

2013: Year in review

2013 has been an exciting year for k-Space. While the worldwide economy has fluctuated over the past few years, kSA has been fortunate to leverage our wide-ranging product and application base to strengthen our offerings with new products, as well as advance our existing technologies. We are grateful to our existing and new customers who come to us with new and demanding applications for our in-situ and in-line metrology products. We enjoy the challenge! From monitoring stress due to a single monolayer of mismatched material during sputtering, to controlling GaN MOCVD film temperature to within 0.2° C during HBLED InGaN quantum well growth at 1000 rpm, kSA is ready to meet the challenge. We thought some of you would enjoy hearing just a few of the new applications we have worked on in 2013:



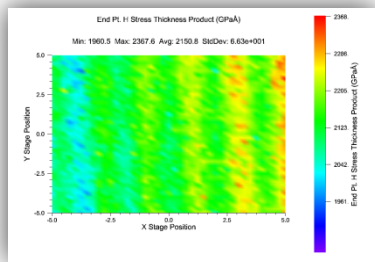
kSA ICE --Integrated Control for Epitaxy

Officially launched in 2013, kSA ICE is our fastest growing product line! ICE combines our proven monitoring technologies into a single, unified hardware and software platform for in-situ, real-time MOCVD deposition monitoring. kSA ICE has been installed successfully on most commercial MOCVD tools, as well as several custom reactors.



kSA MOS Curvature/Stress/Bow Technology

While kSA MOS curvature and stress measurement technology was initially developed over 15 years ago, we continue to find new applications for MOS, including curvature, bow, and stress mapping on solar panels, LCD panels, AMOLED displays, and now, accurate and



precise curvature mapping on up to 1.5m diameter mirrors! One of the most critical applications in building larger optical mirrors is the control of the overall shape, or curvature of the mirror surface. kSA MOS has been applied to full 2D mapping of these large optics on a new kSA platform, to be announced in 2014. Look for more details coming soon!



kSA BandiT Enhancements

We have made several enhancements to our BandiT product line in 2013:

- Blue BandiT used for GaN film temperature monitoring with better than 0.2 °C resolution -even with Patterned Sapphire Substrates (PSS).
- New, single viewport option
- New spectral analysis software yields absolute thickness measurement and thickness resolution down to 1nm during deposition
- kSA blackbody curve fitting temperature technology awarded US Patent. Self-calibrating for the ultimate in process repeatability, absolute temperature, and tool-to-tool matching.
- New kSA Emissivity Corrected Pyrometry (ECP). When band-edge and blackbody curve fitting capabilities are not optimal, kSA will be announcing a new ECP module in early 2014. Look for new details and how kSA can add this to your existing kSA BandiT!



kSA Metrology Services

We now have dedicated kSA metrology tools in-house for fast-turnaround sample analysis, longer-term projects, and product demonstrations. Please contact us for details!

