MEASUREMENT OF THE ELECTRON BINDING ENERGY OF SIZE SELECTED $IBr^-(CO_2)_n$ CLUSTERS THROUGH ANION PHOTOELECTRON IMAGING

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We report the measurement of the electron binding energies of size selected $IBr^-(CO_2)_n$, n<10 cluster anions. The data are interpreted using *ab initio* calculations and Franck-Condon simulations to assist in the assignment of the photoelectron spectra. The $IBr(CO_2)_n$ anion are formed by a 1 kV electron impact on dilute IBr and CO_2 in a pulsed supersonic expansion. Time-of-flight mass spectrometry allows a size-selected cluster anion to interact with a pulsed ultraviolet laser radiation tunable between 210 and 320 nm. The photodetached electrons are energy analyzed using a photoelectron imaging spectrometer operating in the velocity map imaging mode. The spectrometer determines electron kinetic energy, with an energy resolution of 2.5 percent. Trends in electron binding energy as a function of size will be discussed in regard to the trend that develops upon the addition of each cluster, and compared to previous photoelectron spectroscopy of $I_2(CO_2)_n$ clusters. Supported by NSF and AFOSR.