Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

Development of a multi-neutron filter for use in the study of dripline nuclei JEREMY HALLETT, ANDREA MUNROE, WARREN ROGERS, Indiana Wesleyan University, MONA COLLABORATION — The MoNA Collaboration has investigated several neutron-unbound nuclidesthat decay by the emission of multiple neutrons. In the large MoNA array, it is difficult to discriminate between multiple neutron events and single neutrons scattering multiple times, so that an effective multi-neutron filter is important. Previous "causality cut" gates have proven helpful in eliminating single neutron scatters, but have also filtered out many multi-neutron events in the process. We have developed a new filter based on gates in a 2-d spectrum of "neutron space time interval" (nsi) vs. neutron scattering angle, combined with multiple proton cross-talk scattering events (where charge-exchange protons trigger multiple detector bars), which has proven to be very effective in eliminating 1-n events while maintaining a majority of multiple neutron events. We have applied this filter to three different experimental data sets and compared with simulation. Overall, this new filter improves multi-neutron statistics significantly and shows promise for use in future analysis. Results will be presented. Work supported by NSF grant PHY-2012511

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Date submitted: 31 Jul 2020   Electronic form version 1.4