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ADDED BRIGHTNESS FOR BLUE LEDs AND LASERS**NEW FABRICATION REACTOR BUILT IN TEKES PROJECT**

Optoelectronics Group of Micro and Nanosciences Laboratory at Helsinki University of Technology (TKK) has initiated a three-year research project on galliumnitride wafer growth technology with two industrial partners. Thick substrate wafers grown in this project can be used to manufacture brighter LEDs and, therefore, might assist the progress of LED lighting. Also more efficient lasers and transistors can be fabricated on these wafers. The budget of the project is 1.2 million euros and the major funder is TEKES.

Beneq Oy will together with TKK develop a new reactor (HVPE), which will be based on a reactor optimised for ALD growth. This reactor type, manufactured by Beneq, is currently in use at Micronova.

The new reactor will be employed to grow wafers up to a thickness of 300-500 micrometers. Components manufactured on this kind of substrates have significantly lower density of defects than those fabricated on sapphire wafers. This will increase the optical power of the components. The market for this kind of wafers is significant as annually 8 million substrate wafers are used in the fabrication of galliumnitride-based components, and the branch is growing rapidly.

"This project will notably strengthen the cluster of high-tech companies and Micronova, and its collaboration with TKK", says docent Markku Sopenen.

Involved in this project is also a blue GaN LED manufacturer OptoGaN Ltd. Both companies operate within Micronova, and the reactor built in this project will also be located in the premises of Micronova. The market for the HVPE reactor is also significant, because at present more than a hundred reactors are needed to fulfil the demand for the substrate wafers.

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