contributions of "New Physics".
Today the main focus lies on B-meson decays, but observables in Kaon physics are equally important. They test a different sector of the Standard Model and thus provide a invaluable consistency check. CP violation in the neutral Kaon system and the rare decays $K \to \pi\nu\nu$ are especially interesting: These observables are very sensitive to high energy scales, and hadronic uncertainties are very well under control. Recent progress has reduced the related theoretical error to the percent level. This motivates the calculation of higher-order perturbative corrections, which are performed in an effective theory framework.
I will give an introduction to these topics and report about the status of the perturbative calculations.