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DETERMINATION OF THE SINGLE AND DOUBLE IONIZATION ENERGIES OF FLUOROALKANES

W. J. Griffiths

Chemistry Department, University of the West Indies, Mona, Kingston 7 (Jamaica)

and F. M. Harris

Mass Spectrometry Research Unit, University College of Swansea, Singleton Park, Swansea SA2 8PP (U.K.)

Double-charge-transfer spectroscopy [1] has been used to measure the double ionization energies of the fluoroethanes CH_3CH_2F, CH_3CHF_2, CH_3CF_3, CH_2FCHF_2, CHF_2CF_3 and CF_3CF_3, the values obtained are 32.5, 35.0, 36.4, 33.3, 35.8, and 38.7 eV respectively . The double ionization energies of these compounds were previously unknown.

Since double-charge-transfer spectroscopy also gives information about single ionization energies of molecules, the single ionization energies of CH_2F CHF_2,CHF_2CF_3 have been measured for the first time, the values determined were 12.7 and 13.6 eV respectively.

1 J. Appell, J. Durup, F.C. Fehsenfeld and P. Fournier, J. Phys. B., 7, 406 (1974).