OPTICAL PARAMETRIC OSCILLATOR
C-WAVE

HÜBNER

Ideas taking shape – worldwide.

C-WAVE: THE TUNABLE LASER LIGHT SOURCE

C-WAVE is the tunable laser light source for continuous-wave (cw) emission in the visible and near-infrared wavelength range. Its technology is based on optical parametric oscillation (OPO) and it is fully computer controlled. Thus, it allows you to tune from blue to red and into the near-infrared without any change of dyes or optical components. This makes C-WAVE a flexible and userfriendly laser tool for your applications.

Visible, widely tunable, continuous-wave – for a long time this was equivalent to the handling of toxic dyes, to changing laser media or resonator mirrors or the restriction to narrow tuning ranges. C-WAVE is a solid state system that has no consumable components such as dyes. The wavelength can be simply set at the computer.

C-WAVE tunes itself automatically and guarantees superior beam quality as well as output stability across the whole tuning range – offering both high flexibility and precision at the same time.

Focus on your research and not on laser handling:
C-WAVE helps you free your mind for your main tasks.

Applications

C-WAVE is a tool for a variety of established and for upcoming applications. It offers you the freedom to choose your desired laser wavelength whenever you want. Also, it is an outstanding light source for spectroscopy over a wide tuning range offering all advantages of cw lasers.

Precision and flexibility for:

- Atomic physics
- Quantum optics
- Metrology
- Spectroscopy
- Biophotonics
- Photochemistry, …

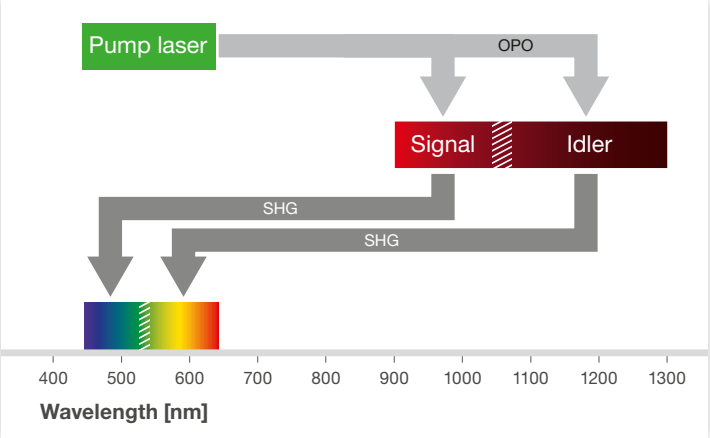
Characterization of:

- Optical components
- Meta materials
- Optical resonators
- Quantum dots
- Optical fibers, …

C-WAVE – Operation Principle

C-WAVE combines two nonlinear processes: In the first step (OPO), a 532-nm laser pumps a periodically-poled nonlinear crystal. Signal and idler waves with tunable frequencies in the near-infrared range are generated, controlled by the crystal's poling period and temperature.

In the second step (SHG), these waves pass through a frequency doubling crystal: Second harmonic generation of the signal wave leads to colors from blue to green, while the idler wave is converted into colors from green to red.



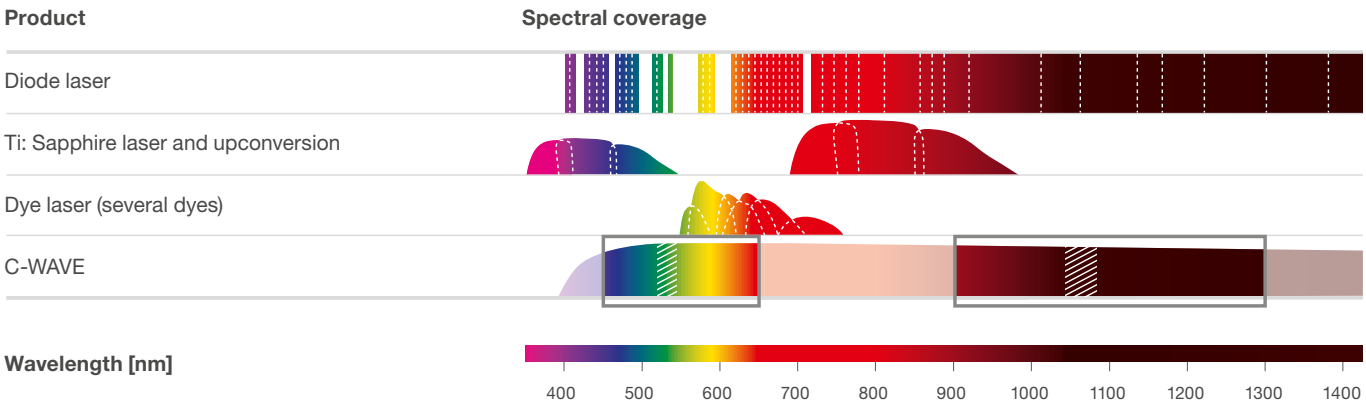
TAILORED TO YOUR NEEDS

Spectral Coverage

The concept of C-WAVE allows to build laser-light sources for tunable continuous-wave emission from the near UV to the infrared. The bright windows in the spectral coverage chart indicate the full standard tuning range of C-WAVE. Other wavelength ranges are available upon request.

Note: In the tuning range at 525 – 540 nm and at 1050 – 1080 nm, the specified parameters are not guaranteed. If you plan to perform your experiments at wavelengths within those gaps, just contact us.

Spectral Coverage – Comparison Chart



Configure Your C-WAVE

Of course, it is possible to configure your own C-WAVE unit with different wavelength, linewidth and power options. Select between four wavelength options. You can also combine two or more options in one unit.

*gap at 1050 – 1080 nm

Wavelength options (Multiple selection possible)

- ☐ Blue (450 – 525 nm)
- ☐ Orange (540 – 650 nm)
- ☐ IR (900 – 1300 nm)*
- ☐ Custom

Linewidth and frequency stabilization options

- ☐ Basic: < 100 MHz, accuracy better than 1 nm
- ☐ Advanced: < 1 MHz, can be stabilized to an external reference

Power options

- ☐ Low power:
  > 200 mW for IR
  > 80 mW for Blue & Orange
- ☐ High power:
  > 400 mW for IR
  > 200 mW for Blue & Orange

About us

The HÜBNER Group has made a name for itself as an innovative system supplier for the transportation industry since the 1940's. It is headquartered in Kassel, Germany, and employs over 2,400 staff members in more than 13 different countries.
In collaboration with renowned research institutes, the HÜBNER New Technologies division develops and markets products based on laser, terahertz and high-frequency technologies for applications in industry, research and science. A proof for the keen interest in the new technology products by HÜBNER: the tunable laser C-WAVE and the terahertz spectrometer T-COGNITION® were both awarded a Prism Award of the international photonics industry.

For further information, please visit **www.hubner-terahertz.com** and **www.hubner-photonics.com.**

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