

## PHOTOELECTRON IMAGING OF OXIDE.VOC CLUSTERS

KELLYN M. PATROS, JENNIFER MANN, CAROLINE CHICK JARROLD, *Department of Chemistry, Indiana University, Bloomington, IN, USA.*

Perturbations of the bare O<sub>2</sub><sup>-</sup> and O<sub>4</sub><sup>-</sup> electronic structure arising from VOC (VOC = hexane, isoprene, benzene and benzene.D6) interactions are investigated using anion photoelectron imaging at 2.33 and 3.49 eV photon energies. Trends observed from comparing features in the spectra include VOC-identity-dependent electron affinities of the VOC complexes relative to the bare oxide clusters, due to enhanced stability in the anion complex relative to the neutral. Autodetachment is observed in all O<sub>4</sub><sup>-</sup>.VOC spectra and only isoprene with O<sub>2</sub><sup>-</sup>. In addition, the intensities of transitions to states correlated with the singlet states of O<sub>2</sub> neutral via detachment from the O<sub>2</sub><sup>-</sup>.VOC anion complexes show dramatic VOC-identity variations. Most notably, benzene as a complex partner significantly enhances these transitions relative to O<sub>2</sub><sup>-</sup> and O<sub>2</sub><sup>-</sup>.hexane. A less significant enhancement is also observed in the O<sub>2</sub><sup>-</sup>.isoprene complex. This enhancement may be due to the presence of low-lying triplet states in the complex partners.