



Contribution ID: 143

Type: **Invited Presentation**

The New Isotopes ^{240}Es and ^{236}Bk

Tuesday, 30 May 2017 15:30 (15 minutes)

The neutron-deficient ^{240}Es nucleus was synthesized for the first time using the fusion-evaporation reaction $^{209}\text{Bi}(^{34}\text{S},^{3n})^{240}\text{Es}$ at the Accelerator Laboratory of University of Jyväskylä (JYFL), Finland. The gas-filled recoil separator RITU [1] was used to separate the fusion-evaporation products from the primary and scattered beam. The radioactive decays originating from ^{240}Es and its daughters, including the hitherto unknown ^{236}Bk , were measured with the focal plane spectrometer GREAT [2].

Identification of ^{240}Es was made on the basis of recoil-alpha-alpha correlated chains ending with the known granddaughter ^{236}Cm . A significantly high electron-capture delayed fission (ECDF) probability was measured for ^{240}Es [3]. The new isotope ^{236}Bk that was populated in the alpha decay of ^{240}Es was identified by its ECDF branch [3]. These new data show a continuation of the exponential increase of ECDF probabilities in more neutron-deficient isotopes. The results on the decay properties of ^{240}Es and ^{236}Bk together with the data analysis will be presented.

References:

- [1] M. Leino et al., Nucl. Inst. Meth. Phys. Res. B 99, 653 (1995)
- [2] R. D. Page et al, Nucl. Inst. Meth. Phys. Res. B 204, 634 (2003)
- [3] J. Konki et al., Phys. Lett. B 764, 265 (2017)

Primary author: Mr KONKI, Joonas (University of Jyväskylä)

Co-authors: Dr YAKUSHEV, Alexander (GSI,Helmholz-Institut Mainz); Dr HERZÁN, Andrej (University of Jyväskylä); Mr WARD, Andrew (University of Liverpool); Dr DI NITTO, Antonio (GSI,University of Mainz); Dr LOPEZ-MARTENS, Araceli (CSNSM Orsay); Dr SULIGNANO, Barbara (CEA Saclay); Dr LOMMEL, Bettina (GSI); Dr KINDLER, Birgit (GSI); Dr SCHOLEY, Catherine (University of Jyväskylä); Prof. DÜLLMANN, Christoph E. (GSI,Helmholz-Institut Mainz,University of Mainz); Dr THEISEN, Christophe (CEA Saclay); Dr COX, Daniel M. (University of Jyväskylä); Prof. HINDE, David (Australian National University); Dr LUONG, Duc Huy (ANU); Dr JÄGER, Egon (GSI); Dr HESSBERGER, Fritz Peter (GSI); Mr BADRAN, Hussam (University of Jyväskylä); Dr KHUYAGBAATAR, Jadambaa (GSI,Helmholz-Institut Mainz); Dr SARÉN, Jan (University of Jyväskylä); Dr PAKARI-NEN, Janne (University of Jyväskylä); Mr PARTANEN, Jari (University of Jyväskylä); Dr SORRI, Juha (University of Jyväskylä); Dr UUSITALO, Juha (University of Jyväskylä); Dr KRIER, Jörg (GSI); Dr AURANEN, Kalle (University of Jyväskylä); Dr HAUSCHILD, Karl (CSNSM Orsay); Dr NISHIO, Katsuhisa (Advanced Science Research Center, Japan Atomic Energy Agency); Dr REZYNKINA, Kseniia (CSNSM Orsay); Prof. DASGUPTA, Mahananda (ANU); Prof. LEINO, Matti (University of Jyväskylä); Prof. BLOCK, Michael (GSI,Helmholz-Institut Mainz,University of Mainz); Mr MALLABURN, Michael (University of Manchester); Dr SANDZELIUS, Mikael (University of Jyväskylä); Dr RAHKILA, Panu (University of Jyväskylä); Dr RUOTSALAINEN, Panu (University of Jyväskylä); Prof. GREENLEES, Paul Thomas (University of Jyväskylä); Dr PEURA, Pauli (University of Jyväskylä); Dr PAPADAKIS, Philippos (University of Jyväskylä); Dr BRISELET, Raphael (CEA); Prof. JULIN, Rauno (University of Jyväskylä); Prof. HERZBERG, Rolf-Dietmar (University of Liverpool); Dr JUUTINEN, Sakari (University of Jyväskylä); Ms STOLZE, Sanna (University of Jyväskylä); Dr GRAHN, Tuomas (University of Jyväskylä); Dr YAKUSHEVA, Vera (GSI,Helmholz-Institut Mainz)

Presenter: Mr KONKI, Joonas (University of Jyväskylä)

Session Classification: Breakout 1