

Abstract Submitted
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Confirmation of High Neutron Yields for Ba-Mo from SF of ^{252}Cf ¹ BROOKS MUSANGU, Vanderbilt University, A. H. THIBEAULT, None, T. H. RICHARDS, University of Alabama, E. H. WANG, J. H. HAMILTON, C. J. ZACHARY, J. M. ELDRIDGE, A. V. RAMAYYA, Vanderbilt University, J. O. RASMUSSEN, Y. X. LUO, Lawrence Berkeley National Lab, G. M. TERAKOPIAN, YU. TS. OGANESSIAN, Joint Institute for Nuclear Research, S. J. ZHU, Tsinghua University — A careful analysis of the yield matrix of coincident pairs of barium ($Z = 56$) and molybdenum ($Z = 42$) fission fragments has been made in the present study. The neutron multiplicity yields of Ba-Mo, Ce-Zr, Te-Pd and Nd-Sr have been studied with improved precision by using γ - γ - γ - γ as well γ - γ - γ coincidence data and the latest level scheme structures of these nuclei. The results clearly confirm that the Ba-Mo yield data have a second hot fission mode where 8, 9, and 10 neutron evaporation channels are observed. These higher neutron evaporation channels are not observed in other fission pairs. The second mode has an intensity of $\sim 1.3\%$. This mode can indicate that ^{144}Ba is likely hyperdeformed at scission to give rise to such high neutron multiplicities. A new experiment is being planned to do fission fragment- γ - γ coincidence studies to investigate details of the fission process and to study new more neutron-rich nuclei.

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Brooks Musangu
Vanderbilt University

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