



LNGS SEMINARS

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r-process nucleosynthesis and nuclear shell closures

Abstract

One of the astrophysical processes which is responsible for the production of heavy elements is the r-process. It occurs in celestial objects with high neutron flux such as supernovae. The path of the process can be influenced by the neutron and proton magic numbers in the neutron-rich nuclei since the isotopes having magic numbers are more stable than their neighboring nuclei so they act as waiting points. ^{78}Ni is one of the most important nuclei because it is expected to be doubly-magic with proton number (Z) of 28 and neutron number (N) of 50. Approaching this nucleus, we have investigated ^{76}Ni and its low-energy excited states in order to study the $Z=28$ shell gap. The results will be presented in the talk.

**April 24, 2018 - 2:30 pm
LNGS - "B. Pontecorvo" room**