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Study of ^{171}Hf at High Rotional Frequency Y.C. ZHANG, W.C. MA, A.V. AFANASJEV, E. NGIJOI-YOGO, D.G. ROUX, R.B. YADAV, Mississippi State Univ., G.B. HAGEMANN, NBI, M.P. CARPENTER, R.V.F. JANSSENS, T.L. KHOO, F.G. KONDEV, T. LAURITSEN, E.F. MOORE, S. ZHU, ANL, P. CHOWDHURY, Univ. of Massachusetts, D.M. CULLEN, S.V. RIGBY, D.T. SCHOLES, Univ. of Manchester, M.K. DJONGOLOV, L.L. RIEDINGER, Univ. of Tennessee, D.J. HARTLEY, US Naval Academy, S. ODEGARD, Univ. of Oslo —
High-spin properties of the nucleus ^{171}Hf were studied through the fusion evaporation reaction ^{48}Ca(^{128}Te,5n)^{171}Hf at a beam energy of 209 MeV at ANL. Decay gamma rays were measured with Gammasphere detector array. Previously known [1] rotational bands were extended to considerably higher spins. Six new bands were established. One of them was identified as a prolate band with a deformation enhanced than others, with an intrinsic configuration of $\pi(i_{13/2}h_{9/2})\nu(h_{9/2})$. The proton alignments were observed at rotational frequency $\hbar\omega \sim 0.5$ MeV in several bands. The intrinsic configurations and band crossings for other bands will also be discussed based on comparisions of their properties with cranked shell model calculations. Work supported by U.S. DOE grant DE-FG02-95ER40939.
[1] D. M. Cullen *etal.*, Nucl. Phys. A673, 3 (2000).

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