^{6}Li **structure information from** ^{2}He$(\alpha,\alpha)^{2}$He **scattering**

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Experiments on scattering of deuterons from ^{4}He and α-particles from deuterium date back to the 1930s. Since then, a large volume of data has been accumulated on the low-energy elastic-scattering cross section, showing prominent resonance structures. Despite this, all theoretical interpretations of the data, with two exceptions, are limited to parameterised functional fitting to data with no nuclear-model input, be it a complicated many-parameter technique, a simple Breit-Wigner function for resonances, or a polynomial fit to featureless areas. Such approaches provide no insight into this fundamental nuclear physics problem.

The exceptions have been a resonating group method study by Thompson and Tang in 1967, and recent work by Hupin, Quaglioni, Navrátil using an *ab initio* no-core shell model / resonating group method. We add to these interpretations by using a multi-channel algebraic scattering (MCAS) method. We couple the spin-0 α-particle projectile to the 1^{+} ground and mooted $^{1}S_{0}$ state of deuterium, and use a rotor model to describe the target. Such a prescription is sufficient to recreate the lowest six states of the ^{6}Li spectrum. This, as well as preliminary results for elastic cross sections will be presented.