Abstract Submitted
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**Spectroscopy above the 6-qp K-isomer in $^{176}$Hf$^{*}$.** P. CHOWDHURY, E. DOUCET, A.Y. DEO, S.S. HOTA, UMass Lowell, D.M. CULLEN, U. Manchester, G. MUKHERJEE, VECC-Kolkata, F.G. KONDEV, ANL, P.T. GREENLEES, P. JONES, S. KETELHUT, S. RINTA-ANTILA, P. RUOTSALAINEN, J. SAREN, J. SORRI, S. STOLZE, JYFL-Jyvaskyla, K. HAUSCHILD, A. LOPEZ-MARTENS, CSNSM-Orsay, P.M. WALKER, U. Surrey — High-K yrast isomers are classic representations of the competition between independent particle and collective degrees of freedom in generating high angular momentum in a well-deformed nucleus. In $^{176}$Hf, 2-, 4- and 6-quasiparticle (qp) isomers were reported in early studies of high-K isomerism. The 6-qp $K^{\pi}$ =$22^{-}$ yrast isomer ($t_{1/2}$ =43 $\mu$s, $E_x$ =4864 keV), in addition to its primary decay, exhibits a small and anomalously fast decay branch [1]. A predicted 8-qp yrast trap at K=28 has remained elusive, primarily due to the lack of suitable beam-target combinations to bring in high angular momentum. A recoil-decay-tagging experiment using the $^{130}$Te($^{48}$Ca,2$n$) reaction was performed at JYFL to search for transitions feeding the 6-qp isomer, using the JUROGAM-II plus GREAT setup. Prompt gamma rays were correlated with $^{176}$Hf implants and subsequent decays in a Ge-DSSD, with decay transitions detected in the focal plane. Results from the analysis will be presented and discussed. *Supported in part by the U.S.D.O.E. Grants DE-FG02-94ER40848 (UML) and DE-AC02-06CH11357 (ANL). 1. G. Mukherjee et al., Phys. Rev. C. 82, 054316 (2010).

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