

Abstract Submitted  
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**High spin intruder states of  $^{44}\text{Ca}$  and  $^{45}\text{Ca}$  using fusion evaporation reactions**<sup>1</sup> ANDREW MACGREGOR, PETER DEROSA, DAN FOULDS-HOLT, PETER BENDER, Univ of Mass - Lowell — Identifying collective states with clear n-particle-n-hole structure near closed shells can reveal deformation driving orbital characteristics. Such states, often high-spin in nature, can be populated using the fusion-evaporation reaction mechanism, extracted using gamma-ray spectroscopy techniques and compared to state-of-the-art theoretical shell model calculations. Recently, an experiment to look for intruder states in  $^{44,45}\text{Ca}$  was done using the  $^{36}\text{S}(^{14}\text{C}, p)$  and  $^{36}\text{S}(^{14}\text{C}, pn)$  reactions at 34-MeV performed at Florida State University's John D. Fox superconducting Laboratory. The experimental setup included an array of HPGe detectors surrounding the enriched  $^{36}\text{S}$  as well as a Si particle detector telescope located at zero-degrees with respect to the beam axis. The telescope has allowed specific reaction residue to be correlated with observed  $\gamma$ -rays. We present preliminary results from the experiment.

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