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Twente high-tech companies make transition to 5G possible

The EU is investing 1.6 million euros in research conducted by Solmates, LioniX and Satrax

The nanotechnology companies Solmates, LioniX and Satrax together will receive a grand total of 1.6 million euros from the European Union for the development of energy-efficient micro light switches for the telecoms sector. These switches are necessary to allow the transition from 4G to the much faster 5G network. The light switches that are being developed by the three University of Twente spin-off companies will be one million times more energy-efficient and much faster than existing technology. These companies say the high-tech ecosystem in the area around the University of Twente research institute MESA+ and Kennispark Twente make this development possible. "There is a whole innovation chain here, within a radius of several hundred metres."

Telecoms companies cannot keep up with the constant demand for faster mobile internet with the current technology. This is why telecoms companies are using infrastructures that process information with the use of light more and more often. This is a quicker way to process more information. For mobile internet you require systems that can convert radio signals into light signals. There are already several optical switches available for this purpose, but these switches have some disadvantages: the speed is too slow and the local heat generation on the chips is also an issue. In order to enable the transfer to 5G on your mobile phone, a new generation of light switches must be developed; switches that are part of intelligent antenna systems that optimize the coverage area and the capacity of the network.

One million times more energy efficient

Within the HAMLET project, the companies Solmates, LioniX and Satrax will therefore create optical switches on chips that are one thousand times faster and one million times more energy efficient. The switches generate much less heat locally due to much lower energy consumption, which is essential to the robust systems of telecoms providers. In addition to applications in the telecoms sector, this technology can also be relevant for medical diagnostics.
The European Union is investing 3.4 million euros in the HAMLET project (Horizon 2020 project number 688750). In addition to the three companies from Twente mentioned above, research institute Fraunhofer HHI (Germany), the company Linkra (Italy), and the Technical University of Athens (Greece) are also involved in HAMLET.

High-tech ecosystem in Twente

The three nanotechnology companies in Twente are the result of research at the University of Twente research institute MESA+. They say one of the things that makes Twente so successful, is the high-tech ecosystem surrounding MESA+ and Kennispark Twente. "There is a whole innovation chain here, within a radius of several hundred metres," explains Paul van Dijk, CEO of Satrax. He is referring to the fundamental research conducted by University of Twente, the high-tech facilities (such as the MESA+ NanoLab and High Tech Factory), the large number of high-tech companies that support each other and guidance from Kennispark Twente. "The

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fact that many successful high-tech companies stay here really says it all," adds Matthijn Dekkers, CTO at Solmates.

Solmates, LioniX and Satrax

Solmates produces equipment that deposits nano-layers which are used in the semiconductor industry, among other things. This technology, developed by Solmates and based on pulsed laser deposition, is highly suitable for applying the novel materials on substrates which will be a requirement in future generations of computer chips.
LioniX develops and produces chips based on micro and nanotechnology for fluidic and optics applications. In addition to product development, the company also facilitates the production of chips that customers can use as *enablers* in their products.
Satrax develops intelligent antenna systems for aeroplanes, satellites and base stations. These systems can be automatically directed, thus reducing the risk of dropping a connection. Integrated photonic circuits play an essential role in these systems.

Note to the press

For more information or requests for interviews, please contact the University of Twente's Press Officer Joost Bruysters on +31 (0)6 10488228.

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