

# Dr. Leonid Glebov and Dr. Alexei Glebov

Oviedo, Florida



OptiGrate

## *Learn about Florida Entrepreneur Dr. Leonid Glebov and Dr. Alexei Glebov:*

Dr. Leonid Glebov and Dr. Alexei Glebov, Founder and CEO, respectively, of OptiGrate Corp, are responsible for the design and manufacture of two forms of technology that are fully understood by a few but utilized by many. Specifically, they design and manufacture Volume Bragg Gratings that are used as ultra-narrow band notch filters, ultrashort laser pulse stretchers / compressors, as well as diode, solid state and fiber laser wavelength locking.

Alexei explained it in "layman's" terms. "We provide two major technologies and essentially one diversified product," he said. "The first technology is a proprietary silica-based glass material, similar to a window pane, but much purer and with dramatically more complex composition that has additives to make it photosensitive. This allows you to change refractive index inside the volume of glass and, therefore,

to form 3D images coded by refractive index variations. The second technology is holographic recording that utilizes periodic modulation of refractive index through the bulk of a glass slab to create a volume diffraction grating. Operation mechanism of those gratings are similar to dielectric multilayer mirrors. However, while properties of conventional dielectric mirrors are determined by a number of layers that usually no more than few tens, the unique properties of volume gratings are determined by hundreds of thousands of layers recorded in the volume of glass slab. Applications include control of angular, spectral and temporal properties of laser radiation and narrow band filtering for spectroscopy."

The pieces came together when Alexei explained how their technology is eventually used by other industries to provide products and services to their customers. "In most cases, OptiGrate sells its products to laser manufactures who then sell lasers to system manufactures who then sell systems to the end users," he explained. "The end users are, for example, auto manufactures that use high power lasers for cutting and welding vehicles, airports in the US and Europe that use gratings for chemicals detection, surgery centers that use ultrashort pulsed lasers for cataract surgery procedures, and there are even applications in the cosmetics and pharmaceutical industries."

When Dr. Leonid Glebov founded OptiGrate in 1999, he was able to launch and eventually grow the company without borrowing money and by reinvesting profit into research & development and the expansion of their production capabilities. One of the bigger hurdles they faced in the early years was converting a research company into a manufacturing company. "This was a very significant transition," Leonid explained.

Following a successful career in Silicon Valley, Dr. Alexei Glebov came to Florida to join OptiGrate and played a significant role in the conversion process. During the first five or six years, OptiGrate was funded with the help of government contracts. Over time they were able to commercialize their products and as a result, they're now at a point where a very small amount of their funding comes from the US government.

In 2017, OptiGrate was acquired by IPG Photonics, a global publicly-traded company and a leader in developing and manufacturing of high-performance fiber lasers and amplifiers. "IPG Photonics had been a customer for years," explained Alexei, currently President and General Manager of OptiGrate unit of IPG Photonics. "They were using our products and integrating them in different ways. They found an application for our gratings that enabled significant technological advancements. They made a decision to make us part of their family and were able to improve their lasers with our components." Currently, OptiGrate is going through the integration process with IPG Photonics adopting culture and processes of a large-cap multi-national company.

Drs. Leonid and Alexei Glebov both offer some great advice for aspiring entrepreneurs, especially those looking to start a technology company. "Utilizing high level researchers through a partnership with a university is a great way to leverage available resources and reduce the financial burden on small tech startups," said Dr. Leonid Glebov. "My advice for technology manufacturers is to start structuring the company at the earliest stage possible," said Dr. Alexei Glebov. He added, "Sometimes people don't pay a lot of attention to the company's structure. They let it grow and run as is. You want to work on your business not in it. If it's not

structured properly, you will be working in the business every day. Structure it properly and it will run like a ticking clock. This will allow you to focus more on strategy and the strategic direction of the company."

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