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Positron Interactions with Biologically Important Molecules<sup>1</sup> C. MAKOCHEKANWA, W. TATTERSALL, J. SULLIVAN, A. JONES, P. CARADONNA, D. SLAUGHTER, S. BUCKMAN, CAMS, Australian National University, Canberra, A. BANKOVIC, Z. LJ. PETROVIC, Institute of Physics, Belgrade, Serbia, K. NIXON, M. BRUNGER, CAMS, Flinders University, Adelaide, South Australia — Positron interactions with molecules in the body are likely to play a key role in diagnostic techniques such as Positron Emission Tomography (PET). PET scans involve the injection of a high-energy positron into the body, and the detection of the resultant gamma rays that arise on annihilation with an electron. The processes between the emission of the high-energy particle and the gamma ray production involve positron-molecule scattering, and yet there is essentially no fundamental, quantitative knowledge of these interactions. We will discuss a program of measurements that is underway to quantify such scattering processes and illustrate our first results with the water molecule and formic acid. The ultimate aim of this program is to underpin the development of positron transport studies in soft matter and a new dosimetry for PET.

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