Abstract Submitted
for the DAMOP05 Meeting of
The American Physical Society

Measurement of Absolute Cross Sections for Excitation of the $\mathbf{2s}^2S - 2s2p^1P^o$ Transition in $\mathbf{O}^{4+}$ STEVEN J. SMITH, N. DJURIC, J. A. LOZANO, A. CHUTJIAN, JPL/Caltech, K. A. BERRINGTON, Sheffield Hallam University, Sheffield UK — Experimental electron excitation cross sections are reported for the $2s^2S$ - $2s2p^1P^o$ transitions in O^{4+} located at 19.689 eV. The JPL electron-cyclotron resonance ion source is utilized [1], along with the electron energy loss method, in a merged electron-ion beams geometry[2]. The center-of-mass interaction energies for the measurements are in the range 18 eV (below threshold) to 30 eV. Data are compared with results of a 26-term ***R***-matrix calculation that includes fine structure explicitly *via* the Breit-Pauli Hamiltonian [3]. There is good agreement with theoretical results and with previous electron energy-loss measurements [3]. Clear resonance enhancement is observed in both experiment and theoretical results near threshold for this ^1S - $^1P^o$ transition. J. Lozano and N. Djuric acknowledge support through the NASA-NRC program. This work was carried out at JPL/Caltech and was supported by NASA. [1] J. B. Greenwood, S. J. Smith, A.Chutjian, and E. Pollack, Phys. Rev. A **59** 1348, (1999). [2] A. Chutjian, Physica Scripta **T110**, 203 (2004). [3] M. Bannister et al., Int.J. Mass Spectrometry **192**, 39 (1999).

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Date submitted: 28 Jan 2005 Electronic form version 1.4