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Core Excitation in Few-Body Reaction Theory NEIL SUMMERS, LLNL, FILOMENA NUNES, NSCL/MSU, IAN THOMPSON, LLNL, STEVEN PAIN, ORNL — Direct reactions theories involving one-neutron halo nuclei such as ^{11}Be, typically treat the nucleus as a two-body projectile where the valence neutron and core degrees are freedom are explicitly included in the reaction. This allows inclusion of the two- body breakup continuum in the reaction calculation. One such model is the Continuum Discretized Coupled Channels (CDCC) method, where the breakup continuum is expanded into partial waves and discretized in energy. Recent advances in this method, called XCDCC (X for eXtended), allow for the treatment of excited states for the ^{10}Be core. This goes beyond the single particle model that reaction theories typically employ, and allows for coupled-channel descriptions of the projectile. By including excited states of the core the properties of the projectile can be more accurately described in the reaction, such as the B(E1) strength crucial for Coulomb excitation and breakup. We will present the results of extracting the B(E1) strength of ^{11}Be from the Coulomb excitation experiments performed at GANIL, MSU and RIKEN.

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