



A Passion for Precision.

Press Release

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Yellow and Orange Diode Lasers

Diode lasers are the light sources of choice for research institutions and industry. Key advantages over other lasers are their comparably low cost, their reliability and their ease of operation. Using frequency-selective feedback, so-called grating-stabilized diode lasers have high spectral purity and can be tuned in emission wavelength over many nanometers. Due to a lack of laser diodes, diode lasers were not available in the orange or yellow part of the light spectrum.

TOPTICA now offers unique solutions based on frequency-doubled grating stabilized diode lasers. According to "take infrared and make orange out of it", lasers of the type DL-SHG (Diode Laser – Second Harmonic Generator) provide output powers from several mW to a few ten mW – depending on the design wavelength in the range of 555 nm to 625 nm.

Such lasers can be coarse-tuned by a few nm and allow for some 10 GHz modehop-free fine-tuning. The proprietary design guarantees frequency drifts below 200 MHz/K and coherence lengths of several hundred meters.

Main applications of these high-end lasers are spectroscopy and interferometry but also laser cooling or optical pumping of atoms and ions. Finally, the time has come to replace expensive dye lasers by reliable and economic frequency-doubled diode lasers to benefit from longer "on-time" of the experiment and reduced running costs.



Diode lasers are now available in orange or yellow. Here, as an example, a DL-SHG laser at 614 nm is used in the group of Prof. Rainer Blatt for optical pumping of Ba⁺ ions (University of Innsbruck & Institute for Quantum Optics and Quantum Information of the Austrian Academy of Sciences).

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 13 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.

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