

Abstract

A COLTRIMS endstation for atomic, molecular and cluster science research is planned to be built and operated at the proposed VUV and Soft X-Ray beamline at SESAME Synchrotron. The COLTRIMS endstation will be interchangeable with other endstations belonging to the research community at large. The proposed beamline is ideally suited to our needs, and the development of the endstation will place our group in a favorable position to perform cutting edge research at SESAME. The COLTRIMS technique is a revolutionary technique that has been developed in the early 1990's and is frequently referred to as a reaction microscope. It is an imaging technique to measure the complete fragmentation of few-body systems. It utilizes supersonic cooling of targets, position imaging, time-of-flight coincidence, and multi-hit detection of charged fragments from reactions to obtain the fragments' three dimensional momentum vectors. The wealth of information obtained enables unprecedented level of scrutiny of atomic, molecular and cluster interactions. Currently, there are a number of operational COLTRIMS setups at many of the third generation synchrotron radiation facilities around the world. This talk includes a description of the design features of the COLTRIMS endstation. In addition the main components of the COLTRIMS technique will be also introduced in more detail. Some of the distinguished experimental studies performed using the COLTRIMS imaging technique will be also discussed to demonstrate the powerful of this imaging technique. Moreover, the efforts done by the COLTRIMS research group to support building up this endstation as well as letters of the international supporters will be presented. Finally, the rich future potential of this endstation will be envisaged.