PHOTOELECTRON IMAGING OF SMALL ANIONIC CLUSTERS

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We report photoelectron spectra of anion clusters obtained with a new negative ion photoelectron imaging spectrometer. The design of the imaging portion of the spectrometer is based upon the design reported by Sanov and coworkers [E. Surber, R. Mabbs, and A. Sanov, *J. Phys. Chem. A* **107**, 8215-8224 (2003)]. Negative ions and subsequent clusters are formed in a pulsed supersonic expansion, either by electron impact or by a sputtering discharge near the origin of the expansion. The desired anion is selected with a time of flight spectrometer and photodetached with radiation tunable between 210 and 800 nm. The photoelectron image is obtained in an electron imaging spectrometer oriented perpendicular to the ion velocity, and operated in a velocity focusing mode. Initial results yield a photoelectron energy resolution of 40 meV FWHM at 500 meV energy. First results on copper water negative clusters will be presented and compared with predictions by McCoy. These data complement the $Cu(H_2O)$ charge reversal carried out in our laboratories.
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