

Coulomb Excitation of ^{70}Fe

Thursday, 11 April 2019 12:15 (15 minutes)

One of the most compelling regions of the nuclear chart within reach of current experimental facilities is that of the $N=40$ isotopes near ^{64}Cr . Due to the strong effect of the pn interaction between the protons and neutrons at the Fermi surface, the removal of $f_{7/2}$ protons below Ni effectively alters the $f_{5/2}$ neutron spin-orbit partner energy relative to the $g_{9/2}$ and $d_{5/2}$ and narrows the $N=40$ gap, resulting in deformation as strong quadrupole and pairing correlations favor promotion of neutron pairs across the gap. However, while the mechanism driving deformation is well understood, it is experimentally critical to map the deformation in this region as one moves to and across $N=40$ toward $N=50$. Coulomb excitation allows a direct measure of deformation and collectivity, and has been performed in $^{66,68}\text{Fe}$ and ^{64}Cr –the high-resolution array at RIBF will allow extension of these measurements to ^{70}Fe , adding a critical point to the systematics beyond $N=40$.

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

Presenter: CRAWFORD, Heather (Lawrence Berkeley National Laboratory)

Session Classification: Proposals