

NEW PRODUCTS

Focus on lasers, imaging, microscopy, and nanoscience

The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers. PHYSICS TODAY can assume no responsibility for their accuracy. For more information about a particular product, visit the website at the end of its description. Please send all new product submissions to ptpub@aip.org.

Andreas Mandelis

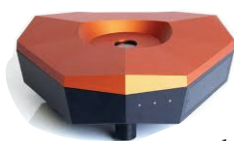
All-in-one single-frequency laser

Hübner Photonics has introduced its Cobolt 05-iE (integrated electronics) series of single-frequency lasers that cover the 457–1064 nm wavelength range. Because all the control electronics are contained in the laser head, the Cobolt 05-iE lasers do not need an external controller. With less complexity and fewer parts, the laser has a significantly reduced system footprint and is simpler to integrate into researcher and other user systems. The company's Cobolt Rogue 640 nm 1 W laser is also available with integrated electronics as a Cobolt Rogue iE. All Cobolt lasers are manufactured using proprietary HTCure technology. According to the company, the resulting hermetically sealed package protects the lasers from varying environmental conditions and ensures that they perform reliably in both laboratory and industrial settings. **Hübner Photonics Inc**, 2635 N 1st St, Ste 202, San Jose, CA 95134, <https://hubner-photonics.com>



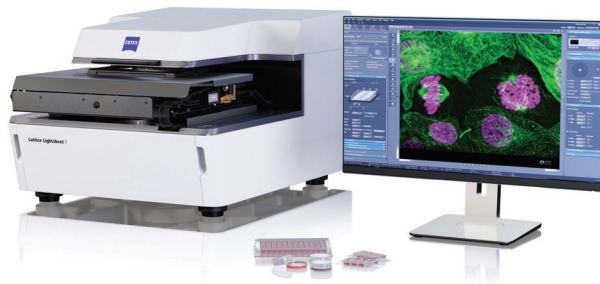
Tip-scanning atomic force microscope

Nanosurf designed its DriveAFM to allow researchers in materials science, life sciences, and nanotechnology to capture high-resolution images of large samples: It offers an imaging envelope of $100\text{ }\mu\text{m} \times 100\text{ }\mu\text{m} \times 20\text{ }\mu\text{m}$, with an optional $150\text{ }\mu\text{m}$ z-axis extension. The DriveAFM comprises a low-noise, high-bandwidth controller; a low-noise, super-luminescent diode for feedback; and a direct-drive scanner. It features innovative CleanDrive technology, a photothermal method to actuate the cantilever. Photothermal excitation provides high stability and a high excitation bandwidth in both air and liquids, benefits that allow high-speed measurements at multiple frequencies. Laser and detector alignment, tip approach, and sample movement are all managed with the software. Such full-system motorization makes it easy to use and opens up new possibilities to fully automate the system. **Nanosurf AG**, Gräubernstrasse 12, 4410 Liestal, Switzerland, www.nanosurf.com



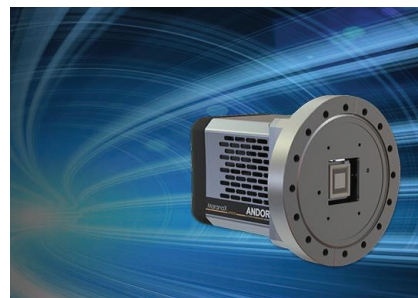
Lattice light-sheet fluorescence microscope

Zeiss developed its Lattice Lightsheet 7 instrument to observe processes in cells and small organisms in 3D over extended time periods at subcellular resolution, with minimal light. The Lattice Lightsheet 7 comes with a special structured light sheet, a so-called sinc3 beam, and provides flexibility in generating light sheets of different lengths and thicknesses. That generation is accomplished by a light-efficient beam shaping system that uses a spatial light modulator; only moderate laser powers are required. The illumination and detection optics are arranged perpendicular to each other and at an oblique angle to the surface of the sample carrier's cover glass, an arrangement that makes available the full numerical aperture of the detection objective. Resolutions of up to $290\text{ nm} \times 290\text{ nm} \times 450\text{ nm}$ can be achieved at an acquisition speed of up to 3 volumes/s. **Zeiss Research Microscopy Solutions**, Carl-Zeiss-Promenade 10, 07745 Jena, Germany, www.zeiss.com



Camera for high-energy physics

Andor Technology, an Oxford Instruments company, now offers its Marana-X camera for ultrafast soft-x-ray and extreme-UV (EUV) tomography and high-harmonic-generation applications. According to the company, the camera's scientific CMOS (sCMOS) technology makes it significantly more advanced than slow-scan CCD cameras. With its fast frame rates, high sensitivity, and high dynamic range (up to 16 bits), the Marana-X overcomes the limitations of CCD technology in the soft-x-ray–EUV energy range. The Marana-X features what the company claims is the first uncoated 4.2 MP sCMOS sensor with greater than 90% quantum efficiency in the 80 eV–1 keV range at up to 74 fps full frame. That unique combination speeds up and improves sampling of dynamic phenomena such as large tomographic data sets. The Marana-X is deep cooled to $-45\text{ }^{\circ}\text{C}$ and offers a convenient USB 3 plug-and-play interface and a CoaXPress interface more suited to challenging high-energy-physics environments. **Andor Technology Ltd**, 7 Millennium Way, Springvale Business Park, Belfast BT12 7AL, UK, <https://andor.oxinst.com>



Fast, high-resolution EMCCD camera

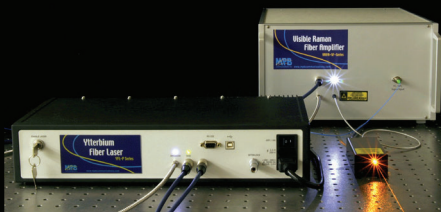
According to Raptor Photonics, its Kestrel ultrafast electron-multiplying (EM) CCD camera cost-effectively operates at 2000 fps, one of the fastest speeds available, and has a region-of-interest function. With its back-illuminated sensor, cooled to -20°C , the camera provides ultrahigh sensitivity from 350 nm to 1100 nm and a peak quantum efficiency of 95% at 600 nm. The digital monochrome Kestrel features a resolution of 128×128 pixels, each of which is $24 \mu\text{m}^2$; a scientific-grade 16-bit analog-to-digital converter; and a standard Camera Link output. It has high sensitivity from the UV to the near-IR, and with EM gain on, it offers less than $0.01 e^{-}$ read noise. Applications include wavefront sensing, adaptive optics, calcium signaling, fluorescence imaging, and space-debris and fast-object tracking. **Raptor Photonics Ltd**, Willowbank Business Park, Larne, Co Antrim BT40 2SE, Northern Ireland, UK, www.raptorphotonics.com



Confocal microscope

Leica Microsystems has launched its Stellaris confocal microscopy platform for capturing 3D images of living cells and tissues. The Stellaris 5 and the more advanced Stellaris 8 combine the company's new Power HyD detectors, White Light Laser, and sophisticated software to deliver brighter signals and images with more contrast and fine detail. The integrated TauSense imaging modes, based on fluorescence-lifetime technology, can help separate fluorophores even when their emissions fully overlap. The number of simultaneous detection channels can also be expanded by using lifetime-based information. According to the company, compared with other confocal systems, Stellaris offers enhanced sensitivity in the blue-green region, which improves detection limits and dynamic range for the most commonly used fluorophores. **Leica Microsystems Inc**, 1700 Leider Ln, Buffalo Grove, IL 60089, www.leica-microsystems.com **PT**

powering your Qubit



High Power Single Frequency Raman Fiber Amplifiers

- Up to 4 W output power at 525-650 nm, up to 20 W NIR
- Low phase & intensity noise
- Narrow linewidth
- Unsurpassed beam quality & stability



info@mpbc.ca
www.mpbc.ca
+1 514-694-8751