Abstract Submitted
for the DAMOP10 Meeting of
The American Physical Society

Cross sections for electron scattering from S II[1] SWARAJ TAYAL, Clark Atlanta University, OLEG ZATSARINNY, Drake University — The improved atomic calculations for electron impact excitation cross sections for S II have been performed using the B-spline Breit-Pauli R-matrix method. The flexible non-orthogonal sets of spectroscopic and correlation radial functions are employed for an accurate representation of the target states and to represent scattering functions. The close-coupling expansion includes 70 bound levels of S II covering all possible terms of the ground $3s^2 3p^3$ and excited $3s3p^4$, $3s^2 3p^2 3d$, $3s^2 3p^2 4s$, and $3s^2 3p^2 4p$ configurations. The calculated excitation energies of the target levels are in excellent agreement with experiment and represents an improvement over the previous calculations. The present results of cross sections are compared with variety of other close-coupling calculations and available experimental data. The present results are in good agreement with other theories and experiment for the $3s^2 3p^3\ ^4S^o \rightarrow\ ^2D^o$ transition, but some differences in magnitude and shape for the forbidden $3s^2 3p^3\ ^4S^o \rightarrow\ ^2P^o$ and resonance $3s^2 3p^3\ ^4S^o \rightarrow 3s3p^4\ ^4P$ transitions are noted.

[1]This research is supported by NASA under grant NNG09AB63G from the Planetary Atmopheres Program.

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Date submitted: 21 Jan 2010 Electronic form version 1.4