

EUREKA PROJECT

4335 UPLIT



POWERFUL LASER WILL OFFER NEW OPPORTUNITIES FOR INDUSTRY

More powerful, lasers are always in demand in industry, research and medicine. Researchers in Lithuania and Austria joined forces to bring innovative lasers to market generating millions of euros in revenue.

Ultrafast lasers are lasers that can shoot pulses of light so fast that they are measured in picoseconds, or trillionths of a second. With such a precise delivery of energy, these beams can be used to finely coat the surface of high-tech equipment with particles, or to shave cells off the cornea of an eye. The Ultrashort Pulse Lasers for Innovative Technology (UPLIT) project brought together scientists from Lithuanian SME Ekspla and Vienna University of Technology (VUT) to design new ultrafast lasers and new ways to amplify their power.

Ekspla Science Director Dr Andrejus Michailovas has seen the company grow from humble beginnings to international success. The small enterprise initially focused on a niche market too small to interest competitors: solid-state mode-locked picosecond lasers for laboratories. "This gave us the opportunity to survive by creating new products with 'old' technology, but it was obvious that we couldn't do that forever," Michailovas recalls. Initiated in 2008, the UPLIT project, turned the situation around.

"Eurostars support has, in a short time, made Ekspla a serious market player. We are still a small company, but we no longer feel small," he explains.

A Perfect match

The UPLIT project grew from Ekspla's working relationship with one particular customer: Dr Andrius Baltuska of VUT. Baltuska aimed to build a cutting-edge ultrashort pulse laser system, but he needed more powerful picosecond lasers for his work – a demand echoed by Ekspla's industrial customers. It was a perfect opportunity for the company, but they might not have had the resources to pursue it if not for what Michailovas calls "a lucky circumstance": the simultaneous launch of the joint EUREKA-EU Eurostars programme, aimed at SMEs working on commercial projects with partners from other European countries – like VUT.

With their mutual interests and pre-existing relationship, Ekspla and VUT made ideal partners – and the financial support from the Eurostars programme enabled them to begin immediate work towards their goal of producing a laser system that could operate at an unprecedented power of over 100 W and repetition frequency greater than 1 kHz. Such a laser would allow its user maximal control and accuracy, as well as having an increased working lifespan. To

achieve this, Ekspla developed a range of optical and electronic components, and subsequently designed three novel picosecond lasers. The ambitious project was completed in just three years.

The commercial impact of the products generated through UPLIT has been remarkable. As a result of the project,

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Ekspla presented the Atlantic series of industrial lasers to the market, and introduce new laser amplification systems specially designed for scientists. As of 2013, almost €8 million in turnover had been generated from the sale of these products alone, with a further €500,000 coming from sales of components and nanosecond lasers. An additional €12 million from UPLIT innovations is expected by 2016, and a second Eurostars-backed project focusing on mid-infrared laser systems has been initiated by triumphant collaborators Ekspla and VUT.

COUNTRIES INVOLVED

Lithuania, Austria

DURATION

36 months

BUDGET

€ 1.3324 M

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