



LayTec is among Germany's 50 fastest growing technology companies

We are proud to announce that LayTec ranks 30th in the list of the 50 fastest growing technology companies in Germany nominated by Deloitte - the global network providing audit, tax and financial services. Deloitte's annual ranking is based on the companies' turnover growth for the last 5 years. Between 2004 and 2008 LayTec increased its turnover by 378% and, thereby, also belongs to the 500 fastest growing companies in Europe. We thank all our customers and the LayTec staff for making this success possible!

Real GaN temperature with Pyro 400

At the International Conference on Nitride Semiconductors (ICNS) in Korea on 18-23 October LayTec presented its latest product: **Pyro 400**. Unlike conventional infrared pyrometry, which can only detect the susceptor surface temperature under sapphire or SiC wafers, **Pyro 400** is the first real solution for measuring the exact surface temperature of GaN layers. The tool performs pyrometry at 400 nm. At this wavelength GaN emits light and makes it possible to measure its temperature.

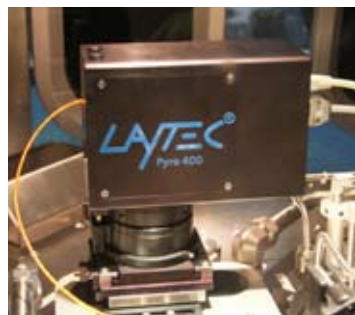


Fig. 1: Pyro 400 installed on Aixtron planetary MOCVD system

At the ICNS **Dr. Kolja Haberland** of LayTec presented the results obtained during growth of GaNLED structures containing multi quantum wells (MQW). **Fig. 2** shows a typical linescan measurement: **Pyro 400** monitoring the wafer temperature profile during a full revolution of the susceptor. The data provides direct access to the GaN temperature distribution across each wafer in a planetary reactor. Together with the complementary reflectance and curvature data measured by **EpiCurve®**, the in-situ measurements give all important information needed to optimize uniformity and LED performance. The data clearly shows that wafer bowing causes changes in temperature distribution and proves that the center of concave bowed wafers is hotter.

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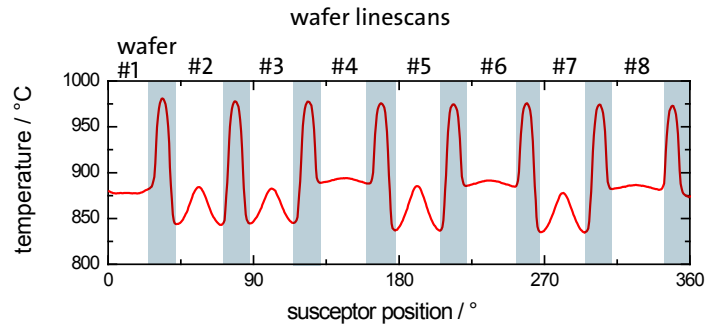


Fig. 2: Pyro 400 linescan measurement of 8x3" configuration. Dummy wafers with a strong concave bowing (#2, 3, 5, 7) have a different temperature profile than GaN templates with just a slight concave bowing (#4, 5, 8). Blue background marks the gaps between wafers.

Dr. Haberland also reported that the real surface temperature of GaN is sensitive to changes of carrier gas, rotation speed, and reactor pressure. These deviations can not be detected by conventional infrared pyrometry measurements at all.

Additionally to these advantages, there are no emissivity oscillations during GaN buffer growth, which makes **Pyro 400** an ideal tool for temperature feed-back control application.

In summary, **Pyro 400** provides a new quality of temperature measurement with an unrivalled accuracy and will be of huge benefit in GaN based LED and laser production in the near future. Our results were also presented at LayTec in-situ seminar held in conjunction with the ICNS. **You can download the Pyro 400 talk as well as all other talks hold at the seminar on LayTec website: www.laytec.de/compounds-presentations.html**

Two in-situ seminars in Japan

We cordially invite our Japanese customers to LayTec in-situ seminars organized in collaboration with our distributor Marubun Corporation in Osaka (27 November) and Tokyo (30 November). For further information please contact LayTec (info@laytec.de) or Marubun (m-event@marubun.co.jp).

Open positions at LayTec

LayTec offers the following positions: **product manager, sales engineer, quality manager** and **electronic engineer**. Find more at www.laytec.de/careers.html.

You can meet us at the following workshops and conferences:

25–27 November 2009

6th International Conference and Exhibition on PV Production Equipment and Manufacturing (PV-Tech) in conjunction with HI-TECH EXPO (Hall 18, Booth 02) in Milan, Italy

www.hitechexpo.eu/en/index_pvm.asp

2–4 December 2009

Semicon Japan (Hall B4, Booth 405) in Chiba, Japan
www.semiconjapan.org/sj-en/index.htm

10–11 December 2009

DGKK Workshop (German Crystal Growth Society) Berlin, Germany
www.dgkk2009.de