

MEIS regained at the IAA in Huddersfield University

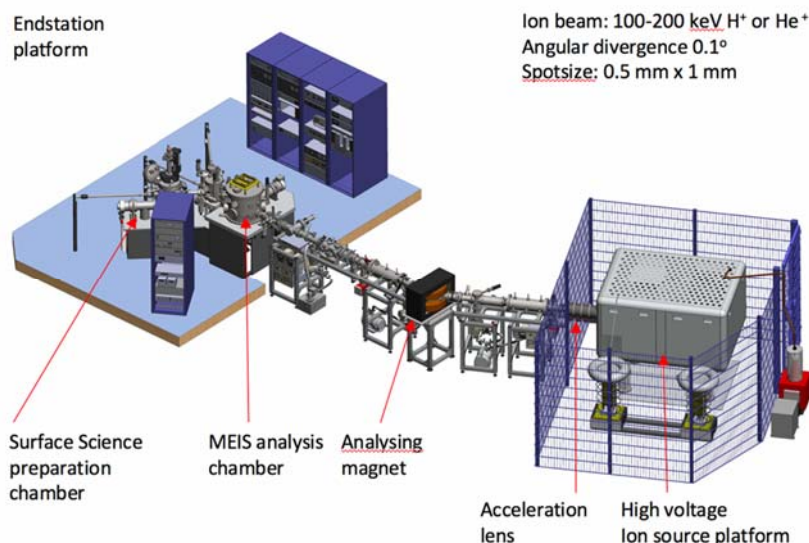
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The UK Medium Energy Ion Scattering (MEIS) facility operated at Daresbury Laboratory from 1996 until 2011 during which time it was used by some 30 UK and overseas research groups. Due to its integral surface science station the MEIS facility was used for a broad range of fundamental and applied science experiments and this, in turn, led to a high level of publications, typically one per month during the last four years of its funded operation and contributed significantly to the training of PhD students and researchers.

A year after funding for the MEIS facility terminated, the newly set up International Institute for Accelerator Applications (IAA) at the University of Huddersfield offered the MEIS equipment a new home. Reconstruction of the MEIS end station including its surface science analytical chamber commenced in mid 2012. Since many of the beamline components, due to their previous use had low level radioactive contamination and could not be reused, a completely new 200 keV ion beamline was constructed at the IAA. Using mainly existing components gathered from different sources, a simpler beamline design was implemented and fitted with a much less complex control system. Its eventual operation has proved to be remarkably stable and reliable. The rebuilt MEIS facility is schematically shown below.



With its unique capability of being able to yield both structural and compositional information on surfaces e.g. adatom position or overlayer registry and high resolution depth profiling of nanolayers, MEIS continues to take in a key niche in the world of materials science and engineering. Aspects of the new MEIS facility and its reconstruction process will be presented as well some fundamental points of MEIS including quantification as well as examples of recent studies using the IIAA MEIS facility mainly in the area of depth profiling analysis (high-k nanolayers, plasma doping). The facility is open for collaborative research projects.