Angle resolved photoelectron spectroscopy of radicals produced in a flowtube reactor

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Reactive intermediates are of paramount importance in gas phase chemistry and their characterization and detection offers critical information on the mechanisms at play. Here, I will present a continuous MW discharge flow-tube reactor for the production and characterization of radicals that has been in operation for the past several years at the DESIRS VUV beamline (Synchrotron SOLEIL, France).¹ We have combined advanced electron/ion coincidence techniques and tuneable VUV synchrotron radiation to record the photoelectron spectroscopy^{2–4} and absolute ionization crosssections^{5,6} of reactive intermediates present in a variety of media. Comparison with theoretical calculations yields precise ionization energies and valuable information on their structure. I will show how these data are being used for *in-situ* identification of reactive intermediates in gasphase reactions, and how the angular distributions can be used as a chiroptical technique to detect chiral intermediates in asymmetric reactions.





References

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