

Next Generation UV Pyrometry - Pyro 400 Gen 2

Every LED manufacturer desires to know the emission wavelength of his final device already during MOCVD growth. Today, according to the Solid State Lighting (SSL) road map, the wavelength variation across a wafer should be less than 1 nm. This equals a < 1 K variation of the GaN surface temperature during InGaN MQW growth. Therefore, LayTec's **Pyro 400** is widely used for enabling fab-wide GaN surface temperature uniformity in leading LED manufacturers production lines.

Meanwhile, more complex LED structures and tighter cost-reduction targets request for even more advanced in-situ metrology. Fig. 1 shows such an example: ternary InGaN and AlGaIn layers cause emissivity changes that lead to 0.7 K error of the UV pyrometry reading. LayTec's answer to this challenge is **Pyro 400 Gen 2**! Alongside with in-situ UV pyrometry this new generation includes real-time UV emissivity correction for enhanced accuracy of GaN surface temperature during growth of more complex LED structures.

A further challenge to reliable GaN temperature control in HB-LED production is the view-port coating. Fig. 2 shows its effect just before maintenance: the UV transmission of the view-port is significantly reduced and an uncorrected UV pyrometer would give a -10 K temperature artifact. **Pyro 400 Gen 2** solves this problem, too! The tool automatically senses and corrects these coatings and enables a long-lasting 24/7 accuracy in HB-LED emission wavelength.

Finally, an assisting infrared (IR) pyrometer has been integ-

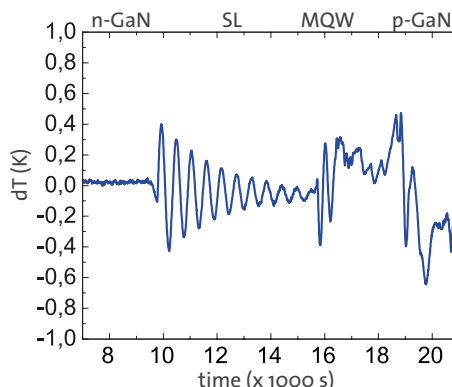


Fig. 1: Effect of changing emissivity to UV pyrometer temperature reading: up to 0.7 K errors show up without emissivity correction during growth of a GaN/AlGaIn-GaN-SL/InGaIn-MQW/GaN structure!

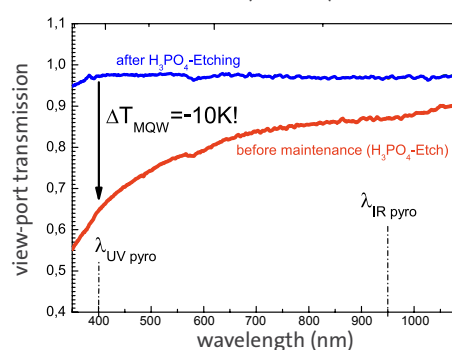


Fig. 2: GaN MOCVD view-port before (red) and after maintenance (blue): the transmission at the 400nm detection wavelength of a UV pyrometer is suffering from the window coating (red). The resulting -10K artifact is avoided by Pyro 400 Gen2.

Data courtesy: FBH, Berlin

rated into **Pyro 400 Gen 2** for simultaneous monitoring of wafer pocket temperature throughout the full LED growth run.

These and some further new features in the hardware and software make the new generation of **Pyro 400** a must for nowadays HB-LED production. To find out more, please contact sales@laytec.de

Dr. Oliver Schulz appointed as Chief Customer Officer at LayTec



LayTec's Application and Support Department (A&S) is now headed by the new Chief Customer Officer (CCO) Dr. Oliver Schulz, effective since January 1. Dr. Kolja Haberland, who has headed both A&S and R&D by end of 2012, will now fully focus on his R&D work as Chief Technology Officer (CTO).

Dr. Oliver Schulz, LayTec's Sales Manager for Korea in 2010-2012, is very familiar with the needs of our customers in Asia. In close collaboration with Dr. Marcello Binetti, who has been successfully heading our support team for several years, Oliver will help us to even further improve LayTec's service quality in all global technology regions.

With his academic and industrial background in growing III-Nitrides on silicon, Oliver will also strengthen our Appli-

cation Engineering to support our customers in technology change towards larger silicon substrates.

„The new company structure is our answer to the market challenges. When the number of players grows and the quality expectations are getting higher, it is a must to deliver extraordinary after-sales service and to stay ahead by investing even more in new metrology developments,“ said LayTec's CEO, Dr. Thomas Zettler.

You can meet us at the following workshops, conferences and trade fairs:

4 – 5 March 2013 | CS International | Frankfurt am Main, Germany
www.cs-international.net

10 – 13 March 2013 | Euro MBE | Finland | www.eurombe.eu

19 – 21 March 2013 | SEMICON China | Shanghai, China
www.semiconchina.org