



Contribution ID: 37

Type: Oral

Tests of fundamental weak interactions and their symmetries using exotic nuclei

Monday, 31 August 2015 11:00 (30 minutes)

Precise measurements of observables in nuclear beta decay allow testing the symmetries of the Standard Model or searching for physics beyond, at low energy. An update and overview of this field will be presented based on selected state-of-the-art measurements in nuclear beta decay which use a variety of techniques, many of which are based on ion and atom traps. With the precision of these measurements reaching the per mil level small Standard Model effects now have to be included as well. The understanding of some of these requires additional measurements be performed in order to maintain optimal sensitivity to weak interaction properties. Finally, the prospects and future of this type of low-energy weak interaction studies in the era of the Large Hadron Collider will be discussed as well.

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Session Classification: Plenary II