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The single-particle states in ^{133}Sn studied through the ^{132}Sn (d,p) reaction[1] KATE JONES, University of Tennessee, JOLIE CIZEWSKI, Rutgers University, ORRUBA / RIBENS COLLABORATION — It is important, both to nuclear structure physics and to understanding the synthesis of heavy elements in the cosmos, to understand how single-particle states change as we move away from the valley of stability, especially around shell closures. A beam of ^{132}Sn, produced at ORNL's Holifield Radioactive Ion Beam Facility, was used in a transfer reaction experiment to study single-particle states beyond the double-shell closure. The beam impinged on a target of CD_2 with effective thickness of 160g/cm^2. Charged ejectiles were detected in an array of position sensitive silicon detectors, mostly of the new ORRUBA type, with SIDAR detectors at very backward angles. At forward laboratory angles, telescopes of detectors were used to discriminate protons from heavier, elastically scattered particles. From the angles and energies of the protons, the energies of the states populated in ^{133}Sn were measured. The extraction of angular distributions for individual states is in progress. The most recent results from this measurement will be presented.

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