

Recent ISOLTRAP Measurements for tests of CVC and CKM Unitarity

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The conserved vector current (CVC) hypothesis of the weak interaction and the unitarity of the Cabibbo-Kobayashi-Maskawa (CKM) matrix are two fundamental postulates of the Standard Model. While existing data on CVC supports vector current conservation, the unitarity test of the CKM matrix currently fails by more than two standard deviations. High-precision mass measurements recently performed with the ISOLTRAP experiment at ISOLDE/CERN provide crucial input for these fundamental studies by greatly improving our knowledge of the decay energy of superallowed beta decays. Recent results of mass measurements on ⁷⁴Rb, ²²Mg and their reaction partners as pertaining to weak-interaction studies will be presented, and their implications for astrophysics will be discussed.