## Abstract Submitted for the DAMOP12 Meeting of The American Physical Society

Positron scattering measurements from Krypton and Xenon JAMES SULLIVAN, JOSHUA MACHACEK, CASTEN MAKOCHEKANWA, ADRIC JONES, PETER CARADONNA, DANIEL SLAUGHTER, STEPHEN BUCKMAN, Australian National University, DENNIS MUELLER, University of North Texas — As a part of a comprehensive program of low energy positron scattering, measurements have been made for a variety of scattering processes from the heavier rare gases, krypton and xenon. In the case of positron scattering, there have been large disagreements between different experiments, and experimental and theoretical determinations of scattering cross sections for these targets. A wide range of low energy positron scattering measurements is now possible, thanks to the development of the Surko trap and beam system, which provides a high energy resolution source of positrons [1-3]. The resulting positron beam is magnetised, and techniques developed for measuring cross sections in the magnetic fields mean that a wide range of scattering processes are now able to be investigated with high accuracy. This presentation will present measurements of total scattering, positronium formation and elastic differential scattering for both of these targets. The strongly forward peaked nature of the differential cross sections will be highlighted, especially as it relates to previous disagreements between different experimental measurements of the grand total cross section. In the case of positronium formation, the difference between present measurements and previous studies will also be discussed. [1] T. Murphy and C. M. Surko, Phys. Rev. A 46, 5696 (1992) [2] S. J. Gilbert et al., Appl. Phys. Lett. **70**, 1944 (1997) [3] J. P. Sullivan et al. Phys. Rev. A **66**, 042708 (2002)

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