

# Updates on the Standard Model and beyond SM Unitarity Triangle fits and neutral charm mixing results by UTfit

*Wednesday, 29 July 2020 16:30 (24 minutes)*

Flavour physics represents a unique test bench for the Standard Model (SM). New analyses performed at the LHC experiments are now providing unprecedented insights into CKM metrology and new results for rare decays. The CKM picture can provide very precise SM predictions through global analyses.

We present here the results of the latest global SM analysis performed by the UTfit collaboration including all the most updated inputs from experiments, lattice QCD and phenomenological calculations. We also present the perspectives for future UT analyses on the basis of existing extrapolations of experimental results from the Belle-II and LHCb experiments, as well as of expected improvements from Lattice QCD computations.

The Unitarity Triangle (UT) analysis can be used to constrain the parameter space in possible new physics (NP) scenarios. We present an update of the UT analysis beyond the SM by the UTfit collaboration. Assuming NP, all of the available experimental and theoretical information on  $\Delta F=2$  processes is combined using a model-independent parametrisation. We determine the allowed NP contributions in the kaon, D, Bd, and Bs sectors and, in various NP scenarios, we translate them into bounds for the NP scale as a function of NP couplings.

We update our analysis of D meson mixing including the latest experimental results. We derive constraints on absorptive and dispersive CP violation by combining all available data, and discuss future projections. We also provide posterior distributions for observable parameters appearing in D physics.

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## Secondary track (number)

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