

Abstract Submitted
for the DAMOP10 Meeting of
The American Physical Society

Positron scattering with molecules of biological relevance

JAMES SULLIVAN, CASTEN MAKOCHEKANWA, DAN SLAUGHTER, PETER CARADONNA, ADRIC JONES, WADE TATTERSALL, STEPHEN BUCKMAN, Australian National University, ANA BANKOVIC, ZORAN PETROVIC, Institute of Physics Belgrade, KATE NIXON, MICHAEL BRUNGER, Flinders University, CENTRE FOR ANTIMATTER-MATTER STUDIES COLLABORATION — Positron annihilation provides the basis of Positron Emission Tomography (PET), a medical imaging technology now in widespread use throughout the world. Understanding radiation dose rates is crucial in applying this technique, and current methods are based on models assuming the positron behaves identically to an electron, as well as lacking the real physics in the scattering processes as represented by measured scattering cross sections. At the Australian Positron Beamline Facility we have undertaken a program of measurements investigating positron scattering from biologically relevant molecules, to form the basis of a new model of dosimetry in PET scans. Measurements of positron scattering from water and formic acid will be presented, including the first measurements of positronium formation cross sections for these targets.

James Sullivan

Date submitted: 22 Jan 2010

Electronic form version 1.4