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Spectroscopy of Element 115 Decay Chains at TASCA (NUSTAR)

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During the past decade, a number of correlated alpha-decay chains, which all terminate by spontaneous fission, have been observed in several independent experiments using 48Ca-induced fusion-evaporation reactions on actinide targets. These are interpreted to originate from the production of neutron-rich isotopes with proton numbers Z=113-118. In November 2012, a three-week experiment was conducted at the GSI Helmholtzzen-trum für Schwerionenforschung GmbH in Darmstadt, Germany, using high-resolution alpha, electron, X-ray and gamma-ray coincidence spectroscopy to observe alpha-X-ray events to identify uniquely atomic numbers of isotopes in Z=115 decay chains, and to provide the first insight into the structure of these nuclei. The reaction 48Ca+243Am was used, with fusion-evaporation products being focused into the TASISpec set-up, which was coupled to the gas-filled separator TASCA. A beam integral of roughly 7*10^18 48Ca particles led to the observation of 30 correlated alpha decay chains with characteristics similar to those previously published. Results from the experiment will be presented.

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