

Abstract Submitted
for the DAMOP06 Meeting of
The American Physical Society

Relativistic configuration-interaction calculations for the $4s - 4p$ transition energies of zinlike heavy ions¹ M. H. CHEN, K. T. CHENG, Lawrence Livermore National Laboratory, Livermore, CA 94550 — The $4s^2\ ^1S_0 - 4s4p\ ^1,^3P_1$ transition energies for zinlike ions with $Z = 70, 76, 83, 90$ and 92 are calculated using the relativistic configuration-interaction (RCI) method. These calculations are based on the *no-pair* Hamiltonian which includes both Coulomb and frequency-dependent retarded Breit interactions and use one-electron B-spline orbitals as basis functions. Our RCI configuration expansions include not only single and double excitations but also dominant triple and quadruple excitations for highly accurate correlation results, and Davidson's method is used to solve these large eigenvalue problems for the first few eigenstates. Quantum electrodynamic and mass polarization corrections are also calculated. Our transition energy results are in very good agreement with recent high precision EBIT measurements by Träbert *et al.*[Phys. Rev. A **70**, 032506 (2004)].

¹This work was performed under the auspices of the U.S. DOE by the University of California, Lawrence Livermore National Laboratory under contract No. W-7405-ENG-48.

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Date submitted: 19 Jan 2006

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