Abstract Submitted
for the DNP10 Meeting of
The American Physical Society

Study of the (d,p) reaction on ^{130,136}Xe in inversve kinematics B.P. KAY, J.P. SCHIFFER, B.B. BACK, S.I. BAKER, J.A. CLARK, C.M. DEIBEL, C.R. HOFFMAN, K.E. REHM, Argonne, S.J. FREEMAN, A.M. HOWARD, D.K. SHARP, J.S. THOMAS, Manchester, S. BEDOOR, J.C. LIGHTHALL, S.T. MARLEY, D.V. SHETTY, A.H. WUOSMAA, Western Michigan, T. BLOXHAM, Berkeley — We used the HELIOS spectrometer at Argonne National Laboratory to study the neutron-adding (d,p) reaction on ^{130,136}Xe, in inverse kinematics. Of interest is the evolution of single-particle strength across the $N = 82$ isotones in the case of ^{136}Xe, and nuclear structure relevant to the neutrinoless double beta decay matrix elements in the case of ^{130}Xe. A beam energy of 10 MeV/u was used for each Xe isotope with typical beam intensities of 0.1 pnA. The targets used were $\sim$150-μg/cm^2 thick CD_2. In both instances, an excitation-energy resolution of better than 100 keV was obtained in the outgoing proton spectra. Absolute cross sections were extracted via a simultaneous monitoring of target luminosity at small angles that takes into account in-beam degradation of the target. Angular distributions and spectroscopic factors will be presented. This work was supported by the US Department of Energy, Office of Nuclear Physics, under Contract Nos. DE-AC02-06CH11357 and DE-FG02-04ER41320, NSF Grant No. PHY-08022648, and the UK Science and Technology Facilities Council.

B. P. Kay
Argonne National Laboratory

Date submitted: 01 Jul 2010

Electronic form version 1.4