LayTec announces OEM partnership with Evatec Ltd.

LayTec has signed a strategic OEM agreement with Evatec Ltd. (www.evatec-net.com) – a leading Swiss supplier of thin film deposition systems to semiconductor and optics. Evatec's evaporation, sputter and PECVD systems find their applications in the MEMs, optoelectronics, precision optics as well as semiconductor markets. EpiCurve® TT is already successfully applied on Evatec sputter systems for stress management of metal multi-layers for opto-electronic. The tool enables strain-engineering of multi-layer structures by real-time tuning of the sputter parameters.

Evatec's Senior Process Engineer Silvia Schwyn Thöny commented: "With LayTec's state-of-the-art in-situ metrology we are able to meet the growing demand on precise process control and optimization, which is the key to high yields and low costs."

„For LayTec, an OEM cooperation with Evatec is of strategic importance", said LayTec's CEO Dr. Thomas Zettler. "It will enable implementation of our metrology into processes beyond LayTec's established applications. And when Swiss precision meets German quality standards, the expectations can never be too high."

EpiCurve®Triple TT used for GaN on 200 mm diameter silicon at IMRE

In his invited talk at the LED Technology Forum in Singapore (7-10 May), Dr. Sudhiranjan Tripathy of IMRE (Institute of Materials and Research Engineering, A*STAR) revealed the latest results of GaN growth on 200 mm diameter silicon. His team uses LayTec's in-situ monitoring system EpiCurve®Triple TT in the development of epiwafers for InGaN/GaN light emitting diodes and GaN power electronic devices.

EpiCurve®Triple TT is ideally suited for 200 mm real time wafer characterization because of its 3 sensor heads for radial growth conditions analysis. It provides wafer bow and temperature measurements, as well as simultaneous detection of growth rate and surface morphology.

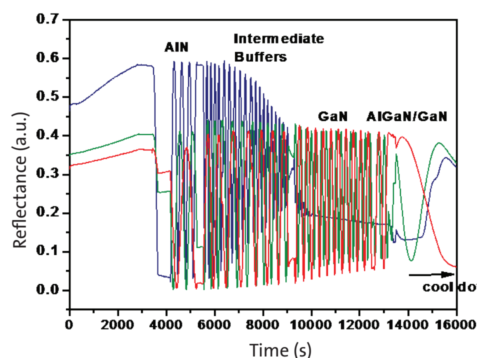

Fig. 1: Reflectance monitoring of AlGaN/GaN HEMT structure grown on 1.0 mm thick 200 mm diameter Si(111) at IMRE: blue - 405 nm green - 633 nm red - 950 nm

Fig. 1 shows reflectance profiles at 3 wavelengths: 950 nm for emissivity correction of pyrometry, 633 nm for analysis of thick layers e.g. GaN buffer, and 405 nm for thin layers. Fig. 2 demonstrates how the 405 nm reflectance is used for individual in-situ tuning of each well and barrier within the multi-quantum wells stack. The in-situ signal (Fig. 2 - left) perfectly corresponds with the multi-quantum wells (MQWs), which can be seen in the scanning transmission electron microscopy (sTEM, Fig. 2 - right).

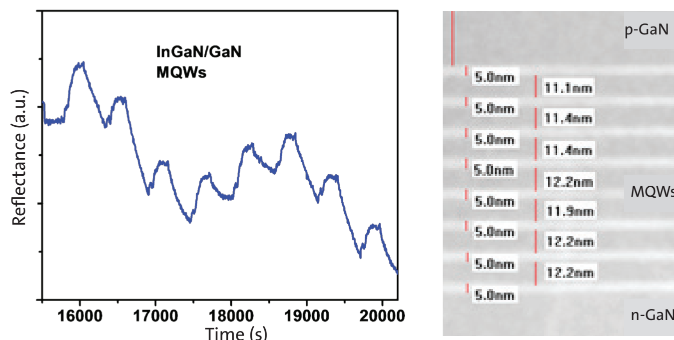

Fig. 2: 405 nm reflectance (left) of InGaN/GaN MQW stacks and the corresponding sTEM image of the MQWs (right).

According to Dr. Tripathy's team, LayTec in-situ metrology is a key element for identifying the epitaxial process optimization potentials. In comparison to the time consuming, destructive ex-situ cross section transmission electron microscopy analysis, the in-situ tool provides real time information on growth thickness and homogeneity already during growth. LayTec's system has reduced significantly our R & D cycles for epitaxial growth optimization and enables faster industrialization of the GaN on Si technology.

LayTec invites its users to in-situ seminar

LayTec's 17th International In-situ Seminar will be held on June 3, 2013 in conjunction with the 15th European Workshop on Metalorganic Vapour Phase Epitaxy (EWMOVPE XV) in Aachen, Germany. If you are LayTec customer but have not yet received an invitation, please contact info@laytec.de.

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

2 – 6 June 2013 | 15th European Workshop on Metalorganic Vapour Phase Epitaxy (EWMOVPE XV) | Aachen, Germany | jara.org

25 – 30 August 2013 | 10th International Conference on Nitride Semiconductors (ICNS X) | Washington DC, USA | icns10.org