

Wednesday Lunch, October 17, 2007

Exhibitor Workshops

Room: Exhibit Hall - Session EW-WeL

Exhibitor Workshops

Moderator: R. Childs, Consultant

12:40pm EW-WeL2 How to Avoid a Failure During Shutdown or Start-up Events, *M. Silva*, FMG Enterprises

Participants will learn how to maximize their uptime success rate, and minimize downtime at shut down and start up events (cold and hot). Both facility and production line levels. We will review the preparatory steps and tasks needed to ensure avoidance of failure during these events. Importantly, participants will share their experiences and lessons. Other tasks such as PM Programs, Base line characterization of pumps, and Inventory Control will also be reviewed. Course outline Shutdown cold: define Example of event: facility shutdown. Shared experience Shutdown hot: define Example of event: facility running, production shutdown. Shared experience Start-up event: Start-up cold: define Example of event: coming up from cold shutdown. Shared experience Star-up hot: define Example of event: turning on of a production line. Shared experience Review preparatory steps of how to ensure avoidance of failure during shutdown or start-up events. Discuss other tasks that can be done during shutdown or start-up events: 1) PM programs. 2) Base line charactering of pumps. 3) Inventory control. All are programs that FMG provides, along with practical training methods for their in-house technicians.

1:00pm EW-WeL3 Sputter Target Bonding Technology, *J.R. Gaines*, Kurt J. Lesker Company

LeskerBond™ Services offers the patented NanoBond® process technology and patented NanoFoil® under license from RNT. NanoFoil® is a free-standing foil capable of generating heat. NanoFoil® is comprised of hundreds, or even thousands, of fine, nanoscale size layers of aluminum and nickel which, when placed between two prepared materials and energized, creates an extremely effective bond. In this presentation we will describe how NanoFoil® is made and we'll explore the various applications of NanoFoil®. Specifically, we will examine the application of NanoFoil® for bonding sputtering targets. We will also present case studies that compare and contrast bonding with NanoFoil® versus traditional bonding methods.

1:20pm EW-WeL4 Ion Energy and Ion Flux Measurements at an RF Biased Surface, *M. Hopkins*, Impedans Ltd.

Impedans is introducing the first floating Retarding Field Energy Analyzer which will allow measurement of the Ion Energy Distribution Function on an RF biased substrate. RFEAs are used in research laboratories to measure ion energy distribution functions. Their use in practise is limited by the need to ground the analyser, whereas most interesting applications are in RF biased substrates. The IEDF is important in understanding the role of ions in processes such as etch. Deviations in ion energy can lead to charging effects on a substrate or wafer and variations in flux can effect etch uniformity. A transition from a high frequency (single peak distribution) to a low frequency (bimodal distribution) sheath is often observed in RF plasma sources. The energy difference between the two peaks of the bimodal distribution is related to the RF modulation of the plasma potential and to the ratio between the ion transit time in the sheath and the RF period. A change in ion mass can result in changes in bi-modal structure and impact the average energy of ions arriving at the substrate or wafer. Due to the complexity of modelling the ion energy profiles, measurements are often necessary to validate the behaviour of a new source design in etch applications. The Impedans RFEA is unique in that it uses the technology developed to float RF Langmuir probes in order to isolate the RFEA from electrical ground. The analyser is built into a dummy wafer and placed on the chuck or wafer holder. The RFEA sensor does not disturb the RF bias and the measured Ion Flux and Ion Energy are similar to that seen by a wafer. By placing multiple sensors on a dummy wafer a spatial scan of the ion energy distribution and flux can be achieved. This is invaluable data to understand the plasma process and its effects on the surface of interest. The Impedans RFEA is designed to operate in hostile environments and can withstand temperatures of several hundred degrees centigrade.

1:40pm EW-WeL5 Recent Developments: STM 150 Aarhus and FE-LEEM P90, *O. Schaff*, Specs, Germany

SPECS has developed a new temperature design for the original STM 150 Aarhus system. Excellent performance in terms of mechanical stability and thermal control could be demonstrated for LN2 temperatures and temperatures exceeding 1000°C up to 1200°C. The high temperature performance of the new design is demonstrated using first results of a Si(111) sample in a FE-LEEM P90 sample holder. Atomically resolved phase transitions of the (7x7) <-> (1x1) surface reconstruction could be observed easily. The FE-LEEM P90 is a next generation Low Energy Electron Microscope with unsurpassed resolution for dynamic LEEM microscopy experiments. With this instrument, based on the design of Dr. Rudolf Tromp, nanometer scale processes on surfaces can be observed in real-time. The instrument can be upgraded with an electron mirror for aberration correction, The design resolution for the corrected FE-LEEM P90 is below 2nm.

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