

Abstract Submitted
for the DAMOP08 Meeting of
The American Physical Society

Elastic Scattering using artificial confining potentials JIM MITROY, JUN-YI ZHANG, Faculty of Technology, Charles Darwin University, Darwin NT 0909, Australia — It is shown that the discrete energies of a scattering Hamiltonian calculated under the influence of an artificial confining potential can be used to determine its phase shifts. Two potentials that have the same discrete energy under the influence of the confining potential will have exactly the same phase shift at that energy when the confining potential is removed. This result can be exploited by a variety of techniques to determine the phase shifts of many-body scattering problems. Results for both model problems and real physical systems such as e^\pm -H, e^\pm -He, Ps-H, and Ps-He are presented.

Jun-Yi Zhang
Faculty of Technology, Charles Darwin University, Darwin NT 0909, Australia

Date submitted: 20 Jan 2008

Electronic form version 1.4