Selective Population of Unbound Positive Parity States in $^{25}\text{F}$ and $^{26}\text{F}$

NATHAN FRANK, JACOB HERMAN, ALI RABEH, MATTHEW TUTTLE-TIMM, Augustana Coll - Rock Island, MONA COLLABORATION — Unbound Positive Parity States in $^{25}\text{F}$ and $^{26}\text{F}$ were populated in the one-proton removal reaction from a radioactive $^{27}\text{Ne}$ beam. The experiment was performed at the National Superconducting Cyclotron Laboratory (NSCL), where a 101.3 MeV/u $^{27}\text{Ne}$ ion beam impinged on a liquid deuterium target populating states in $^{26}\text{F}$. States above the one- and two- neutron separation energies lead to $^{24}\text{F}$ and $^{25}\text{F}$, respectively. The MoNA/LISA setup at NSCL was used to detect the fragments in coincidence with neutrons and the decay energy spectra of $^{25}\text{F}$ and $^{26}\text{F}$ were reconstructed by invariant mass spectroscopy. Resonance energies of approximately 0.35 MeV and 0.5 MeV for $^{25}\text{F}^*$ and $^{26}\text{F}^*$, respectively, were extracted. Based on the calculated spectroscopic strength distribution of negative and positive parity states in $^{26}\text{F}$ and the selectivity of one proton-removal reactions both states were assigned positive parity.

$^1$NSF Grant 1404236

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Date submitted: 30 Sep 2016

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