

Abstract Submitted
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Decay of the $K^\pi=23/2^-$ Isomer ($T_{1/2}=160.44$ d) in ^{177}Lu Revisited¹ F.G. KONDEV, M.P. CARPENTER, S. ZHU, I. AHMAD, C.J. CHIARA, J.P. GREENE, G. GURDAL, R.V.F. JANSSENS, T. LAURITSEN, D. SEWERYNIAK, Argonne National Laboratory, S. LALKOVSKI, Univ. of Sofia, P. CHOWDHURY, Univ. Mass. Lowell — Studies of K isomers play an important role in understanding properties of deformed, axially-symmetric nuclei. While considerable progress has been made in the past 30 years to describe the excitation energy and quantum numbers of many isomers located in different areas of the nuclear chart, prediction of their lifetimes still remains a challenge for theory. We have recently studied the deexcitation of the $K^\pi=23/2^-$ isomer ($T_{1/2}=160.44$ d) in ^{177}Lu by means of various Ge and scintillation detectors. The isomer was produced following neutron capture on ^{176}Lu (using natural lutetium material as a target) at the University of Massachusetts Lowell research reactor facility. The radioactive source was prepared following radiochemical separation of ^{177}Lu from ^{182}Ta , the latter being produced from small tantalum impurities in the natural lutetium material. Singles measurements were carried out using high-purity Ge and LEPS detectors. Gamma-ray coincidence studies were also performed with Gammasphere. In addition, two $\text{LaBr}_3(\text{Ce})$ scintillation detectors were incorporated in Gammasphere, which allowed both gamma-ray coincidences and fast-timing measurements to be performed. Results from these studies will be presented.

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