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INTERVIEW: The SIM-QPla research project at TOPTICA eagleyard



Low cost, quick and reliable mobile detection methods for microplastics are currently still dreams of the future. The research project SIM-QPla plans to change this. TOPTICA eagleyard contributes here significantly by enabling a usage on site based on the high integration of the modules.

Hendrick Thiem works as development engineer at TOPTICA eagleyard since 2008 and is project leader of the SIM-QPla research project that is supported with 2.7 million Euro over three years by the ministry of research and education by 77.2 %. Further partners of this project are the Ferdinand Braun Institut, die Westphalia Datalab GmbH, die Humboldt Universität zu Berlin, die Westfälische Wilhelms-Universität Münster and the WESSLING GmbH.



Hendrick, besides working as development engineer at TOPTICA eagleyard, you're also the project leader of the SIM-QPla research project. What does TOPTICA eagleyard contribute exactly to the project?

Hendrick: „*The SIM-QPla project is a very exciting research project and TOPTICA eagleyard will contribute significantly to the success of the whole project and also to the possible industrial usage afterwards. We will develop a hermetically sealed butterfly package that will enable a mobile usage so that microplastics can be detected on site instead of having complex analytics in labs. We'll meet lots of challenges along the way that we'll overcome and are extremely happy to play an important role in this project and thus contribute to a better future.*”

What do you believe is the greatest challenge for the project part your company is responsible for?

Hendrick: „*We are currently developing an optical isolator in miniature format so that it can be integrated in the laser module. It needs to be small and reliable at a high power density while ensuring a long lifetime.*”

We therefore decided to use the new rotator material in order to obtain as much of the 1 Watt power as possible. We're currently testing the new mini isolator with other prototypes – but these have less power. On this basis, the development for the SIM Q-Pla research project has a high prospect of success despite the high requirements."

How many persons work for the project at TOPTICA eagleyard?

Hendrick: *„Currently, there are two employees working intensively for the project. As development engineer I have the main responsibility but I get a lot of support from a colleague supporting me with set-ups and tests."*

To which tasks do you look forward to the most?

Hendrick: *„The single tasks that result from the requirements are very exciting indeed. But when looking at the conjunction, the challenges become very obvious and I look forward to overcoming them. We're talking about fiber coupling at very high powers, temperature stability and an optical isolator in miniature format – and all of that in one module! All of these sub projects are already challenging, but the integration in one module will show the true benefit."*

Which new basis will be built with the SIM-QPla research project that can also be used for different areas?

Hendrick: *„With a successful implementation, TOPTICA eagleyards lies the basis for back reflex-free single mode fiber coupling at powers > 1 Watt. Based on this, several innovations will become ready to market in the future."*

About TOPTICA eagleyard:

TOPTICA eagleyard's' core competence is the development, production and sale of innovative high-power laser diodes based on GaAs (Gallium Arsenide). Its portfolio contains laser diodes with wavelengths ranging from 630 nm to 1120 nm sorted in five product families: Single Mode Laser Diodes, Single Frequency Laser Diodes, Multimode Laser Diodes, Tapered Amplifiers and Gain Chips. These laser diodes are addressing a variety of applications such as space, aerospace and defense, metrology, spectroscopy, medical instrumentation, test & measurement and material analysis. The company started as a rapidly growing spin-off from the Ferdinand-Braun Institut in 2002 and is part of the Munich-based TOPTICA Group since 2013.

For more information, please visit our website: <https://www.toptica-eagleyard.com>