Abstract Submitted
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Octupole deformation in ^{144,146}Ba measured by Coulomb excitation of radioactive beams[1] BRIAN BUCHER, Lawrence Livermore Natl Lab, SHAOFEI ZHU, Argonne Natl Lab, ANL, LBNL, LLNL, ROCHESTER, FLORIDA STATE, LIVERPOOL, MARYLAND, NOTRE DAME, OHIO, W. SCOTLAND COLLABORATION — The exotic, neutron-rich ^{144}Ba ($t_{1/2}$=11.5 s) and ^{146}Ba ($t_{1/2}$=2.2 s) nuclei are expected to exhibit some of the strongest octupole correlations in A<200 systems. Up to now, evidence for such strong octupole correlations has been inferred from observations of low-lying negative-parity states and from the interleaving of positive- and negative-parity levels in the ground-state band. However, the E1 transition strengths are very different in these two nuclei, with two orders of magnitude reduction in ^{146}Ba. In this experiment, we measure the octupole strength directly by Coulomb excitation of post-accelerated ^{144,146}Ba beams produced at CARIBU using CHICO2 and GRETINA. In ^{144}Ba, we found B(E3;3$\rightarrow$0)=48($^{+25}_{-34}$) W.u., a value considerably larger than theoretical predictions, while preliminary results for ^{146}Ba are also indicative of strong octupole collectivity. The experimental conditions, the analysis, and the results from these challenging new measurements will be presented.

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