

Delayed Proton Emission from Nuclei: A Historical Perspective

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Early experiments observing proton emission with an emphasis on the decay of lighter-mass nuclides will be discussed. The interplay of experiment and theory will also be covered. Beta-delayed proton emission was first observed and a specific emitter identified in 1963; what was originally a rare mode of decay has become a broadly observed phenomenon across a very wide mass range. Direct proton radioactivity was first detected in 1970 from the decay of a high spin isomer in ^{53}Co ; subsequently, experiments beginning in the early 1980s observed ground state proton radioactivity, which is now extensively seen above mass 100. Finally, beta-delayed two-proton emission was first detected in 1983 in the decay of ^{22}Al ; so far this is the least common of these three proton-emitting decay modes and its observation has been restricted to lighter mass nuclides.