

Fine structure in proton emission

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Studies of proton emission offer unique data on the exotic nuclei at and beyond proton drip line. We can obtain important information on the proton-emitting component of the wave function of unbound resonance states from the comparison of measured decay properties to the model calculations, see, e.g., [1-10] and references therein.

Particularly interesting are the observations of fine structure in proton emission [11,12]. In addition to the decay properties of the parent state, we measure the energy of excited level(s) in the daughter nucleus. It helps to understand the shape of the potential tunneled by the emitted protons. With more experimental observables available for comparison, the wave function could be mapped more precisely.

A review of the available experimental data on fine structure in proton emission will be presented. It includes a recent measurement on ^{141gs}Ho decay following complementary study of the excited states in ¹⁴⁰Dy [13]. Interpretation of the level structure and resulting decay rates, following the models presented in [5,6,9,10], will be given.

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