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Ionisation by Positron and Positronium Impact

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For positron impact, unexpected asymmetries in the energy sharing between the scattered projectile and ejected electron have been observed for the first time: the electron spectrum is shifted to significantly lower (and the scattered positron to correspondingly higher) energies than predicted by theory. The observations are not fully understood but it has been suggested that the correlation between the electron/positron and the remaining ion and/or the competition from the positronium might be responsible. In the case of Ps projectiles, their fragmentation in atomic collisions has been investigated and a predicted asymmetry between the differential energy spectra of the residual particles has now been experimentally confirmed. The support of the Engineering and Physical Science Research Council UK (grant No GR/S16041/01), the Royal Society and the European Union (HPRN-CT-2002-00179 EPIC) is gratefully acknowledged.