

TRENDS IN POSITRON SCATTERING FROM NOBLE GASES

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Abstract. We have a program of low energy (< 100 eV), high resolution (~ 60 meV), positron scattering from atoms and molecules which is being facilitated by a high-flux, trap-based positron beamline facility at the Australian National University (Sullivan et al. 2008). The positron beam utilised is a pulsed beam which operates at about 100 Hz. A typical pulse will contain about 1000 positrons. For noble gases, our goals range from establishing 'benchmarks' for positron scattering cross sections, to investigation of threshold effects in processes such as positronium formation and ionization. This paper will present examples of trends observed in a number of scattering processes in He, Ne, Ar, Kr and Xe. The project includes investigations of the

- elastic cross sections
- positronium formation cross sections
- total cross sections

Where possible the current experimental results will be compared with the best available theoretical calculations and other experimental data from literature.

References

Sullivan, J. P., Jones, A., Caradonna, P., Makochekanwa, C., Buckman, S. J.: 2008, *Rev. Sci. Instrum.*, **79**, 113105.