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β -decay half-lives and β -delayed neutron emission measurements for very exotic nuclei beyond $N=126$ relevant in the freeze-out of the r-process

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This contribution reports on the status of the data analysis of the experiment performed at the GSI-FRS facility (Germany), where very exotic nuclei, beyond $N=126$, were produced and isotopes of Pt, Au, Hg, Tl, Pb, Bi, Po, At, Rn and Fr were precisely identified using tracking detectors with the method of time-of-flight. Thanks to the detection system which comprised two detection systems, a Double-sided Silicon Strip Detector and a high efficiency Neutron detector were used to determine the decay properties of the implanted isotopes of Hg, Tl and Pb via implant-beta-neutron correlations. Around 14 isotopic species were implanted with enough statistics to determine their half-life. Some of them are expected to be neutron emitters, in such cases it has been possible to obtain the β -delayed neutron emission branching ratios P_n . The relevance of these data and the role of this kind of measurements in nuclear structure and r-process nucleosynthesis will be discussed.

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