Tuesday Lunch, October 29, 2013

Exhibitor Technology Spotlight
Room: Hall A - Session EW-TuL

Exhibitor Technology Spotlight II
Moderator: C. Moffitt, Kratos Analytical Limited, UK

12:20pm **EW-TuL2 What's New from Physical Electronics**, *J.F. Moulder*, Physical Electronics Inc.
The latest innovations in our XPS, AES, and TOF-SIMS products will be presented and we will introduce an exciting new instrument at AVS.

12:40pm **EW-TuL3 Next Generation Data System for XPS**, *C.J. Blomfield*, Kratos Analytical Limited, UK
Analytical instrumentation often has a large number of users with various operational and data processing skill levels. Modern software should allow both the novice and expert user to acquire the data they need while following the appropriate protocols. Although the concept of an expert system for x-ray photoelectron spectroscopy was suggested over a decade ago (Castle and Powell[1]) the implementation of such expert systems is only just being realized.

In this presentation we will introduce a new generation data system which provides data dependent acquisition capability independent of the Users experience. Based on an initial survey spectrum the software is used to define the hardware acquisition parameters appropriate to the results required. Thus the software will provide the User with element identification and acquisition parameters appropriate to the requirements of either trace element detection or elemental/chemical state identification.

By allowing the software to determine the appropriate acquisition parameters for specific applications based on easy to define parameters such as signal to noise ratio the precision and accuracy of quantification from photoelectron spectra can be increased. This also ensures that the data acquired in a multiuser, non-expert environment is valid. Furthermore in line with protocols required for regulatory environments full traceability from raw data to quantified spectra is incorporated into the new data acquisition and processing software.

Reference

1. JE Castle, CJ Powell, SIA, Vol 35, Issue 3 p25-237

1:00pm **EW-TuL4 New Developments in Materials Characterization from Thermo Fisher Scientific**, *A.E. Wright,* **T.S. Nunney***, P. Mack,* Thermo Fisher Scientific, UK*, B. Strohmeier*, Thermo Fisher Scientific
Surface and subsurface structure and chemistry are crucial to the successful production and operation of innumerable devices, materials and coatings. Thermo Scientific offers a broad range of analytical techniques for the materials characterisation, including XPS, Raman, FTIR, EDS and EBSD. In this presentation we will discuss our latest developments in software and instrumentation.

1:20pm **EW-TuL5 Recent Instrument Development for State-of-the-Art Photoelectron Spectroscopy**, *H. Bergersen*, VG Scienta AB, Sweden
For several decades, VG Scienta has been the leading developer of instrumentation for Photoelectron Spectroscopy, with emphasis on ARPES, HAXPES and APPES. In our presentation we will describe the latest developments within each field along with recent scientific results.

1:40pm **EW-TuL6 Innovative Thin Film Deposition Tools for R&D from Blue Wave Semiconductors**, *R.D. Vispute*, Blue Wave Semiconductors
Unique properties of new materials are exploited in emerging applications including electronics, optical, biological nanoelectronics, and advanced electromechanical systems. Despite the extraordinary efforts in developing these materials, an efficient and compact single chamber vacuum deposition system capable of addressing needs of all thin films and nanomaterials is not available at a commercial level. For this reason, Blue Wave Semiconductors has developed an integrated physical and chemical vapor deposition tool for synthesizing all carbon based thin films and nanostructures including diamond, nanodiamond, CNTs and graphene, metals, oxides, nitride, carbide thin films and their nanostructures. We have successfully designed and developed chemical and physical vapor deposition processes in a single processing chamber to efficiently deposit a variety of advanced thin film materials and nanostructures. We will present our systematic study on identification of various processing parameters on growth of nanostructures of carbon materials. Some examples of nanodiamond and graphene films synthesized using exploratory tool developed for carbon materials for electronics will be highlighted. Blue Wave Semiconductors, Inc. is a global supplier of advanced thin film and nanomaterial deposition systems and tools. The company manufactures reliable physical vapor deposition, chemical vapor deposition and integrated custom deposition systems involving laser, DC, rf plasma, sputtering, hot filament, and electron beam. Its thin film deposition systems combine multidisciplinary designs and processes involving filament generated atomic hydrogen, laser induced plasma, with chemical processes. Blue Wave's deposition tools are excellent for synthesis of novel coating materials of composite nanostructural carbides, oxides, nitrides, and carbon materials such as diamond, graphene, and CNTs. Its deposition equipment products are designed primarily for universities, research centers and leading national laboratories around the world. It also provides prototype runs of a variety of thin film coatings and device fabrication to its electronic thin film R&D customers.

Authors Index

Bold page numbers indicate the presenter

— B —

Bergersen, H.: EW-TuL5, **1**
Blomfield, C.J.: EW-TuL3, **1**

— M —

Mack, P.: EW-TuL4, 1

Moulder, J.F.: EW-TuL2, **1**

— N —

Nunney, T.S.: EW-TuL4, **1**

— S —

Strohmeier, B.: EW-TuL4, 1

— V —

Vispute, R.D.: EW-TuL6, **1**

— W —

Wright, A.E.: EW-TuL4, 1