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Ordinary Muon Capture of sd-shell nuclei within the Realistic Shell Model

Content

The understanding of the renormalization mechanisms of electroweak currents is nowadays a cornerstone of the nuclear structure research. It is motivated by the need of calculating reliable nuclear matrix elements for the neutrinoless double- decay. Our approach to the problem is the realistic nuclear shell model. It provides a consistent framework to derive effective Hamiltonians and decay operators, the only parameter that is involved being the nuclear force one starts from. We have successfully employed this approach to study the two-neutrino double- decay of Ca, Ge, Se,Mo, Te, and Xe, and then extended it to predict the nuclear matrix elements of their neutrinoless double- decay. Now, with the goal to further validate our approach, I will present recent results on the ordinary muon capture of sd-shell nuclei.

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