Continuum effects: Structure and reactions of ^{6}He

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A description of the properties and reactions of weakly bound systems using the transformed harmonic oscillator (THO) method [1,2] is addressed. First, a study of a two-body problem in a central potential is presented focusing in the description of resonances [3]. Then, the THO method is generalized for a three-body problem. The convergence of different relevant structure observables is discussed for the Borromean nucleus ^{6}He [4]. Finally, the THO method is applied to the study of ^{6}He scattering within the CDCC reaction framework [5].

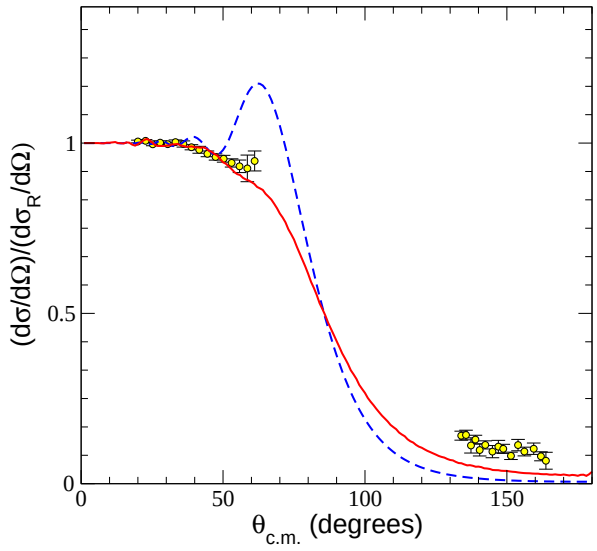

Figure 1: *Elastic differential cross section relative to the Rutherford differential cross section as a function of the scattering angle in the projectile-target center of mass for the reaction ^{6}He+^{208}Pb. The red line corresponds to the full CDCC calculation and the broken blue line to the calculation including only the elastic channel. Both calculations are compared with the Louvain-la-Neuve data represented by yellow circles.*

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