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Identification of Triaxial Strongly Deformed Bands in ¹⁶⁴Hf¹ J.C. MARSH, W.C. MA, Q.A. IJAZ, R.B. YADAV, Mississippi State Univ., G.B. HAGE-MANN, NBI, Denmark, R.V.F. JANSSENS, M.P. CARPENTER, T. LAURITSEN, S. ZHU, M. ALCORTA, C. HOFFMAN, F.G. KONDEV, G. GÜRDAL, ANL, L.L. RIEDINGER, Univ. of Tennessee, D.J. HARTLEY, US Naval Academy, S. MUKHOPADHYAY, Bhabha Atomic Research Centre, India — A Gammasphere experiment has been performed at the ATLAS facility to search for triaxial strongly deformed (TSD) bands in ¹⁶⁴Hf through the ⁹⁴Zr(⁷⁴Ge,4n) reaction. TSD bands, including families of wobbling bands, have been observed in several neighboring Lu and Ta isotopes and in ¹⁶⁸Hf as well. Theoretical studies suggest that the elevated yrast line of N = 92 isotope ¹⁶⁴Hf may reduce the excitation energy of the predicted TSD structure relative to the normal deformed yrast line. This effect, together with the proton and neutron shell gaps at large triaxiality, makes ¹⁶⁴Hf a better candidate for TSD structures. To date, two candidate TSD bands that are stronger and at lower spins than those in ¹⁶⁸Hf [1] have been identified. Another new band was suggested to be associated with near-prolate shape with an enhanced deformation relative to normal deformed structures, similar to the ED bands systematically observed in heavier Hf isotopes in recent years.

[1] R. B. Yadav et al., Phys. Rev. C 78, 04316 (2008) and references therein.

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