

In-ring decay measurements

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Beta-decay is a well-established technique to investigate the structure of nuclei. In light exotic nuclei the decay is characterised by large Q -values and low breakup thresholds in the daughter nuclei, so that feeding to continuum states and delayed emission of nucleons and light ions become possible. These processes have been used to study the peculiar features of those systems, such as halos and cluster structures (for example in ${}^6\text{He}$, ${}^{11}\text{Li}$, ${}^{12}\text{C}$, and others).

The low energy of the emitted fragments, combined with the background of the beta particles, is a problem for the technique. The storage ring offers a solution, by letting the decay take place in flight: this way, the fragments would profit from the large momentum of the mother nucleus and could be detected in charged-particle arrays as they are emitted in a narrow cone around the circulating beam. We will present possible experiments that make use of this technique.

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