

Investigation of low-lying states in ^{133}Sn populated in the β decay of ^{133}In using isomer-selective laser ionization

The region of the chart of nuclei close to the doubly-magic nucleus ^{132}Sn has been the object of enormous interest in both experimental and theoretical investigations for the last several years. This activity is well-motivated by the fact that nuclei with large neutron excess are an ideal playground to verify the reliability of shell model predictions for nuclei far from stability. The crossing of the major neutron ($N=82$) and proton ($Z=50$) shell closures allows for investigation of single-particle states and interaction strengths in this neutron-rich region. A better understanding of the neutron-rich ^{132}Sn region requires not only more data but also more precise.

Our studies focus on the closest neighbour of ^{132}Sn - one-neutron particle ^{133}Sn . In order to investigate neutron single-particle states, we studied the β decay of ^{133}In . The purpose of this work is to verify the experimental possibilities to investigate separately the β decay from the ^{133}In ($9/2^+$) ground state and its ($1/2^-$) isomeric level.

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