



Contribution ID: 22

Type: not specified

AGATA@GANIL(E708): Evidence of partial seniority conservation in the proton $g_{9/2}$ shell for the $N=50$ isotones

Thursday, 11 November 2021 09:50 (20 minutes)

In order to shed light on the open question of the seniority conservation in the proton $g_{9/2}$ orbital in the $N=50$ isotones [1,2], reduced transition probabilities in ^{90}Zr , ^{92}Mo and ^{94}Ru nuclei, have been determined experimentally for the first time via lifetime measurements at the GANIL laboratory. The unconventional use of multi-nucleon transfer reaction [3] with a differential plunger device [4] allowed to measure lifetimes of the yrast low-spin states despite the presence of isomers in the proton-rich isotones. The required sensitivity to the lifetimes could only be achieved due to the excellent performance of the AGATA+VAMOS++ detection system [5,6].

The $B(E2;4^{+} \rightarrow 2^{+})$ and $B(E2;2^{+} \rightarrow 0^{+})$ yrast transitions in ^{92}Mo and ^{94}Ru and for the $B(E2;4^{+} \rightarrow 2^{+})$ and $B(E2;6^{+} \rightarrow 4^{+})$ yrast transitions in ^{90}Zr determined in this experiment will be shown. In this contribution these results will be interpreted on the basis of realistic shell-model calculations [7] in the $f_{5/2}$, $p_{3/2}$, $p_{1/2}$, $g_{9/2}$ valence space, where it emerges that seniority is conserved in the first $\pi g_{9/2}$ orbital.

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Session Classification: REPORTS on AGATA Experiments