Abstract Submitted
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Reaction for High Spin Spectroscopy with the SE-SPS and the Fox Lab Superconducting Linear Accelerator[1] CALEB BENETTI, SAM TABOR, CATUR WIBISONO, GORDON MCCANN, INGO WIEDENHOEVER, LAGY BABY, MARK SPIEKER, Florida State University — The investigation of nuclear structure in the mass 16-60 region has provided rich experimental data to test microscopic theory. Previously our group has used the tools and techniques of multi-gamma spectroscopy to chart out the high-spin yrast states in this mass region. It has been shown[1] that (α,d) reactions also have a preference for high spin states since the proton and neutron from the deuteron can both occupy the same state of maximal J. Surprisingly no results for ^{27}Al(α,d)^{29}Si have been published above 5MeV of excitation in ^{29}Si. I will present recent work using the FSU Fox Lab Superconducting Linear Accelerator (Linac) as an energy booster with the Super FN Tandem accelerating an alpha beam on an Aluminum target. We have been able to achieve equivalent energy resolution using this accelerating scheme as one using the FN Tandem alone. This is the first time results from using the Linac and the Super Engie Split Pole Spectrograph (SESPS) together will be presented. [1]B. G. Harvey and J. Cerny, Phys. Rev. 120, 2162 (1960). [2]R.S. Lubna *et al.* Phys. Rev. 2, 043342 (2020).

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