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For Immediate Release:

Compact Ultrafast Laser Lowers Costs for Microscopy and Other Applications

Santa Clara, CA, June 24, 2019 – Coherent has introduced the Axon family, a completely new suite of compact femtosecond lasers, designed from inception to deliver lower cost, reduced complexity, and smaller footprint. Axon addresses demanding applications such as multiphoton microscopy (MPE), nanoprocessing, semiconductor metrology, and THz spectroscopy. Axon is a fixed wavelength, compact (212 mm x 312 mm x 62 mm), air-cooled laser delivered at a market-enabling price point. The first two models have output wavelengths of 920 nm and 1064 nm, with other wavelength versions expected soon. All Axon lasers feature the same form, fit and function, including 1 W of average power with integrated, software-controlled GVD pre-compensation. To further simplify adoption of this laser, its output matches the existing femtosecond laser oscillators: short (< 150 fs) pulse width, a clean temporal profile and 80 MHz pulse repetition rate.

A major application of the Axon lasers is multiphoton microscopy. The 920 nm laser is designed for GFP and related imaging probes, and Ca²⁺ indicators such as GCAMP. The 1064 nm version matches well with red shifted Ca²⁺ indicators and red fluorescent proteins. Although MPE delivers inherent 3D images, deep penetration and high cell viability, market adoption lags well behind confocal microscopy because the cost and size of available femtosecond lasers and the challenges of integrating them with a microscope. The combination of the optional integrated fast modulation and small laser head allows for direct attachment of Axon to a microscope scan head, potentially negating the need for an optical table.

Other applications for Axon include two-photon polymerization, material nanoprocessing and semiconductor and thin film metrology. The 1064 nm model is also an excellent tool for supercontinuum generation thanks to its high fidelity femtosecond pulse quality.

Director of Product Marketing, Darryl McCoy, notes that, “The short pulse width and high peak power of femtosecond lasers enable cutting-edge methods in biology, physics, applied science, semiconductor metrology and materials processing. We are committed to supporting developers in these important fields with lasers that offer a combination of performance, ease of use and economy in order to enable the widest possible user base. We are proud to introduce a new generation of laser that exemplifies this commitment.”

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