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# New Physics from Light Scalars in Rare Kaon Decay

*Saturday 19 April 2025 14:30 (30 minutes)*

We introduce and investigate the effects of a light scalar interacting with the short-lived kaon and the KS ⟶ μ+μ− decay. We use the results of searches performed at kaon factories as well as the Standard Model predictions for this decay to constrain the couplings of a ϕ particle with a mass mϕ of the order of MeV. In addition to this we find the allowed parameter space for further CP violating effects in this decay mode as well as to one loop order. We also examine the time evolution of the kaon beams with the full mixing considered and the effect of its lifetime on extractable experimental parameters.

**Author:** PRADEEP, Rahul (University of Cincinnati)

**Co-author:** Dr ZUPAN, Jure (University of Cincinnati)

**Presenter:** PRADEEP, Rahul (University of Cincinnati)

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