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**Universality and the Coulomb dissociation of two-neutron halos**[1]

DANEL PHILLIPS, BIJAYA ACHARYA, Ohio University, PHILIPP HAGEN, University of Bonn, HANS-WERNER HAMMER, Techincal University, Darmstadt —
In the limit of large two-body s-wave scattering length few-body systems display *universality*: their properties are independent of the details of interactions. Such universality is present in halo nuclei where two neutrons orbit a tightly bound nuclear core. There, the neutron-neutron (nn) scattering length is much larger than the range of the nn force, and, if the neutron-core scattering length obeys $|a| \gg R$, the system can be described by an effective field theory (EFT) based on this separation of scales. In this "Halo EFT" the degrees of freedom are the neutrons and the core; core structure is included at higher order in the EFT. At leading order (LO) in the $R/a$ expansion one three-body datum is needed as input to obtain renormalized predictions for core-n-n observables. Here we take that datum to be the two-neutron separation energy, $S_{2n}$, of a 2n-halo nucleus. At LO all properties of a 2n-halo are functions of $S_{2n}$ and the two-body scattering lengths. In particular, its Coulomb dissociation spectrum is a universal function of these parameters. We compute that function, and compare it to experimental data from $^{11}$Li. We also discuss how measurements of the Coulomb dissociation of $^{22}$C can constrain both its $S_{2n}$ and properties of $^{21}$C.

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Daniel Phillips
Ohio University

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