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Determination of the quenched weak axial-vector coupling through measurements of highly forbidden nuclear decays

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Nuclear-structure effects play an important role in the decay rate of very rare processes. These effects are summarized in the nuclear matrix elements which holds information about the initial and final states and are dependent on the weak axial-vector coupling. One commonly overlooked suppression, quenching of the weak axial-vector coupling, can significantly increase calculated $0\nu\beta\beta$ half-lives. Experimental measurements of highly forbidden transitions can lead to insight into this quenching. The RAMPS (RadioActive isotope Measurement Program at SNOLAB) aims to take advantage of the existing SNOLAB experimental infrastructure to perform these measurements. This talk will discuss the pilot project of RAMPS which aims to measure the excited-state electron capture of ^{176}Lu , as well as giving an overview into other experimental efforts both past and present.

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