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Electron and Positron Scattering from Pyrimidine[1] P. PALIHAWADANA, J. MACHACEK, C. MAKOCHEKANWA, J. SULLIVAN, S. BUCKMAN, CAMS, The Australian National University, Canberra, Australia, M. BRUNGER, CAMS, Flinders University, South Australia, C. WINSTEAD, V. MCKOY, Caltech, CA, USA, G. GARCIA, CSIC, Madrid, Spain, F. BLANCO, Universidad Complutense de Madrid, Spain — Pyrimidine ($C_4H_4N_2$) is a model molecule for studying both electron and positron interactions with DNA/RNA bases, as three of the five nucleobases (cytosine, thymine, and uracil) are pyrimidine derivatives. In this work we present absolute elastic differential cross sections for scattering of low-energy electrons (3-50 eV) by pyrimidine measured using a crossed electron-target beam apparatus at the Australian National University. Cross sections calculated using the Schwinger variational technique and a screening-corrected form of the independent-atom method are provided for comparison with the measured results. We also present absolute total and differential cross sections, recently measured at the positron beamline facility at the Australian National University, for positron scattering from pyrimidine. The measurements are taken using a magnetically confined positron beam (1-200 eV) with typical energy resolution of 60 meV. These measured cross sections are used to discuss key features between electron and positron scattering processes.

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