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Single particle structure and shapes of exotic Sr isotopes[1] STEFFEN CRUZ, University of British Columbia, S1389 TEAM — States within a nucleus that have different shapes that are close in energy are referred to as shape coexisting. A dramatic occurrence of shape coexisting states is observed in nuclei in the vicinity of Z=40, N=60, which is the subject of substantial current experimental and theoretical effort. An important aspect in this context is the evolution of single particle structure for N $<$ 60 leading up to the shape transition region, which can be calculated with modern large scale shell model calculations using a ^{78}Ni core or Beyond Mean Field Models. One-neutron transfer reactions are a proven tool to study single-particle energies as well as occupation numbers. Here we report on the study of the single-particle structure in ^{96}Sr via (d,p) one-neutron transfer reaction in inverse kinematics. The experiment presented was performed in the ISAC facility using the TIGRESS gamma-ray spectrometer in conjunction with the SHARC charged-particle detector. A thorough analysis of single particle states will improve our understanding of the onset of these unique structures, encouraging the ongoing theoretical discussions. Results discussed in the context of the evolution of single-particle structure will be presented.

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