Abstract Submitted
for the DNP12 Meeting of
The American Physical Society

Towards Nuclear Reactions from Lattice QCD RAUL BRICENO, University of Washington — In this talk I will motivate the evaluation of nuclear reactions cross sections from Lattice Quantum Chromodynamics (LQCD) and discuss challenges associated with such calculations. In particular, I will explore the connection between the energy spectrum of a three-body system in a finite volume and infinite volume scattering matrix elements using an effective field theoretical approach. The implication of this formalism for studying systems composed of a particle and a bound-state below the bound-state break- up, as well as a trimer state will be discussed. I will show that one in fact recovers a Luscher-like quantization condition for sufficiently low-energy up to exponential corrections in the volume due to the size of the two-particle bound-state. I will briefly discuss the similarities of the three-body problem and that of two- body coupled-channels systems and will comment on challenges in applying the formalism above the inelastic threshold.

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Date submitted: 30 Sep 2012   Electronic form version 1.4