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Probing the lightest isotopes of einsteinium with FIONA

At the 88-inch cyclotron facility of Lawrence Berkeley National Laboratory the nuclear properties of exotic heavy and superheavy elements are studied using the FIONA (for the identification of nuclide A) apparatus coupled to the Berkeley Gas-filled Separator (BGS). Actinide and transactinide isotopes created in fusion-evaporation reactions are collected using the BGS and either delivered to a detector station where their decay properties can be studied, or they are injected into FIONA for A/q identification. Decay properties of proton-rich Es isotopes created in the $^{209}\text{Bi}(^{34}\text{S}, xn)^{243-x}\text{Es}$ reaction were examined and unambiguously assigned through mass identification measurements with FIONA, culminating in the first ever observation of ^{239}Es .

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