Coulomb excitation of ^{212}Ra at HIE-ISOLDE*

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The generalised seniority scheme is a truncated version of the nuclear shell model [1]. It is able to describe the structure of atomic nuclei in the vicinity of shell closures. The number of unpaired nucleons, the seniority ν, is considered a good quantum number. The region of the even-even Po-Rn-Ra nuclei with $N = 124$ exhibits strong signs of seniority-like behaviour. This can be observed, e.g. in the energy spacing between excited yrast states which decreases at higher angular momenta. However, no experimental data is available to confirm or falsify the anticipated parabolically increasing trend in the absolute $E2$ transition strength with the filling of the j-shell for the $\Delta\nu = 2$ seniority-changing $2_1^+ \rightarrow 0_1^+$ transition [2]. Therefore, a Coulomb-excitation experiment was conducted at HIE-ISOLDE in 2024 in order to obtain the $B(E2; 2_1^+ \rightarrow 0_1^+)$ value of ^{212}Ra. The ^{212}Ra beam was impinged on a ^{120}Sn target with 4.51 MeV/u to ensure safe Coulomb excitation. γ rays of deexciting ^{212}Ra nuclei were observed by the high-purity germanium detectors of the Miniball array [3] while ejectiles and recoiling particles were recorded by a double-sided silicon strip detector at forward angles. From the γ-ray yields the $E2$ strength of the $2_1^+ \rightarrow 0_1^+$ transition can be then deduced. The current state of the analysis will be presented.

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