Calculation of Electron Affinity and Partial Cross Sections of Hf−1

LIN PAN, DONALD BECK, Michigan Technological University — We have calculated for the first time the electron affinity (EA) of Hf−, using the relativistic configuration interaction method. Our calculations show Hf− has only one bound state 5d²6s²6p J=5/2, which is a 6p attachment to the ground state of Hf I. By combining our valence stage result with the separate estimate for the modest core-valence contribution, the EA of Hf− is about 0.114 eV. So far there have been only two experimental results [1,2] for the EA of Hf−, but both gave only the limits. Our result falls within both of the limits. We also calculate the partial cross sections for photodetachment to the lower lying neutral thresholds. [1] M-J. Nadeau et al, Nucl. Instr. and Meth. B 123, 521 (1997) [2] Vernon T. Davis et al, Nucl. Instr. and Meth. B 241, 118 (2005)

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