

Spectroscopy of ^{78}Ni with DALI2 and MINOS

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Expected to be doubly magic, ^{78}Ni is a key nucleus to further understand the nuclear shell structure. Its spectroscopy will allow to probe the $Z=28$ and $N=50$ shell closures for neutron-rich nuclei. Several experiments on neighbouring nuclei have been performed to this end.

The study of $N=50$ isotones reveals that copper ($Z=29$), zinc ($Z=30$), germanium ($Z=32$) and selenium ($Z=34$) isotopic chains all exhibit a persistence of the $N=50$ shell closure. On the other hand, the comparison of experimental data to shell model calculations with a ^{48}Ca core suggests a reduction of the $Z=28$ shell gap, interpreted as possibly due to the tensor term of the in-medium nucleon-nucleon interaction.

Being a very neutron-rich nucleus, ^{78}Ni is a challenge to be produced at sufficient intensity for its spectroscopy in reasonable time, thus rendering the use of the MINOS device with the high efficiency gamma ray DALI2 a clear advantage. In this talk, the feasibility of the spectroscopy of ^{78}Ni with the MINOS-DALI2 setup will be addressed.

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