

Neutron-rich nuclei in the vicinity of ^{208}Pb

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Information gained on neutron-rich $N \sim 126$ nuclei is essential for the understanding of nuclear structure in heavy nuclei. Studies around doubly magic systems allow direct tests of the purity of shell model wave functions. In the case of the beta decay of $N \sim 126$ nuclei there is strong competition between allowed and first-forbidden transitions. This is the mass region where first-forbidden transitions can be dominant. The prediction of the FF component of the beta decay also requires good understanding of the wave-functions of individual states. From a longer-term perspective, experiments in this region pave the way toward the proposed nuclear-astrophysical r-process waiting point nuclei along the $N = 126$ shell closure.

Recently several experiments were performed at ISOLDE with the aim to study neutron-rich nuclei around ^{208}Pb . Both beta decay and Coulomb excitation were used. In addition, the coupling of the iThemba LABS K600 spectrometer with a Ge array will allow the study of nuclei in this mass region in particle transfer experiments.

The presentation will report on recent results and their relevance on the structure of neutron-rich nuclei around ^{208}Pb , and it will explore future opportunities.

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