Tuesday Lunch, October 16, 2007

Exhibitor Workshops

Room: Exhibit Hall - Session EW-TuL

Exhibitor Workshops

Moderator: R. Childs, Consultant

12:20pm **EW-TuL1 Thermo Scientific Surface Analysis**, ***R.G. White***, Thermo Fisher Scientific, UK

There is a wide range of requirements within the surface analysis community, including the need for multi-technique and preparation options. High quality data and reliability are common requirements for both academic and industrial users. ESCALAB 250 is principally a high-sensitivity, high energy resolution imaging XPS instrument. The flexible configuration of this system allows additional analytical options, chamber configurations and sample preparation facilities. Analytical options include additional X-ray anodes, UV lamp and a 95nm electron source. Theta Probe is an integrated XPS system designed with the unique ability to collect small and large area angle resolved XPS without the need to tilt the sample. This, in combination with the suite of accompanying software, makes this instrument a very powerful tool in the analysis of nano-scale layers. This method of rapid data collection allows the analyst to combine mapping with ARXPS to provide uniformity, thickness and composition maps of ultra-thin films. The latest offering from Thermo is K-Alpha. This is designed to provide XPS analysis with the highest possible throughput. It achieves this by combining high-sensitivity, monochromated XPS with a degree of automation that removes the need for the analyst to be involved with routine repetitive tasks. This is the ideal instrument for a multi-user environment. Each of the above instruments is controlled by the market leading data system, Avantage. This is a comprehensive, integrated data system based on Windows XP. In addition to instrument control and data processing, it provides the capability of remote control via a network and a simple interface to Office applications for automatic reporting.

12:40pm **EW-TuL2 New Developments in Surface Analysis Instrumentation from Physical Electronics**, ***S. Bryan***, Physical Electronics

This presentation will provide an update on the latest product developments from Physical Electronics. At the AVS National Symposium in 2006 PHI introduced two new products to the market, the PHI 5000 VersaProbe and the PHI TRIFT V nanoTOF. Over the past year, additional options have been added to these two new products. In addition, the top-of-the-line Quantera XPS Microprobe and the 700 Scanning Auger Nanoprobe will be discussed.

1:00pm **EW-TuL3 Commercially Available High-Throughput Dip Pen Nanolithography®**, ***T. Levesque***, NanoInk, Inc.

Dip Pen Nanolithography® (DPN®) is an inherently additive SPM-based technique which operates under ambient conditions, making it suitable to deposit wide range of biological, organic, and inorganic materials. Further, massively parallel two-dimensional nanopatterning with DPN is now commercially available via NanoInk's 2D nano PrintArray^{TM}, making DPN a high-throughput, flexible and versatile method for precision nanoscale pattern formation. By fabricating 55,000 cantilevers (each with its own nanoscale tip) across a 1 cm^2 chip, we leverage the inherent versatility of DPN and demonstrate large area surface coverage, routinely achieving throughputs of $3x10^7$ μm^2 per hour.

1:20pm **EW-TuL4 Modern Aluminum Vacuum Chambers**, *J. Bothell*, ***K. Coates***, *E. Jones*, Atlas Technologies

Modern Aluminum Vacuum Chambers: Low cost and superior vacuum performance to stainless steel. Historical evolution of aluminum: With the invention of the ConFlat knife-edge sealing system by Varian stainless steel became the recommended material to achieve high and ultra high vacuum. Aluminum was dismissed because of a lack of a robust sealing system, a misunderstanding of oxide surfaces and a lack of understanding of welding techniques. This paper will present: 1. Aluminum surface preparation methods techniques and instruction on cleaning and detailing materials. 2. Welding methods and techniques, materials, equipment and processes to weld aluminum surfaces 3. Aluminum sealing techniques such as the Atlas Flange. 4. Why aluminum vacuum chambers are lower cost than stainless steel. Finally the paper will present data as to the vacuum properties of aluminum vacuum chambers.

1:40pm **EW-TuL5 Pfeiffer Vacuum Introduces Complete Vacuum System for Mobile Analytical Equipment**, ***J. Keller***, Pfeiffer Vacuum, Germany

Pfeiffer Vacuum, one of the world's leading producers of vacuum products and services, introduces a durable, reliable and compact vacuum system for mobile mass spectrometry. Able to run at lower power levels, Pfeiffer Vacuumsâ?T compact vacuum system integrates a turbopump and a specially designed dry diaphragm pump that allows analytical equipment to provide real time analysis in the field. This mobile vacuum systems runs on 24 volts with a power save mode when idling. The vacuum system is available with TMH 071 or TPD 011 l/s turbopumps and the MVP 006, a new diaphragm backing pump. This system can be configured to fit analytical OEM requirements. Pfeiffer Vacuumsâ?T TMH 071 turbopump is a 70 l/s, hybrid magnetic design with excellent specifications and highest reliability for mass spectrometry. This pump is currently integrated into dozens of mass spectrometers with thousands sold each year. The TPD 011 turbopump is designed with a unique dual end supported bearing making it the most rugged and smallest commercially available turbopump in the world. The TPD 011 makes possible the design of several portable mass spectrometers that could not have been built with any other pump. The MVP 006 dry diaphragm backing pump is ideal for small mass spectrometry systems because smart electronics communicate with the turbo directly automatically speeding the pump up and down based on demand. This feature optimizes power consumption, vibration, and diaphragm life. In addition, only one power supply is needed for both pumps, and the 24 VDC input simplifies electronic requirements.

Authors Index

Bold page numbers indicate the presenter