

Continuum Nuclear Structure Accessed via the Invariant-Mass Method

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Abstract: The ground and excited states of many light, proton-rich nuclei will decay by emission of one or more protons. These nuclei provide an interesting playground for accessing nuclear structure information, in particular the decay energy, width and momentum correlations. Experimentally these particle unbound states can be accessed through nucleon knockout reactions or inelastic excitation. In this talk I will discuss recent measurements using the High Resolution Array (HiRA) at the National Superconducting Cyclotron Laboratory. I will discuss the two-proton decay of the Isobaric Analog State in ${}^8\text{B}$ and compare its decay correlations to that of its analog, ${}^8\text{C}$ ground state. I will also discuss new measurements of the one-proton decay of the Isobaric Analog States in ${}^7\text{Li}$ and ${}^7\text{Be}$. There I will present a consistent R-matrix analysis across the $A=7$, $T=3/2$ quartet.