

Abstract Submitted
for the DAMOP08 Meeting of
The American Physical Society

Positron transport in low pressure argon JOAN MARLER, University of Aarhus, Denmark, Z.LJ. PETROVIĆ, M. ŠUVAKOV, G. MALOVIĆ, Institute of Physics, Belgrade, Serbia, S.J. BUCKMAN, R.E. ROBSON, ARC Centre for Antimatter-Matter Studies, ANU Canberra, Australia — Motivated by an increasing number of applications, new techniques in the analysis of electron transport have been developed over the past 30 years or so, but similar methods had yet to be applied to positrons. We present the first in-depth look at positron transport in pure argon gas using a recently established comprehensive set of cross sections and well-established Monte-Carlo simulations. The behavior of positrons can be markedly different from electrons, e.g., a positron swarm can appear to move only slowly away from the positive electrode even though the average velocity may be considerable. This may be understood by realizing that Ps formation in argon has a comparatively large, strongly energy-dependent cross section and significantly retards the centre-of-mass motion of the swarm. From an experimental point of view, positron swarms may be the best place to look for theoretically predicted non-conservative effects on transport phenomena.

Joan Marler
University of Aarhus

Date submitted: 28 Jan 2008

Electronic form version 1.4