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Complementary measurements of octupole collectivity in ^{146}Ce

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I intend to present the preliminary results from the IS708 experiment, which plans to use both ISS and Miniball to study octupole collectivity in ^{146}Ce using the complementary techniques of inelastic scattering and Coulomb excitation, respectively. The ISS experiment will use the Liverpool silicon array to measure the excited 2+ and 3- states populated in a (d,d') reaction. The solenoidal technique will allow for the states to be measured with good separation in the lab, and will overcome sensitivity constraints experienced with γ -ray detectors so far when measuring $B(E3)$ values in the lanthanide region. The measured cross sections will then be used as an input to a coupled channels analysis to determine the $B(E2; 0_1 \rightarrow 2_1 +)$ and $B(E3; 0_1 \rightarrow 3_1 -)$ transition strengths. A nuclear model independent measurement of the $B(E2; 0_1 \rightarrow 2_1 +)$ transition strength at Miniball, will not only serve as a benchmark test of the new method, but will also give access to other E2 and E3 transitions in the nucleus. The complementary measurements will allow for a more comprehensive understanding of octupole collectivity in ^{146}Ce and the broader lanthanide region.

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