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In Flight and β-delayed γ-spectroscopy in the vicinity of ^{78}Ni with AGATA at GANIL and BEDO at ALTO.

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While the $N = 50$ shell-gap evolution towards ^{78}Ni is presently in the focus of nuclear structure research, experimental information on the neutron effective single particle energy (ESPE) sequence above the ^{78}Ni core remain scarce. Direct nucleon exchange reactions are indeed difficult with presently available post-accelerated radioactive ion beams (especially for high orbital momentum orbitals) in this exotic region. We have studied the evolution of the $\nu g_{7/2}$ ESPE which is the key to understanding the possible evolution of the spin-orbit splitting due to the action of the proton-neutron interaction terms in the ^{78}Ni region by measuring the lifetime of excited states in order to distinguish between collective and single-particle states. The evolution of the ESPE of this orbital, characterized by a high orbital momentum $\ell = 4$, should indeed be particularly sensitive to tensor effects.

In the continuity of an experiment performed in LNL-Legnaro [1], we performed an experiment at GANIL (Caen, France) with AGATA [2], VAMOS [3] and the Orsay plunger OUPS [4] in order to measure lifetime of Yrast excited states (in peculiar $7/2_1^+$ states) in several $N = 51$ isotones populated by the reaction ^{238}U(^{9}Be,f). We particularly focused our study on ^{83}Ge, the closest $N = 51$ odd isotones to ^{79}Ni for which detailed spectroscopy studies are possible within our experimental conditions. We also performed complementary β-delayed γ-spectroscopy of ^{83}Ge with BEDO [5] at the ALTO ISOL photo-fission facility in Orsay to investigate non-Yrast spectroscopy.

Results from both experiments and future plans at IGISOL will be presented and discussed.

REFERENCES
[1] F. Didierjean et al., Phys. Rev. C 96, 044320 (2017)
[2] E. Clément et al., NIM A 855 pp. 1-12 (2017)
[3] H. Savajols et al., NIM B 204 pp. 146-153 (2003)
[4] J. Ljungvall et al., NIM A 679 pp. 61-66 (2012)
[5] A. Etile et al., PRC 91, 064317 (2015)

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