



*A Passion for Precision.*

TOPTICA Photonics AG  
Lochhamer Schlag 19  
D-82166 Graefelfing / Munich

## Press Release

**Contact:**

**Marketing**

Elke Marchthaler  
Phone + 49 89 85837-123  
Fax + 49 89 85837-200  
[elke.marchthaler@toptica.com](mailto:elke.marchthaler@toptica.com)

[http://www.toptica.com/pr\\_news/news.html](http://www.toptica.com/pr_news/news.html)

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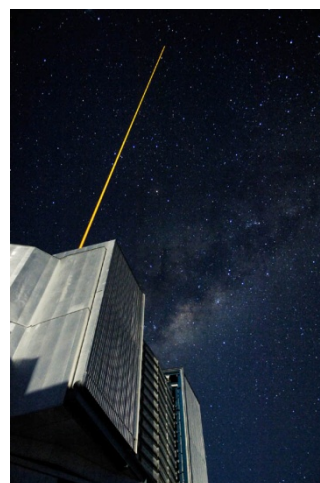
### **TOPTICA is awarded 5.2 Mio € Contract by ESO for Sodium Guide Star Facility**

The Very Large Telescope (VLT) of the European Southern Observatory (ESO) at Paranal, Chile, will be equipped with four cw high power Laser Guide Stars on the basis of amplified and frequency-doubled diode laser systems. Narrow band and diffraction-limited laser light sources of more than 20 W exactly on Sodium resonance at 589 nm start a new phase at the European Southern Observatory. Against strong international competitors, TOPTICA won now the final development and supply contract which foresees a deployment of the lasers at the telescope in Sept 2013.

TOPTICA, drawing on its many years of experience in the field of narrow band and tunable diode laser, has joined forces with the Canadian company MPB Communications. A combination of a novel narrow-band Raman fiber amplifier approach at 1178 nm developed by MPBC subsequently is converted to 589 nm by resonantly enhanced frequency-doubling technology. Based on TOPTICA's scientific product series, conversion efficiencies of more than 80 % have been demonstrated.

Until now, mainly dye lasers or sum mixing of solid state lasers were used to generate powerful cw laser guide stars. This kind of laser, however, is much less efficient, limited in optical output power and extremely demanding in maintenance. The situation has changed by the EFRA technology developed at ESO's Laser Department over the recent years, representing a major breakthrough in the field of fiber Raman lasers and enabling new, compact and ruggedized approaches to the old problem of high power lasers at 589 nm. TOPTICA, as a licensee of the ESO technology, emphasizes that also other visible wavelengths can be covered with much higher powers through the latest results.

Within a period of about three years TOPTICA will build for ESO, with his important partner MPBC, four robust, compact, turn-key complete laser systems including active wavelength stabilization. They will be installed right into the existing telescope structure of the VLT, in Chile, and the 20 W fundamental mode laser sources are designed to provide the backbone of the VLT Adaptive Optics Facility for many years to come.

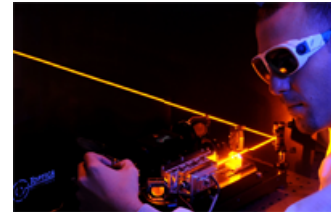


Orange Laser Guide Star in operation at the Very Large Telescope VLT of ESO, on the top of mountain Cerro Paranal in Chile.

**Author:**

Dr. Wilhelm Kaenders, TOPTICA Photonics AG

“The reduction of complexity in comparison to former solutions for Guide Stars leads to an industrially reliable concept with good scalability also for future demands”, promises TOPTICA’s President Dr. Wilhelm Kaenders. “We are very keen to combine our technological leadership with the many years of expertise in building industrial laser system solutions for the challenges that ESO presented to us.”



In operation: TOPTICA's 20 Watt, 589 nm, Laser Guide Star system built together with MPB Communications.

The European Southern Observatory (ESO) and many other national and international Observatories will equip their telescopes with state-of-the-art laser technology within the next few years. “The four laser units which will be delivered by TOPTICA are an important part of the Very Large Telescope Adaptive Optics Facility project being carried out by ESO”, says the Head of the Adaptive Optics Department, Norbert Hubin. The contract is financed in part by European funds in the framework of the EC FP7 Optical Infrared Coordination Network for Astronomy.

*TOPTICA Photonics AG develops, manufactures, services and distributes technology-leading diode and fiber lasers and laser systems for scientific and industrial applications. Sales and service is offered worldwide through TOPTICA Germany and its subsidiary TOPTICA USA, as well as all through 14 distributors. A key point of the company philosophy is the close cooperation between development and research to meet our customers' demanding requirements for sophisticated customized system solutions and their subsequent commercialization.*

**Author:**

Dr. Wilhelm Kaenders, TOPTICA Photonics AG