



Jakob Bollhalder, Head of BU Optoelectronics answers questions on the role of the industry going forward, the challenges it faces and how Evatec can contribute.

Q: What attracts you to the role driving Evatec's activities in the optoelectronics market?

The optoelectronics market is definitely one of the most exciting markets I have ever worked in. Significant changes in device technology are coming at exactly the same time as customers change from partly manually operated production to semiconductor type operations.

Back in 2018 the industry was just in between two investment cycles. Regular LED technology was mature, mainly cost driven and did not see much investment, while emerging technologies, such as micro LED had not yet taken off. We took our time and kept in close contact with our customers getting to understand their technology and needs. In the meantime Evatec developed the all new CLUSTERLINE® E platform addressing future market needs not only for optoelectronics but also other Evatec core markets like semiconductor. All in all it has been a very productive time and now we are ready to support the future growth of our industry. It's great to be working in markets which are changing so quickly and ones which look set to enjoy strong, long-term growth because they include not only automotive or general lighting, but many other applications like TV, wearables, horticulture, UV-C for sterilization and so on.

Q: Tell us about the particular market segments that BU Optoelectronics is addressing?

I like to think that we address all market segments where light is generated, from discrete LEDs (including mini and micro LED with transfer), and LED displays with monolithic integration to Laser Diodes (such as Edge emitting lasers and VCSEL). However, we are always keen to investigate new opportunities together with our customers and external research institutes.

Q: What are the major trends in these markets that are driving Evatec's activities right now?

The major trends are currently consumer products, such as new generation Displays with a highly resolved backlight consisting of mini LED as competition to the OLED products which have been in the market for quite some time. In addition, the need for micro LEDs which show even higher resolutions is about to pick-up ending up within the first high-end TVs and wearables as a mass market products in the consumer market most likely in 2024.

We also see different geographical approaches to the way miniaturization of devices is taking place. While Asia, mainly China, is working with existing wafer sizes and reducing device sizes step by step, Europe and North-American activities are already focused on bigger wafer sizes, semiconductor type operations and a much higher device density on the wafer.

Q: What do you see as the biggest challenges faced in these markets over the next 5 years and how can Evatec contribute?

The biggest challenge, at least for Micro LED, in the next 5 years will be to get the wafer and production yield up to drive down costs. We also see competing technologies in the market which will also require different coating technologies. The Laser market including LIDAR applications is not so easy to predict. While customers are currently working on driving up their yield, the next years will see further applications, especially in the automotive and datacomms environment, which should also drive further investments. The challenge there is to understand when this will happen. Working in close partnership with our customers supporting both new technology and process developments remains the best way to be ready whichever direction the market heads!

Q: What have been the highlights for BU Optoelectronics over the last 12 months and what can we expect from you in the rest of 2023 and beyond?

It's always a highlight to work so closely with so many of our customers supporting roll out of their technology roadmaps and investment in new generation coating systems. We have also been qualified by major customers for production of mini and micro LED devices. Some of them can already be purchased.

Q: Is there any overlap with other BUs at Evatec and how do you collaborate?

Yes, definitely. This is another exciting part of my work at Evatec, looking over my shoulder to my colleagues to see similar application and challenges, like particle reduction, smaller devices, improved process control etc. Besides this, many of our customers have multiple links with us addressing their different products and markets or contact with us to support their future business development. □