GAMMA-RAY SPECTROSCOPY INTO THE NEUTRON-RICH A 90 REGION

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The A = 90-100 mass region above N = 50 has been subject to many studies due to the occurrence of sub-shell closures at Z = 40 and N = 56, in addition to the well known N(Z) = 50 major shell closures. On the one hand, these sub-shell closures stabilize sphericity above N = 50, which is best seen in the Zr isotopic chain, where the structures of ^{96,98}Zr are akin to those of doubly-magic nuclei. A rapid onset of collectivity occurs at N = 60, characterized by the coexistence of spherical and deformed shapes and the exchange of the respective potential minima. The stabilization at N = 56 may be important especially in Ge and Se isotopes which lie within the r-process path. At RIKEN-RIBF, within the second SEASTAR campaign, we employed the DALI2 array in combination with the MINOS liquid-hydrogen target surrounded by a TPC, in order to investigate the low-Z boundaries of N = 56. A 345 MeV/u ^{238}U beam from the RIBF cyclotrons was fragmented on a ^{9}Be target, and fragments separated by BigRIPS were delivered to the secondary target. Reaction products were identified by the ZeroDegree spectrometer. Complementary, the EURICA array took gamma-ray data after isomer decay in the focal plane of the ZeroDegree spectrometer. Proton-knockout reaction studies into Ge isotopes have been carried out and the lowest-excited states of ^{86,88}Ge isotopes have been observed. First results will be reported in the broader context of structural evolution in the A = 90-100 mass region.