Séminaire

PHYSIQUE NUCLÉAIRE
NUCLEAR PHYSICS

Lifetime measurements in ^{105}Sn: the puzzle of B(E2) strengths in Sn isotopes

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The study of the nuclear structure in nuclei around shell closures is fundamental to prove the effectiveness of different shell model Hamiltonians. One of the milestones of nuclear structure research is the doubly-magic and self-conjugated ^{100}Sn. To prove the robustness of the Z=N=50 double shell closure, as well as to test the nuclear shell structure in this region, the spectroscopy of the neutron-deficient Sn isotopic chain toward ^{100}Sn has been extensively investigated. Along with the systematic study of the reduced transition probabilities in low-lying excited states of even-mass Sn isotopes, lifetime measurements in light odd-even Sn are a complementary way to constrain shell model calculations in this region of the nuclear chart. In this regard, the lifetime of the excited states in ^{105}Sn have been measured with the Recoil Distance Doppler Shift (RDDS) technique at the Legnaro National Laboratories (Italy) by using the gamma-ray spectrometer GALILEO.

In this seminar I will present the lifetime results for excited states in ^{105}Sn obtained with the Differential Decay Curve method (DDCM) of analysis. The comparison of the results with shell model calculations enables to study the role of particle-hole excitations across the core of ^{100}Sn.

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