Tuesday Afternoon, October 16, 2007

Exhibitor Workshops

Room: Exhibit Hall - Session EW-TuA

Exhibitor Workshops

Moderator: R. Childs, Consultant

3:20pm **EW-TuA6 High Speed, High Resolution XPS Imaging**, ***C. Blomfield***, *S. Page, S. Hutton, D. Surman*, Kratos Analytical

XPS imaging is an established method for determining the qualitative lateral distribution of chemical species across a sample surface. Early methodologies for this technique involved XPS maps where a virtual or X-ray probe was scanned a cross a sample surface and an image built up pixel by pixel as the analysis point was moved across the sample. Other methods involved the parallel detection of a predefined field of view over one specific binding energy range. Improvements in detector technology and instrument design have lead to the development of truly quantitative pulse counting methods which give high lateral resolution XPS images with quantitative intensities over short time intervals. This presentation describes the technology required to achieve this level of performance and illustrates some applications which benefit from a quantitative chemical state imaging technique.

3:40pm **EW-TuA7 Chemical Sample Characterisation on the Nanoscale: Imaging XPS with Ultimate Spatial Resolution**, ***M. Green***, *M. Maier*, Omicron NanoTechnology, Germany

In this contribution we briefly summarize the current status of novel instrument design in imaging XPS (iXPS) achieving ultimate resolution beyond today's traditional limits. In iXPS a great obstacle for higher resolution is the limited X-ray brilliance in the analysis area in combination with the small electron acceptance angle of current spectrometers. Today commercial laboratory instruments are limited to approx. 3 μm resolution. Acquisition times as well as time for experiment set up increase unacceptably when the attempt is made to utilize this kind of resolution routinely. In particular with those instruments acquiring each image pixel sequentially by either scanning the X-ray beam or the analysis spot. We present first results acquired with a NanoESCA instrument installed at LETI. A new lens concept provides a huge progress for the acceptance angle of photoelectrons. This is combined with a patented aberration compensated analyzer allowing the acquisition of typically 640x512 image pixels in a single shot. This offers the unique possibility to achieve sub micron image resolution routinely as well as small spot spectra from well-defined areas below 1μm diameter, within reasonable acquisition times.

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