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Abstract for an Invited Paper
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Precision measurements of light neutron-rich nuclei[1]

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New *ab-initio* approaches starting from bare two-nucleon potentials and empirical three-nucleon potentials have been quite successful in reproducing many features of light nuclei. These sophisticated methods are constantly developing and precise measurements are necessary to challenge and refine the calculations. An improved Doppler Shift Attenuation method (DSAM) to measure lifetimes of bound states in light nuclei will be presented. Key aspects essential for achieving <5% accuracy with the DSAM include careful selection of the kinematic conditions for producing the states of interest at high velocities where the stopping powers are well categorized, control of feeding from higher levels, and advancements in γ-ray detection. The latter aspect will be discussed in terms of the advantages of using GRETINA to make measurements of high energy γ rays from nuclei moving at high recoil velocities (v/c $\sim$ 10%). The technique will be outlined for ^{10}Be and the prospects/challenges of moving to more neutron-rich systems will be discussed.

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