

# NEW PRODUCTS

## Focus on lasers, imaging, microscopy, and photonics

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](mailto:ptpub@aip.org).

**Andreas Mandelis**



### Nano-optical microscope and imaging

NeaSpec, part of Attocube, has introduced a new generation of its neaScope nano-optical microscope products based on needle-tip-enhanced nano-imaging and spectroscopy. The neaScope series operates in the visible, IR, and terahertz ranges. It is

suitable for use in various scientific research fields, such as nano-optics, 2D materials, plasmonics, polymers, materials and life sciences, semiconductor research, and cryogenic and ultrafast studies. Models begin with the basic IR-neaScope, which provides nanoscale IR imaging and spectroscopy based on probing laser-induced photothermal expansion with an atomic-force-microscope tip. The more advanced IR-neaScope<sup>ts</sup> detects elastically scattered light from the atomic-force-microscope tip. Other models offer polarization-resolved mappings, terahertz near-field imaging and spectroscopy, and ultrafast pump-probe and tip-enhanced Raman spectroscopy; one model realizes multifunctional research in cryogenic environments. **Attocube Systems AG and NeaSpec**, Egolfinger Weg 2, D-85540 Munich-Haar, Germany, <https://www.neaspec.com>

### Radiation-tolerant laser

NeoPhotonics has designed a radiation-tolerant version of its ultrapure light Nano-ITLA (integrable tunable-laser assembly) for use in communications among low-Earth-orbit satellites. Optical networking companies employ NeoPhotonics's current Nano-ITLA laser in advanced terrestrial, coherent, pluggable modules and high-speed embedded systems. To enable reliable operation in space—which is a hostile environment for telecommunications electronics and related hardware—the new laser introduces enhancements such as an adaptive approach to extend its operational lifetime in a radiation-flux environment. In addition, radiation-tolerant software enhancements mitigate the corrupting effects of ionizing radiation on the RAM and flash memory that microprocessors rely on. **NeoPhotonics Corporation**, 3081 Zanker Rd, San Jose, CA 95134, [www.neophotonics.com](http://www.neophotonics.com)

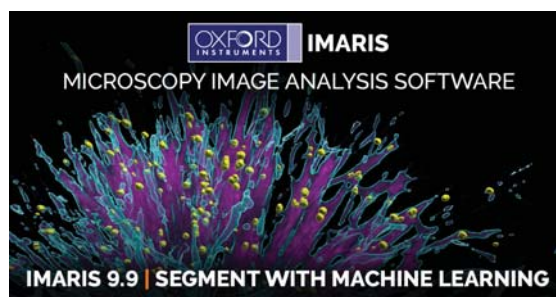


### Dual-color stimulated Raman scattering

With its novel dual-color stimulated Raman scattering (DC-SRS) system, the deltaEmerald instrument from APE allows simultaneous imaging of two vibrational bands. Optimal signal-to-noise performance and a background-subtraction capability make it suitable for SRS microscopy. Two Stokes pulses separated by 85 cm<sup>-1</sup> and modulated at different frequencies are overlapped with the tunable pump pulse. The pulse length of ~1 ps, 10–15 cm<sup>-1</sup> bandwidth, and hundreds-of-milliwatt output power in each beam are appropriate parameters for coherent Raman imaging. The solid-state laser and optical parametric oscillator, combined with the shot-noise-limited pulses of all three beams, facilitate fast image acquisition. Fully automated tuning, power control, and temporal and spatial overlap of all three beams are provided. A ~100 fs output at 1030 nm allows for efficient second-harmonic generation and two-photon imaging. Applications include fingerprint, metabolic, cell, and plant imaging and microplastics discrimination. **APE GmbH**, Plauener Strasse 163–165, Haus N, 13053 Berlin, Germany, [www.ape-berlin.de](http://www.ape-berlin.de)

### Software for microscopy image analysis

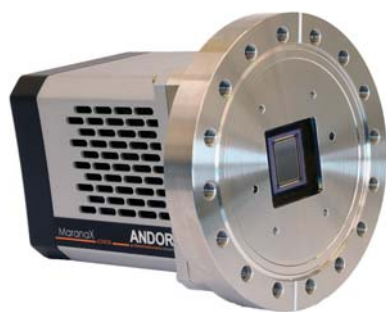
Imaris, an Oxford Instruments brand, has released the latest version of its software for microscopy image analysis. To save time, Imaris 9.9 facilitates connectivity with open-source tools important for researchers' specific needs. It adds a new segmentation method for pixel classification, which is powered by Labkit, an open-source Fiji plug-in. The result is a seamless workflow from Imaris to Labkit and back to Imaris. The machine learning pixel classification, with an intuitive, interactive training mode, broadens the diversity of images for analysis because it enables electron microscopy segmentation and shape recognition. To facilitate the connection between open-source software packages and Imaris, the 9.9 version lets users directly import label images as surfaces or position data as spots. Once imported, those components are compatible with other Imaris tools such as statistics reporting, spatial analysis, and high-resolution animations and snapshots. **Oxford Instruments plc**, Tubney Woods, Abingdon OX13 5QX, UK, <https://nmr.oxinst.com>



## NEW PRODUCTS

### Multispectral line-scan camera

Teledyne DALSA has added a new model to its Linea product line. The high-resolution Linea ML 8k line-scan camera provides spectrally independent RGB (red, green, blue) and near-IR outputs for accurate detection of defects without spectral interference. According to the company, that makes the multispectral camera uniquely capable of handling challenging inspection applications by detecting defects both on and under the surface of a variety of materials, components, and products. In a single scan, it can inspect banknotes, passports, and other high-security print items and accurately detect defects on and under the surface of products such as semiconductor wafers and printed circuit boards. The Linea ML 8k multispectral camera uses Teledyne DALSA's latest CMOS 8k quad linear sensor with a pixel size of 5  $\mu\text{m}$ . It delivers a maximum line rate of 70 kHz each for the four lines using a Camera Link HS fiber-optic interface. *Teledyne DALSA, 605 McMurray Rd, Waterloo, ON N2V 2E9, Canada, [www.teledynedalsa.com](http://www.teledynedalsa.com)*



### Extreme-UV and soft x-ray camera

Andor Technology, an Oxford Instruments company, has launched its Marana-X-11 scientific CMOS platform for ultrafast soft-x-ray and extreme-UV tomography and high-harmonic-generation imaging. According to the company, it represents a significant technological advancement for applications that traditionally use slow-scan CCDs. Optimized for the 80 eV–1 keV region, Marana-X-11 delivers high quantum efficiency, high dynamic range, a low noise floor, and 48 fps operation and thereby enables dynamic photon-starved applications. Its high-resolution, back-illuminated, uncoated 4.2 MP sensor features a 32 mm diagonal field of view with 11  $\mu\text{m}$  pixels. The sensor has the flexibility to analyze a wide range of sample configurations and address demanding spatial- and

spectral-resolution needs. The electronic shutter, combined with a USB 3 or robust long-distance CoaXPress data interface, enables easy integration into a broad range of vacuum-based high-energy experimental setups. *Andor Technology Ltd, 7 Millennium Way, Springvale Business Park, Belfast BT12 7AL, UK, <https://andor.oxinst.com>*



The Department of Physics at The University of Oregon invites applications for a faculty position to start in Fall 2023. We are seeking to hire in any area of physics synergistic with existing areas of research in our department. These areas include astrophysics/cosmology, atomic/molecular/optical physics, biological physics, hard and soft condensed matter physics, and particle physics. There are also strong campus-wide initiatives in environmental science, data science, and bioengineering.

Applicants should have a Ph.D. and an outstanding research record. The successful candidate will be expected to build a world-class research program, teach graduate and undergraduate courses with distinction, and perform university service and public outreach. Women, members of underrepresented groups, and scientists at early stages in their academic career are strongly encouraged to apply. We foster a welcoming and inclusive climate in our department for our undergraduates, graduate students, faculty, and staff via our active climate and diversity committee and through programs such as North Star and SAIL. We seek a colleague who will join us in these strong efforts.

Candidates are asked to apply by completing the online application; including submitting a letter of application, a curriculum vitae, the contact information for three professional references, a research statement, a teaching statement, and a diversity statement.

For more instructions on the application process and to apply, please use this link: <https://careers.uoregon.edu/en-us/job/529434/assistant-professor-of-physics>

### Lasers for quantum applications

NKT Photonics has made its Koheras Harmonik frequency-converted mode-hop-free fiber lasers available in wavelengths suitable for quantum research: 780 nm, 840 nm, and 1064 nm for rubidium; 317 nm, 813 nm, and 1064 nm for strontium; 532 nm and 1762 nm for barium; and 399 nm, 556 nm, 638 nm, 770 nm, and 1064 nm for ytterbium. The lasers feature up to 10 W of power, low noise, and a linewidth below 200 Hz. They are ultra-stable, highly reliable, and alignment- and maintenance-free, and can be mounted in a rack or placed upside down. Harmonik lasers are pumped by the company's low-noise fiber lasers in the near-IR, which allows them to be locked to frequency references at either their fundamental or converted wavelengths. A state-of-the-art fiber-delivery system handles high power, preserves the low-noise laser properties, and delivers single-mode light at all wavelengths. *NKT Photonics Inc, 23 Drydock Ave, Boston, MA 02210, [www.nktphotonics.com](http://www.nktphotonics.com)*

