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Multiparameter Ionization and Excitation Measurements¹

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Over recent years there has been a sustained and impressive development of technologies to aid the measurement of atomic and molecular collision processes. In particular, the application of multi-parameter coincidence techniques to atomic and molecular fragmentation processes has uncovered interesting new phenomena e.g. [1,2]. The underlying idea is to map measured arrival coordinate of particles (spatial and temporal) on to parameters of physical relevance through the action of time independent or dependent electric and/or magnetic fields [3,4]. The main challenge is in fashioning such fields to obtain greatest sensitivity for the parameters of greatest interest. In my talk I will review recent spectrometer developments discuss the potential for further improvements. The power of modern measurement techniques will be illustrated by selected examples of recent measurements by our group and others. Strengths and weaknesses of various experimental approaches will be discussed.

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[4] C. Miron *et al*, Rev. Sci. Instrum. **68**, 3729 (1997).

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