Ultrahigh-spin spectroscopy of $^{168,171,172}$Hf$^{\text{\footnotesize 1}}$ W.C. MA, S. MUKHOPADHYAY, R.B. YADAV, Y.C. ZHANG, Q.A. IJAZ, J. MARSH, Mississippi State Univ., G.B. HAGEMANN, NBI, Danmark, D.M. CULLEN, Univ. of Manchester, UK, L.L. RIEDINGER, Univ. of Tennessee, D.J. HARTLEY, US Naval Academy, S. LAKSHMI, S.S. HOTA, P. CHOWDHURY, Univ. of Massachusetts (Lowell), C.J. CHIARA, Univ. of Maryland, M.P. CARPENTER, R.V.F. JANSSENS, T.L. KHOO, F.G. KONDEV, T. LAURITSEN, S. ZHU, ANL — Strongly deformed bands have been observed up to spins 50 - 60 in $^{168,171,172}$Hf from Gammasphere experiments. We identified triaxial and prolate strongly deformed (TSD and SD) structures, as well as shapes with slightly enhanced deformation with respect to normal deformed states, associated with different bands. Cranking calculations agree in general with observations in mass 160 region, but failed to reproduce the SD bands in $^{172}$Hf and heavier Hf isotopes. Wobbling excitations, an experimental fingerprint of triaxial nuclei, have been established in neighboring Lu and Ta (odd-Z) isotopes, but not in any Hf (even-Z) isotopes which are located in the center of the predicted island of TSD structures. Possible reasons will be discussed.

$^{\text{\footnotesize 1}}$Supported in part by the US DOE (DE-FG02-95ER40939 and DE-AC02-06CH11357).