Identification of the Neutron-Deficient Isotopes 213,214-Pa

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Abstract:

Two new neutron-deficient isotopes, 213-Pa and 214-Pa were produced in complete fusion reactions of 51-V-ions with 170-Er targets at (5.2-5.6) AMeV. The assignment was based on delayed evaporation-alpha-alpha time and position coincidences. The alpha-decay energy of 213,214-Pa were measured to be $E_{\alpha}=(8236 \pm 20)$ keV and $E_{\alpha}=(8116 \pm 20)$ keV, respectively. The half-lives of 213,214-Pa were determined to be $T_{1/2}=(5.3 \pm 4.0-1.6)$ ms and $T_{1/2}=(5.3 \pm 3)$ ms, respectively.