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Study of octupole deformation in n-rich Ba isotopes populated via β decay

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Barium isotopes are located in a region of the Segr\'e chart characterized by a variety of shape phenomena, including shape coexistence and presence of static octupole deformations. In this isotopic chain alternating-parity bands, with large and constant B(E1) transition moments, have been found in $^{140-144}$Ba; the neighboring nucleus, ^{146}Ba, shows instead slower E1 transition rates than ^{144}Ba~\cite{Mac92}. The same effect is expected to be present in the heavier even-even isotopes~\cite{But91}, which are the object of this study.
In this contribution results from an experiment aiming at studying the β decay of Cs isotopes up to A=152 will be presented.
The measurement of gross quantities such as decay half-lives and β-delayed emission probabilities P_n, are of great relevance for the understanding of the rapid neutron-capture process (r-process) around the second abundance peak. Apparent beta-feedings and tentative logft values of yrast and non-yrast low-energy levels populated in the daughter $^{148-152}$Ba can be measured, providing a first access to the nuclear structure of these very neutron-rich Ba isotopes. The measurement of the lifetime of specific states gives an additional in-sight in the structure of the populated nuclei.
The experiment was performed in Dec.~2014 at the ISOLDE Decay Station (IDS) set-up using the fast tape station of K.U.-Leuven, equipped with 4 Clover detectors, 3 fast plastic scintillators and 3 $LaBr_3$(Ce) detectors, for fast-timing measurements.
The radioactive beam species were produced in proton-induced fission reactions using a UCx target equipped with a standard surface ionizer.
Owing to rates lower than expected the decay of $^{148-150}$Cs could only be accessed.
First experimental information extracted from the data will be presented.

\begin{thebibliography}{}
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