

Abstract Submitted
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Application of the Polar R-Matrix Theory to Electron-Hydrogen Atom Scattering EDDIE RED, ALBERT WYNN III, CHARLES WEATHERFORD, Florida A&M University — The time-independent Schroedinger operator for electron-hydrogen atom scattering will be written in polar form (product of a positive definite hermitian operator times a unitary operator) and then used to calculate the R-matrix with arbitrary boundary conditions on a finite sphere. In the process, an approximate inverse of the Schroedinger operator will be constructed by projection onto the eigenstates of the positive definite hermitian component of the Schroedinger operator. This allows for an effective variational minimum principle by determination of the most rapidly converging expression for the operator inverse. The R-matrix will then be projected to infinity where the scattering matrix will be extracted.

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