

## Spectroscopic Factors in the Neutron-Rich Ca Isotopes

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The neutron-rich calcium isotopes have been a focus both experimentally and theoretically, as a key isotopic chain with clear examples of evolving shell structure and a test-bed for microscopically-based interactions and large-space *ab initio* calculations. While spectroscopy has extended quite far along the Ca isotopes, out to  $^{56}\text{Ca}$  at least, the evolution of single-particle occupancies has only been explored in detail to  $^{50}\text{Ca}$  through direct nucleon removal reactions. This can now be extended to  $^{52,54}\text{Ca}$  with the high-resolution array at RIBF, to explore both proton and neutron occupancies for the most neutron-rich Ca. We would like to propose spectroscopic factor measurements for both neutron and proton knockout on a solid Be target from  $^{51,52,53}\text{Ca}$ . This will allow us to explore the potential breaking of the  $Z=20$  proton core, indicated by the change in charge radii in  $^{50,52}\text{Ca}$  relative to  $^{48}\text{Ca}$ , as well as the changing occupancies in the neutron sector as a function of isospin.

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