

HETEROGENEOUS INTERFACES INVESTIGATED BY AMBIENT PRESSURE X-RAY PHOTOELECTRON SPECTROSCOPY

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Solid/vapor and solid/liquid interfaces are ubiquitous in technological applications and govern numerous important phenomena, including catalysis, corrosion, photo-electrochemical splitting of water, and electroplating. A detailed understanding of these processes requires the investigation of solid/vapor and solid/liquid interfaces with chemical sensitivity and interface specificity under operating conditions. Ambient pressure X-ray photoelectron spectroscopy is an excellent method to probe the heterogeneous chemistry of these interfaces, and provides in addition the opportunity to measure the local potentials simultaneously with the chemical composition through the observation of shifts in the kinetic energy of the photoelectrons, which serve as a non-contact probe. This talk reviews the progress that has been made in the area of ambient pressure X-ray photoelectron spectroscopy experiments on heterogeneous interfaces, including electrochemical systems and materials used for the capture and decomposition of harmful airborne substances, and provides an outlook on opportunities for future research in this field.