

## Status of $V_{us}$ determination and implication for new physics searches

TUESDAY

MARCH 22

4:00 P.M.

RM 415 NSH

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Testing the unitarity of the Cabibbo-Kobayashi-Maskawa (CKM) matrix has long been recognized as a powerful probe of physics beyond the Standard Model (BSM).

In this talk, we will focus on the unitarity of the first row and review the determination of the CKM matrix element  $|V_{us}|$ . We will show how recent experimental and theoretical advances in kaon physics and in hadronic tau decays have allowed to reach a new level of precision on  $|V_{us}|$ . All these analyses rely on precise calculations of the hadronic quantities involved (form factors, decay constants, correlators, etc.).

We will discuss recent advances in these calculations as well as the new experimental results, review the remaining discrepancies and survey the prospects offered by the forthcoming measurements at flavour factories. Finally, we will show how the test of the unitarity of the first row of the CKM matrix offers good complementarity with the BSM searches at the LHC.