Abstract Submitted
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Lagrange Meshes in Hadronic Physics TAYLOR HYNDS\textsuperscript{1}, Florida
State University — We examine different methods of solving the Schrödinger equa-
tion for two and three-body systems. We begin by constructing variational wave
functions, as expansions in a basis of orthogonal polynomials. This method has
been found to give accurate results, given a sufficiently large basis. However, com-
putationally this can become very cumbersome. We therefore employ the Lagrange-
mesh method, which leads to a simple calculation of both potential and kinetic
matrix elements that is both computationally efficient and results in little to no loss
in accuracy. This method has been applied to several problems with well known an-
alytical solutions, and has given excellent results. The effectiveness of this method
in analyzing bound states of quarks has yet to be demonstrated. In the future this
method will be applied to the quantum-mechanical three-body problem.

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