

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}Ca at least, the evolution of single-particle occupancies has only been explored in detail to ^{50}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}Ca , as well as the changing occupancies in the neutron sector as a function of isospin.

Primary authors: CRAWFORD, Heather (Lawrence Berkeley National Laboratory); FALLON, Paul (Lawrence Berkeley Laboratory)

Presenter: CRAWFORD, Heather (Lawrence Berkeley National Laboratory)

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