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Half-lives and neutron-branching ratios of the most neutron-rich nuclei[1]

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More than 600 out of the 3435 known nuclei have been identified that could emit neutrons after their beta-decay. It is estimated that about 4000 more nuclei are waiting to be discovered, and about 3000 are on the neutron-rich side. Their dominant decay mechanism will be via beta-delayed neutron emission. With the advent of the next generation of RIB facilities, a strong focus will be on the deeper understanding of neutron-rich nuclei towards the neutron-dripline. For the rapid neutron capture process, besides masses and neutron capture cross sections, also the decay half-lives and neutron-emission probabilities play an important role and are needed for a better understanding of the calculated r-process abundances. However, measurements in the next decade(s) will not tackle all nuclei up to the neutron dripline but rather focus on key regions that have been identified by nuclear structure and r-process sensitivity studies, for example around shell and mid-shell closures. Recent experimental campaigns and evaluation of the existing data will improve our present understanding and allow finetuning of theoretical models towards so far unknown nuclei. I will give an overview about recent campaigns and evaluation efforts targeting the most neutron-rich nuclei identified so far.

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