

Abstract Submitted
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Chaotic Behavior in Ytterbium Nuclei¹ F.S. STEPHENS, M.A. DELEPLANQUE, I.Y. LEE, A.O. MACCHIAVELLI, D. WARD, P. FALLON, M. CROMAZ, R.M. CLARK, M. DESCOVICH, R.M. DIAMOND, E. RODRIGUEZ-VIEITEZ, LBNL — We describe a new method to study the order-to-chaos transition in rotational Yb nuclei. Correlations between successive (unresolved) gamma rays are used to determine the average complexity of the intermediate levels and thereby the average ratio, v/d , of the interaction potential between levels to the level spacing. The measured ratios, 0.15 to 1.5, span the range from nearly fully ordered to nearly fully chaotic [1]. We will also describe a new project to measure the spreading width, the energy region over which a given level is mixed. Together with v/d (which measures the amplitude remaining in the initial state), this would allow us to determine v and d separately. [1] F.S. Stephens et al., Phys. Rev. Lett., in press.

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