

Abstract Submitted  
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**First principles calculations of weak decays in atomic nuclei**

GAUTE HAGEN, Oak Ridge National Laboratory — This talk reports on recent progress in first principles computations of neutrinoless and two-neutrino double-beta decay in  $^{48}\text{Ca}$ , with interactions and currents from chiral effective field theory. Predictions from coupled-cluster and in-medium similarity-renormalization-group calculations agree, and they yield a nuclear matrix element for the neutrinoless double beta decay that is smaller than expected. Calculations of Gamow-Teller decays from  $p$ -shell nuclei to tin isotopes reveal that the long-standing problem of the quenching of the axial coupling constant  $g_A$  can be resolved by meson exchange currents and a proper treatment for many-body correlations. In particular, meson-exchange currents play a crucial role in the super-allowed Gamow-Teller decay of  $^{100}\text{Sn}$ .

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