

Abstract Submitted
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Triple Shape Coexistence in Stable ^{64}Ni ¹ A. D. AYANGEAKAA, Department of Physics and Astronomy, University of North Carolina, Chapel Hill / Triangle Universities Nuclear Laboratory, Duke University, Durham,, D. LITTLE, R. V. F. JANSSENS, Department of Physics Astronomy, University of North Carolina, Chapel Hill and Triangle University Nuclear Laboratory (TUNL), ANL COLLABORATION, MSU/NSCL COLLABORATION, LLNL COLLABORATION, U. TOKYO COLLABORATION, KRAKOW COLLABORATION — In a tour de force involving 4 experiments at 4 different laboratories, an unexpectedly-complex landscape of triple shape coexistence was established in the stable, semi-magic ^{64}Ni nucleus. For the first time, an excited 2^+ state was also found in the prolate minimum. Shell model calculations, performed with significantly extended basis vector space, provided a microscopic understanding of the results and of the evolution in excitation energy of the prolate minimum across the $N = 40$ sub-shell gap, and highlighted the impact of the monopole interaction and its variation in strength with increasing N .

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