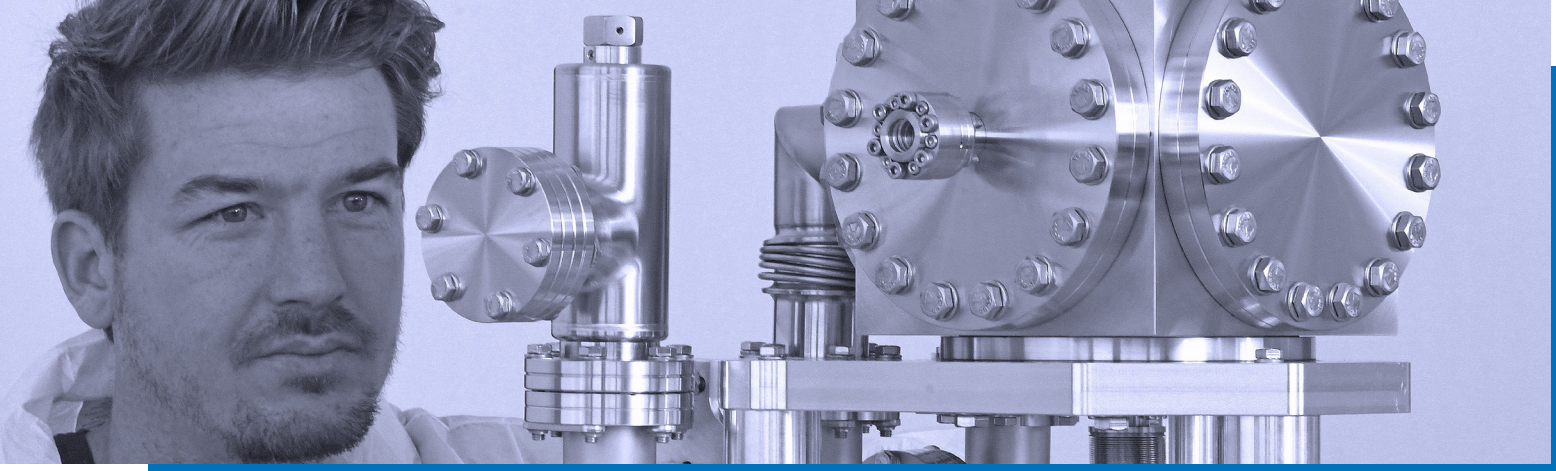

Menlo Systems: Evolution through Innovation

Optical Frequency Combs

In 2002, Menlo Systems launched the first commercially available optical frequency comb FC8004 enabling the users to measure optical frequencies with highest accuracies with a table top instrument. Since then, our company has set the standard in regard to optical precision measurements. The optical frequency combs have undergone continuous improvements driven by users worldwide and applications ranging from basic research to applied sciences to industrial measurement tasks. We at Menlo try to support these efforts as best as we can. The close collaboration with our customers has led to new, improved product lines like the fiber combs FC1500, and the AstroCombs for calibration of telescopes. Until now, more than 250 customers worldwide are using Menlo Optical Frequency Combs for high precision optical measurements in various applications like optical clocks, cold atoms and molecules, metrology, distance measurements, Fourier spectroscopy, and Lidar measurements.

All our systems are hands-off and designed for 24/7 operation, an essential feature which our customers make use of. Examples include: Menlo combs are being dropped from >100 m in drop towers and are flying in air planes in parabolas for measurements in zero g. Menlo Space Comb Systems were successfully launched on board of sounding rockets (Texus mission 51).

In short: Menlo Optical Frequency Combs have reached a technology level that makes them ready for applications in laboratories, in industrial environments, and in the near future also on board of satellites. Menlo Systems is the No. 1 supplier of optical frequency combs worldwide.

Ultrastable Lasers

Menlo Systems is offering complete commercial systems for optical clock applications, consisting of the ORS ultrastable laser as optical reference, the FC1500-ULNplus ultra low noise optical frequency comb as a clockwork, and cw diode lasers as repump or clock lasers.

With the capability of optical frequency combs to transfer the linewidth of an optical reference to a wavelength region required for addressing atoms or ions, in 2011 Menlo Systems has released the ORS product line of ultrastable lasers with a linewidth <1 Hz and outstanding short term stability. Starting with a laser at 1.5 µm the series was soon extended to other wavelengths. In collaboration with the National Physics Laboratory, UK's National Measurement Institute, Menlo has launched the compact ORS-Cubic ultrastable laser with a cubic cavity design. Today, any ultrastable wavelength desired is available.

Terahertz Systems

Being a core component of our terahertz time-domain spectrometers, superior fiber laser technology greatly improves their reliability and performance. In combination with compact fiber delivered sensors of the newest generations we provide robust, state-of-the-art solutions with the experience of more than 12 years to the different test beds in scientific and industrial market. We address the various demands in the field of spectroscopy and quality control by our dedicated system models that range from compact TeraSmart, to versatile TERA K15 and high-speed TERA ASOPS system – delivering the highest signal-to-noise and bandwidth performance.

Femtosecond Fiber Lasers

The continuous improvements in applications requiring highest precision have driven the laser developments to the extreme. In 2015, Menlo launched a new generation of femtosecond fiber lasers based on the proprietary figure 9® technology.

With the figure 9® all-PM fiber design Menlo Systems' lasers offer excellent stability and low-noise operation, engineered for 24/7 operation. Applications range from basic science to micro-machining and surgery in ophthalmology. In 2018 and 2019, ultra low noise laser models (ULN) have been released, paving the path for optical clock applications.