Abstract Submitted
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The influence of s states near threshold on the structure of light nuclei[1] CALEM HOFFMAN, Argonne National Laboratory — A recent work [1] identified the role of neutron s states, and their proximity to the neutron separation threshold, on the ordering of the $1s_{1/2}$ and $0d_{5/2}$ single-particle levels in light nuclei. A simple Woods-Saxon potential was used to reproduce the systematic data available for these two levels with great success by accounting for the s state binding energy. This talk will explore other noticeable trends in light nuclei involving neutron s states and utilizing simple potential models determine the role binding energy plays. The trends and calculations will aim to provide descriptions of data and predictions of yet to be found two-particle two-hole excited states in N=8 and 10 nuclei ranging from Z=4-9, as well as the energies of mirror states in neutron deficient Al and Na isotopes. Results will be compared with state-of-the-art calculations. Possible future measurements capable of probing these predictions will be discussed as well.

[1] C. R. Hoffman, B. P. Kay, and J. P. Schiffer, Phys. Rev. C 89, 061305(R) (2014).

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