Ion/Electron Coincident Velocity Map Imaging
Technology and Scientific Applications

Velocity map imaging spectrometers have quickly become ubiquitous since their first utilization 14 years ago. Building on the advantages of this type of analyzers, we have developed a versatile ion/electron coincidence apparatus, called DELICIOUS II,[1] which covers a wide spectrum of scientific applications, and thus appeals to a broad synchrotron user community in gas phase physical chemistry.

The course will begin with a general introduction on ion/electron coincidences, that will help explain the compromises made in the design of such a spectrometer. After some technological considerations, I will—through real life scientific examples—illustrate the many advantages of operating in coincidence mode, both for the study of the VUV spectroscopy and fragmentation of cations, and the dynamics of photoionization processes.

[1]G. A. Garcia, H. Soldi-Lose and L. Nahon, Rev. Sci. Instrum. **80**, 023102 (2009)