Abstract Submitted
for the DAMOP05 Meeting of
The American Physical Society

R-matrix with pseudo-states calculation for electron scattering from rubidium[1] BENJAMIN KRUEGER, DANIEL PAYNE, KLAUS BARTSCHAT, Drake University — We have applied an R-matrix with pseudo-states model to calculate electron scattering from rubidium atoms. Using a semi-empirical model potential to describe the Rb^+core [1], we obtain a highly accurate description of the target valence spectrum. Results will be presented for total and angle-differential cross sections, spin-polarization and asymmetry functions, and various electron-impact coherence parameters. The convergence of the theoretical predictions with the number of states in the close-coupling expansion is analyzed. Comparison of the results with recent experimental data [2,3] shows satisfactory though by no means perfect agreement.

[1] K. Bartschat, *Computational Atomic Physics* (Springer, 1996), Ch. 2.
[2] B.V. Hall *et al.*, J. Phys. B **37** (2004), 1113.
[3] W.E. Guinea *et al.*, J. Phys. B **38** (2005), in press.

[1]REU project, partially supported by the NSF under PHY-0244470.

Klaus Bartschat
Drake University

Date submitted: 28 Jan 2005 Electronic form version 1.4