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Probing the neutron dripline: challenges and prospects

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The study of neutron-unbound nuclei is one of the major research fields to probe the nuclear structure. The most important characteristic of these nuclei is their immediate decay via the emission of one or more neutrons after being populated. Their extreme short-lived nature makes their direct measurement impossible, and thus requires the use of specific experimental techniques, such as the invariant-mass spectroscopy. Thoroughly used to explore unknown states and isotopes near and beyond the neutron dripline, the invariant-mass technique has also revealed prominent features of 3-body decay mechanisms in the continuum. A short overview of some recent results will be presented, paying special attention to three-body correlations in neutron decays of nuclei like ^{16}Be or ^{26}O.