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For Immediate Release:

New Ultrafast Laser Broadens Horizons for Multiphoton Imaging

Santa Clara, CA, 10/19/2019 – The unique performance of the new Chameleon Discovery NX laser delivers deep multiphoton microscope images with superb brightness and high contrast, making it especially well-suited for live tissue imaging in neuroscience and other intravital applications.

The Chameleon Discovery NX offers breakthrough power levels (up to 3 W), and shortest pulses at the sample plane to enable complex two photon microscope configurations. Short pulse duration is key to high brightness/contrast images and is enabled by a group dispersion delay (GDD) pre-compensator with enhanced dynamic range. It avoids unwanted pulse stretching, even in wide field microscope setups using highly refractive objectives, allowing users to minimize unwanted sample heating and maximize image depth.

Chameleon Discovery NX provides several other industry-leading benefits: It boasts tuning from 660 nm to 1320 nm, while simultaneously producing a high-power fixed wavelength output at 1040 nm. It is also available with *Total Power Control (TPC)*, enabling built-in high-speed power modulation. Incorporating the latest acousto-optic (AO) technology, this functionality provides high-contrast modulation on both the tunable femtosecond output and the 1040 nm output. TPC ensures that the laser's excellent beam quality is *delivered directly to the microscope scan head*.

Furthermore, real-time power modulation provided by TPC is important in multiphoton microscopy for several reasons. It enables optimization of laser power for each image plane depth, and for fast "flyback" beam blanking when unidirectional raster scanning is required. The TPC function provides fast rise-time, and both analog and digital control of laser power, which may be synchronized with the microscope scanning optics.

In addition to multiphoton imaging, the Chameleon Discovery NX is well suited to ultrafast spectroscopy and other time-resolved studies. Its utility in these applications can be expanded with optional frequency extensions which broaden the wavelength coverage from 330 nm to 16 μm .

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