

Positron Impact Ionization of water molecule

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The cross-sections for ionization and fragmentation of water are relevant in radiation damage and in the chemistry of planetary atmosphere. However, whilst data for electron-water interaction are available for a variety of processes [e.g. 1], measurements for positron-water interactions are very scarce [2, 3]. In particular, only an indirect estimation of Ps formation cross-section exist [4]. These observations triggered our recent investigation of water ionization by positron. The test run for direct ionization of Ar is compared with earlier data [5] and a good agreement with published results has been found. Thereafter, the direct ionisation cross-section for positron induced ionization of water has been measured for the first time. Total ionisation and Ps formation cross-section have been obtained. Finally, the double differential cross-section for water vapour has been also measured for the first time.

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