k-Space ASSOCIATES, INC.

APPLICATIONS :: PRODUCTS :: SUPPORT

KSA NEWSLETTER UPDATE

k-Space releases an Emissivity Corrected Pyrometry (ECP) module for kSA ICE

k-Space is now offering an Emissivity Corrected Pyrometry (ECP) module for its kSA ICE product line. The ECP module can be added to new or existing ICE systems. For applications where using band edge thermometry is not applicable (e.g. small band gap or heavily doped substrates), pyrometry is often used. However, pyrometry measurements during film growth are often compromised by thin film interference that affects the measured radiation signal. By directly measuring the reflectance of the sample, the changes in surface emissivity can be compensated for, and a more reliable temperature (ECP temperature) is determined. This functionality is particularly useful for GaN on Si growth, and complements the existing temperature measurement tools offered by k-Space. For more details please see our most recent ICE Product Specification and our new ECP Technology Overview Note

The kSA ICE system modular design allows customers to independently select the metrology tools that meet their research needs. kSA ICE can be configured with various standard modules:

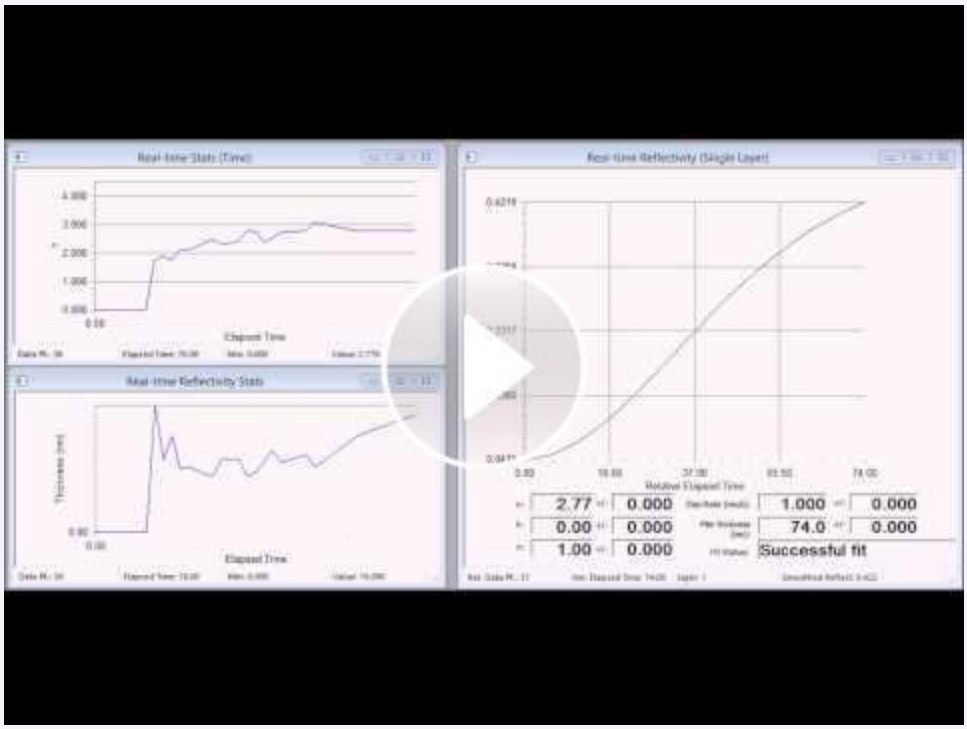
- ECP (Emissivity Corrected Pyrometry)
- BE (Band Edge thermometry)
- BB (Blackbody calibration and real-time analysis)
- MOS (Multi-beam Optical Sensor sample curvature/stress/bow)
- R (Reflectivity measurement for growth rate and optical constant determination)

Measurement modules can be added after initial purchase, making kSA ICE a “cool” investment for your ever changing metrology needs!

kSA RateRat Pro in action!

Based on the initial calibrated reflectivity of the substrate, kSA RateRat monitors the change in reflectivity and determines in real-time the growth rate and optical constants (n and k) of the deposited film. This real-time analysis is achieved by means of a proprietary algorithm which continuously updates the optical constants of the film, derived from a least-squares fit to the optical reflectivity curve. In this way the film grower has a continuous record of the progress of the film growth during its deposition, including all the critical parameters that are needed to characterize film quality and uniformity.

See a short video of the real-time analysis capability of RateRat Pro for CdTe growth



For CdTe films grown on Si, the thickness and growth rate were determined after 60 nm of film when using a 1050 nm LED. kSA RateRat Pro has many options to suit the needs of different applications and materials, including different laser/LED wavelengths (UV – VIS – IR). Whether your needs are in precision optical coatings, solar cell manufacturing, LED production, organic semiconductors, or many other applications where accurate in-situ, real-time film monitoring is essential, kSA RateRat Pro has you covered.

kSA MOS used to measure porous TiN coatings for cardiac and neural electro-stimulation electrodes

Dr. Craig Outten of Denton Vacuum Systems will be presenting a paper entitled “Development of Titanium Nitride Fractal Coatings for Cardiac and Neural Electrostimulation Electrodes" at the 2014 Society of Vacuum Coaters (SVC) TechCon conference in Chicago, IL on May 8. This paper will focus on the process development and characterization of porous, columnar titanium nitride coatings for use in cardiac pacemaker leads and neural stimulation electrodes. Although not the primary focus of this paper, Dr. Outten will be reporting on initial kSA MOS measurements of this biocompatible material.

DENTON VACUUM
BARRIERS BECOME BREAKTHROUGHS

For more details please attend Dr. Outten’s talk at the 2014 SVC TechCon conference. (Abstract)

About Denton Vacuum LLC: Denton Vacuum transforms technical barriers into thin-film technology breakthroughs for customers across the globe. With operations in the United States and China, Denton designs and develops systems that precision-coat aerospace components, advanced optics, medical implants, solar cells, semiconductor devices and much more. Denton's technology portfolio includes thermal evaporation, e-beam evaporation, ion-beam-assisted evaporation, magnetron sputtering (including reactive sputtering), plasma-enhanced-chemical-vapor deposition (PECVD), ion etch and ion-beam-assisted deposition (IBAD).

Visit k-Space at the Following Tradeshows and See the Newest kSA Products in Action:

2014 SVC TechCon
May 6-7, 2014 in Chicago, Illinois, USA
http://www.svc.org/

41st ISCS and the 26th IPRM
May 11-15, 2014 in Montpellier, France
http://csw2014.org/

5th International Symposium on Growth of III-Nitrides
May 18-22, 2014 in Atlanta, Georgia, USA
http://www.mrs.org/isgn-5/