

Luminate NY Spotlight: LIDROTEC Reduces High Waste in the Microchip Manufacturing Process

LIDROTEC is one of 10 startups from around the world working with the Luminate NY accelerator at NextCorps in downtown Rochester. These companies are helping to write the next chapter in Rochester's history as the world's center for optics, photonics, and imaging (OPI).

Each company in Luminate's cohort 5 received an initial investment of \$100,000 and is participating in the six-month program, which helps the selected companies speed the commercialization of their technologies and businesses. On October 19, at Finals 2022 at the Rochester Riverside Convention Center, they will compete for up to \$2 million in follow-on investment. Funding for the \$25 million program is being provided through Empire State Development's Finger Lakes Forward Upstate Revitalization Initiative.

"LIDROTEC is harnessing optics technology to address the ongoing global semiconductor microchip shortage. Its work in the Luminate program will help to alleviate waste in the manufacturing process through a new and better chip-cutting process," said Dr. Sujatha Ramanujan, managing director of Luminate.



Igelmann

We caught up with Alexander Igelmann, Co-founder and CEO, to discuss the company's unique and innovative laser dicing technology.

Tell us about your company.

LIDROTEC provides wafer dicing laser machines that use ultrashort laser pulses in a liquid environment to cut semiconduc-

tors. Our technology reduces the material waste rate in the cutting process, which is currently up to 10 percent, to virtually zero percent, helping semiconductor manufacturers cut costs and increase their productivity. In the future, other markets, including medical technology and aerospace, will also be able to transform their work with our machines.



Where is your company headquartered?

LIDROTEC is headquartered in Bochum, Germany, a region known for its superior manufacturing capabilities.

Who are the company's founders?

The company was co-founded by four people. I have more than five years of experience in the financial sector, including time at Goldman Sachs and PIMCO, and serve as CEO. Alexander Kanitz is our Chief Innovation Officer, bringing with him a background in research and expertise in USP laser material processing in liquids. He has a master's degree in physics.

Jan Hoppius is our CTO, holding a master's degree in laser and photonics. He brings with him a profound knowledge of software programming and research experience and expertise in mechanical interactions of laser-induced shock waves in liquids on metal surfaces. Jannis Koehler serves as Chief Product Officer. He holds a doctorate degree in mechanical engineering and has extensive research experience and expertise in micromechanical systems and the interactions between laser light and micro particles in liquids.

How did you and your team develop the concept for your product?

The three technical co-founders — Kanitz, Hoppius and Koehler — researched topics related to laser processing in liquids during their PhD theses at the Chair of Applied Laser Technologies at Ruhr University Bochum. While their individual topics differed, they shared knowledge on the two key components of the LIDROTEC technology — la-

sers and liquids. Together, they realized that by combining their knowledge, they could create a new, innovative technology that is superior to any laser cutting technology in the market.

Why does the world need this product?

Our technology reduces costs for semiconductor producers, helping to increase their gross margins.

On a larger scale, it reduces the consumption of raw materials needed to produce microchips, improve the safety of labs, allow the recyclability or re-usability of nanoparticles that otherwise would be a safety hazard or waste, and lead to the creation of more durable consumer products and more economical technologies.

How long have you been working on this technology?

The concept and groundwork originated about four years ago. In 2019, we officially started the project with Germany's EXIST government grant.

Who is the target audience for your product?

The target customers for our product are semiconductor companies that use wafer dicing machines, including those with in-house manufacturing and foundries that cut package chips as a service to other chip manufacturers. We also sell to research institutes.

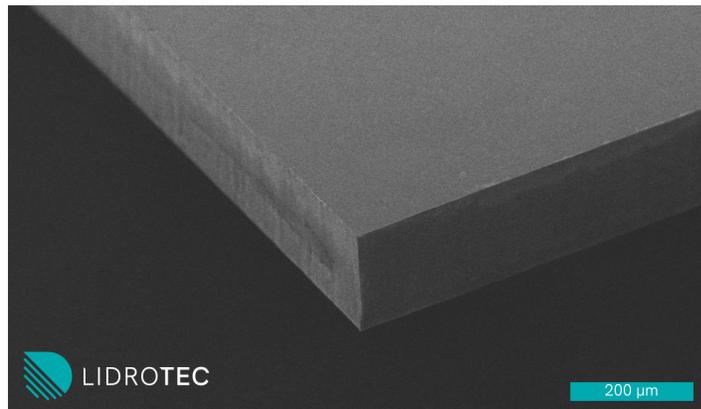
Tell us about your experience being in Luminate.

The Luminate program is unique and especially helpful because it specifically focuses on photonics and optics startups. This makes the network we create through the program extremely valuable. Through Luminate, we are already in touch with potential customers, suppliers, partners, and investors in our industry.

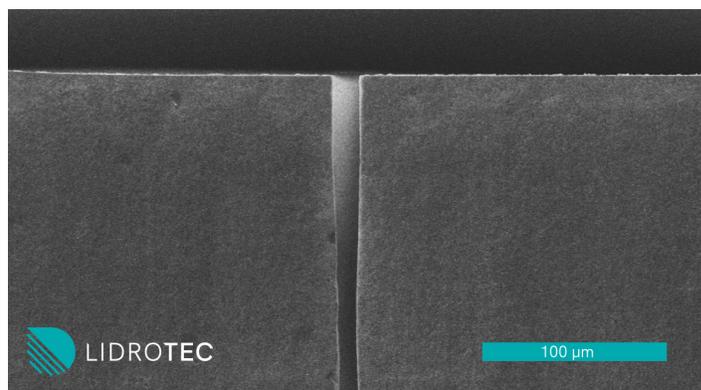
Also, the program helps prepare startups for entering the U.S. market. Within our cohort, alone, business relationships have already been established that will help companies in their development.

What made you look to Rochester to further your product?

Rochester is the U.S. hub for optics and photonics. The region is an environment rich with know-how, partners, and talent that can help us grow.



This shows the cutting edge of a silicon wafer cut using LIDROTEC's technology – almost 90° cutting angles, no debris on the surface, no chipping on the edges, and no other defects such as microcracks can be seen. (Photo provided)



This is a cut through a silicon wafer using LIDROTEC's technology. It shows that the cutting width is very thin, that the cutting channel is relatively straight, that no debris is on the surface and no other defects such as microcracks can be seen. (Photo provided)

What are you hoping to achieve during your time in Luminate?

The Luminate program quite literally is accelerating our development. I hope that we can build a very strong network during our time in the Luminate program that will help us develop our business for years to come. We are honored to have been selected as one of the teams of cohort 5 and we look forward to working closely with Luminate as we evolve.

If your company wins, what do you plan to do with the follow-on funding?

The funding will enable us to scale our business and grow our presence in the U.S.