Abstract Submitted
for the DAMOP11 Meeting of
The American Physical Society

**Ionization and excitation in collisions between antiprotons and H(1s) atoms** THOMAS WINTER, Pennsylvania State University — Coupled-state cross sections have been determined for ionization and excitation to states up to H(3d) in collisions between 1 keV to 16 MeV antiprotons and H(1s) atoms\(^1\) using the same two-center, as well as one-center, Sturmian bases as for proton projectiles.\(^2\) A detailed comparison and strong contrast at lower energies is made with results for equi-energy proton projectiles, while at high energies all cross sections are tied explicitly to the first-Born limit to better than 1%. The use of a double-center basis for antiproton projectiles, in spite of there being no capture channels, was first suggested and carried out by Toshima with a large Gaussian basis\(^3\); it provides both additional variational freedom and allowance for antiproton-centered effects, including charge-cloud depletion. Results will be compared with recent theoretical results\(^4\) and earlier results, including experimental ionization cross sections.\(^5\)