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Oblate collective rotation at high spins in neutron-rich, $A\approx 180$ nuclei¹ S.K. TANDEL, U.S. TANDEL, P. CHOWDHURY, University of Massachusetts Lowell — Neutron-rich isotopes in $A\approx 180$ nuclei around the Hf region exhibit a confluence of conditions necessary for the realization of oblate collective rotation at high spins. The valence, high-j orbitals near the Fermi surface, for both protons and neutrons, have low Ω for oblate shapes in contrast to high- Ω values for prolate deformation. This situation favors oblate alignments over prolate, which leads to yrast, collective oblate shapes at high spins. Systematic calculations using both Woods-Saxon cranking and Ultimate Cranker have been performed to investigate this phenomenon, the results of which will be summarized. Excited states at high spins where oblate collective rotation is expected to become yrast are difficult to populate in these neutron-rich nuclei. The first experimental evidence of this phenomenon has been observed in ¹⁸⁰Hf, which will be briefly discussed in this context.

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