

Abstract Submitted
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High Resolution Studies of Low Energy Positron Collisions with Helium STEPHEN BUCKMAN, JAMES SULLIVAN, PETER CARADONNA, ADRIC JONES, CASTEN MAKOCHEKANWA, DANIEL SLAUGHTER, Australian National University, MARK STEVENSON, BIRGIT LOHMANN, University of Adelaide, CENTRE FOR ANTIMATTER-MATTER STUDIES COLLABORATION — A high resolution, trap-based beam of positrons has been used to study total scattering, positronium formation and direct ionization of He atoms. The energy resolution of the positron beam is typically 65 meV, and measurements have been carried out at incident positron energies between 1 and 60 eV. The experimental arrangement consists of a pulsed beam of positrons from a Surko trap combined with a gas cell containing the helium target gas and a retarding potential analyzer (RPA). The beam is confined radially using a 500 gauss magnetic field and the RPA allows absolute cross sections to be obtained by measuring the scattering rate for each process. Normalisation depends only on a measurement of the target gas pressure (in the milliTorr range) and the length of the scattering cell. Results will be compared with previous measurements and contemporary theory.

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