NEUTRON DETECTOR TETRA TO REVEAL THE β-DECAY PROPERTIES OF NEUTRON RICH NUCLEI IN THE VICINITY OF NEUTRON CLOSED SHELLS *N*=50, *N*=82

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According to available schemes the nuclei in the vicinity of *N*=50, 82 shell undergo Gamow Taylor (allowed) decays. In contrast, for nuclei crossing the *N*=50, 82 shella, the first Forbidden (FF) transitions are expected to give a noticeable contribution [1, 2]. With new experimental data on β-decay properties of more neutron rich species already (or shortly) available at new facilities the relative contribution of the Gamma-Teller and FF decays can be understood more. Furthermore, for an *r*-process site, β-decay properties „waiting points" (nuclei on closed neutron shells) have significant effects on the r-process dynamics and the abundance distribution [3, 4].

One of the means to investigate nuclear structure is in β-decay. Since β-delayed neutron emission becomes significantly strong decaying channel for neutron-rich nuclei far from stability, usage of a proper neutron detector to reveal their properties is indispensable. To conduct the appropriate investigations, in the frame of collaboration JINR (Dubna) and IPN Orsay a new detection system consisting of 80 ^{3}He-filled counters (TETRA neutron detector [5]), 4πβ detector and a HPGe in order to measure simultaneously β, γ and neutron activities was constructed [7]. The efficiency of single neutron registration is ~60% and is almost flat up to ~1 MeV neutron energy range.

It is presented the first data on β-decay properties ($T_{1/2}$, P_n) of neutron rich nuclei $^{82, 83}$Ga, $^{123-125}$Ag produced at ISOL facility ALTO and measured with recently introduced neutron detector TETRA [7].

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