



Microtech Introduces three new products to be unveiled at SPIE BIOS/Photonics West

Eugene, OR, January 20th, 2012. Microtech Instruments, Inc. will introduce several new products at BIOS and Photonics West exhibits in San Francisco, opening on January 21st.

All new products use ultrafast fiber laser technology to enable advanced solutions for a variety of applications including: laser micromachining, coherent Raman (CARS) and other multi-photon optical and THz imaging and spectroscopy.

PikaRay-10 μ J is a laser micromachining system based on an ultrafast fiber laser combined with an optical scanner, positioning hardware and control software. Ultrafast fiber lasers provide a combination of reliability and ultra-high peak power, which makes them the ideal tool for industrial material processing applications. The picosecond laser ablation process occurs on such short timescales that thermal effects are minimized. Without thermal effects, micro-cracking, melting, and other common defects that are commonly problematic in nanosecond laser processing are avoided. The system operates at 532 nm and 1064 nm wavelengths with pulse energies up to 10 μ J at repetition rates varying from single shot to 1 MHz, enabling clearing rates exceeding 100 mm²/s, and scribing rates reaching 10 m/s.

More information about PikaRay-10 μ J laser micromachining system is available at: http://www.mtinstruments.com/Micro_Machinery.html

FPPO-900 is a picosecond, tunable OPO suitable for coherent Raman (CARS) and other multi-photon imaging and spectroscopy applications. The system is pumped by a 6ps, 1064 nm, 109 MHz fiber laser, which is converted to 532 nm by second harmonic generation. The 532 nm pulses act as the pump for the OPO, which is tunable from 750 – 900 nm (signal) and 1300 - 1800 nm (idler). In a CARS experiment, the tunable signal beam is used as the pump, while the fundamental at 1064 nm provides the Stokes pulse. The user also has access to the longer wavelength idler pulses. The short duration (< 6ps) and narrow bandwidth (<10cm⁻¹) of FPPO-

900 provide the peak power and spectral selectivity critical for CARS imaging and spectroscopy.

More information on FPPO-900 ultrafast OPO system is available at:

http://www.mtinstruments.com/CARS_Imaging.html

Terahertz Parametric Oscillators — TPO-1500 and TPO-850— deliver up to 0.1 mW of average power (>150 mW of peak power) at 1.5 THz and 0.85 THz, respectively. With spectral widths of <100 GHz, the output of these sources fit perfectly into atmospheric transmission windows, making it an ideal source for terahertz imaging. Very high peak power makes TPOs suitable for imaging systems employing nonlinear optical effects or time domain terahertz spectroscopy, while sufficiently high average power makes it suitable for thermal detector array imaging.

Operation of the TPO is based on difference frequency generation in a quasi-phase-matched Gallium Arsenide crystal placed inside fiber laser pumped optical parametric oscillator.. This technology was developed by Microtech Instruments in collaboration with researchers at Oregon State and Stanford Universities, and the development program was originally funded by Defense Advanced Research Projects Agency (DARPA) in 2004, and more recently by Air Force Office of Scientific Research (AFOSR).

“We are really excited to introduce this product after seven years of research and development,” commented Patrick Tekavec, R&D Manager at Microtech. “This technology is scalable to higher power sources, covering multiple spectral bands, enabling compact and maintenance free instruments for industrial applications.”

More information on TPO products is available at:

http://www.mtinstruments.com/THz_Generators.html

About Microtech Instruments, Inc.

Microtech Instruments is a manufacturer of advanced scientific instruments for ultrafast Laser Micromachining, Coherent Raman, Multi-photon and Terahertz imaging and spectroscopy applications. Serving the global research community for over 15 years, Microtech collaborates with leading research organizations worldwide.

For more information, visit www.mtinstruments.com or contact Renee Isley at sales@mtinstruments.com