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## Collinear Laser Spectroscopy on Neutron-Deficient Al Isotopes at RISE/ BECOLA

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At the BEam COoling LAsEr spectroscopy (BECOLA) facility at the Facility for Rare Isotope Beams (FRIB), a Resonance Ionization Spectroscopy Experiment (RISE) instrument has been newly commissioned. This addition to the BECOLA facility will allow for laser spectroscopy to be conducted through both collinear fluorescence and resonant ionization methods back to back in the same beamline. The details of the commissioning will be discussed, including offline  $^{27}\text{Al}$  measurements of hyperfine coefficients on multiple transitions taken in preparation for an online experiment at FRIB. The debated proton-halo structure in  $^{22,23}\text{Al}$  will be directly addressed by determining the charge radii and electromagnetic moments through the isotope shift and hyperfine structure. A large reaction cross section [1] and a large isospin asymmetry in the mass  $A = 22$  system [2] suggest proton halo structures in  $^{23}\text{Al}$  and  $^{22}\text{Al}$ , respectively. However, the last proton presumably occupies the  $d_{5/2}$  orbital in the ground state, making the proton halo structures' existence not decisive. The first online results obtained with RISE from the experiment scheduled for May 2024 will be discussed.

[1] X. Z. Cai et al., PRC 65, 024610 (2002).

[2] J. Lee et al., PRL 125, 192503 (2020).

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