

Abstract Submitted
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Positron Impact Ionization in Noble Gas Atoms and Diatomic Molecules¹ J.P. MARLER, C. M. SURKO, University of California-San Diego — Results are presented for absolute positronium formation and direct ionization by positron impact on Ne, Ar, Kr, Xe, N₂, CO and O₂ at energies from threshold up to 90 eV. The experiments use a high-resolution, trap-based positron beam and exploit the properties of positron orbits in a magnetic field [1]. Results for the noble gases are compared with theoretical predictions and with measurements obtained using a significantly different method [2]. Results for diatomic molecules are compared to other available measurements and theoretical calculations where available. There is generally good agreement between the experimental measurements, providing an important benchmark for theoretical calculations. Intriguing features in Ar and O₂ will be discussed.

[1] J.P. Sullivan, S.J. Gilbert, J.P. Marler, R.G. Greaves, S.J. Buckman and C.M. Surko., *Phys. Rev. A.* **66**, 042708 (2002)

[2] J.P. Marler, J.P. Sullivan and C.M. Surko, *Phys. Rev. A* (2005), in press.

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