Abstract Submitted
for the APR09 Meeting of
The American Physical Society

Scattering using Euclidean Green functions[1] PHILIP KOPP, WAYNE POLYZOU, University of Iowa — We show that it is possible to compute differential cross sections using matrix elements of polynomials in $e^{-\beta H}$ in normalizable states. These matrix elements can be calculated by quadrature using reflection-positive Euclidean Green functions. The the proposed method is based on an explicit "time-dependent" computation of the Møller wave operators using the Kato-Birman invariance principle to replace H by $-e^{-\beta H}$ in the expression for the wave operators. The compact spectrum of $-e^{-\beta H}$ allows uniform polynomial approximations of continuous functions of $-e^{-\beta H}$. We tested the method using a solvable model with the range and strength of a typical nucleon-nucleon interaction and found convergence to the transition matrix elements for energies up to 1.5 GeV.

[1]This work was performed under the auspices of the U. S. Department of Energy, Office of Nuclear Physics, under contract No. DE-FG02-86ER40286 with the University of Iowa.

Wayne Polyzou
University of Iowa

Date submitted: 05 Jan 2009 Electronic form version 1.4