

Abstract Submitted
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Cusp formation in positron scattering at the positronium formation threshold JAMES SULLIVAN, Centre for Antimatter-Matter Studies, RSPE, Australian National University, ADRIC JONES, PETER CARADONNA, CASTEN MAKOCHEKANWA, DAN SLAUGHTER, STEPHEN BUCKMAN — The extent to which channel coupling plays a role in positron scattering cross sections has long been debated, and recent work has suggested that a step-like feature in the elastic cross section is due to the rapid rise of the positronium formation cross section from threshold [1]. The low energy, high resolution beamline at the Australian Positron Beamline Facility provides a useful tool with which to study such effects. It provides a means to measure the grand total, positronium formation and elastic scattering cross sections in the region of interest, as well as having the capacity to make measurements of other inelastic scattering processes [2]. This talk will present measurements of positron scattering from noble gas atoms in the region of the positronium formation threshold showing cusp-like features in the elastic scattering channel for each target measured. Comparison with recent work on this phenomenon will be made and discrepancies in the two measurements discussed.

[1] Coleman et al., Phys. Rev. Lett. **102**, (2009) 173201

[2] Sullivan et al., Rev. Sci. Instr. **79** (2008) 113105

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