

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



Characterization of nanomaterials and nanostructures

A collaboration between Bruker and the Technical University of Denmark Nanolab has produced the new Optimus 2 detector head. As part of Bruker's new augmented on-axis transmission Kikuchi diffraction (TKD) solution

in electron backscatter diffraction (EBSD), the detector head enhances the company's eFlash EBSD detectors for crystal-orientation mapping on electron-transparent samples. Bruker says that the augmented on-axis TKD solution and new hardware and software expand the EBSD applications range and accelerate and improve the characterization of nanomaterials and nanostructures in a scanning electron microscope. Among other advancements, Optimus 2 improves spatial resolution to 1.5 nm and lower by optimizing beam focus and astigmatism settings before the TKD map acquisition. **Bruker Nano GmbH**, Am Studio 2D, 12489 Berlin, Germany, www.bruker.com



Multiple laser combiner

Hübner Photonics has expanded its C-FLEX laser combiner family by introducing the compact C8. The platform is available in three sizes that can be equipped with four, six, or eight high-performance Cobolt lasers. The flexible laser combiners are available in a range of standard application-specific configurations or can be customized to user needs. They are easy to install and field-upgradeable. A very broad range of wavelengths can be integrated: 375 nm to 1064 nm, with an output power of up to 1000 mW. The C-FLEX series includes both diode lasers with high-speed modulation capability and diode-pumped lasers with single-frequency operation. Multiple fiber outputs and the option to integrate high-power lasers from the Cobolt 05-iE series make the C-FLEX C8 suitable for applications in bioimaging, Raman spectroscopy, and holography. **Hübner Photonics Inc**, 2635 N 1st St, Ste 202, San Jose, CA 95134, <https://hubner-photonics.com>

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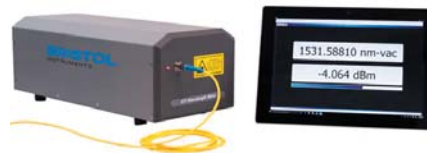


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Laser wavelength meter for IR applications

To facilitate the characterization of IR lasers, Bristol Instruments has added the NIR2 system to its 671 laser wavelength meter series. The 671 NIR2 is suitable for use by scientists and engineers who need to know the exact wavelength of CW lasers that operate from 1.0 μm to 2.6 μm . It uses a Michelson interferometer-based design to measure laser wavelength to an accuracy of ± 0.0002 nm. A convenient prealigned fiber-optic input ensures optimum alignment of the laser under test and allows the system to be placed in an out-of-the-way location, which saves optical bench space. **Bristol Instruments Inc**, 770 Canning Pkwy, Victor, NY 14564, www.bristol-inst.com



Fast electron-multiplying CCD camera

According to Raptor Photonics, its digital monochrome Kestrel 1000 is one of the fastest and most sensitive scientific frame-transfer electron-multiplying (EM) CCD cameras available. The Kestrel 1000 features ultra-

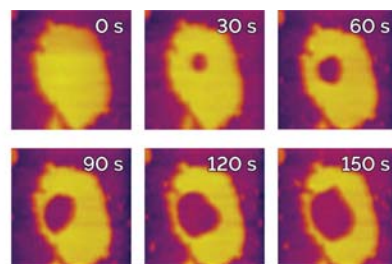
low readout noise while running at 1000 fps in full frame and up to 1800 fps when focusing on a region of interest. With EM gain on, it offers less than $1 e^-$ read noise. Its 128 pixel $\times$ 128 pixel back-thinned sensor with $24 \mu m \times 24 \mu m$ pixel size provides high image resolution in low-light applications. The camera delivers up to 95% quantum efficiency for optimum photon collection, strong response from the UV to the near-IR, and ultrawide bandwidth from 350 nm to 1100 nm. The Kestrel 1000 uses a 16-bit A/D converter and a standard CameraLink output and is cooled to $-20^\circ C$. Applications include high-resolution fluorescence and hyperspectral imaging, particle image velocimetry, and adaptive optics and astronomy. **Raptor Photonics Ltd**, Willowbank Business Park, Larne, Co Antrim BT40 2SE, Northern Ireland, UK, www.raptorphotonics.com



Automated scanning SQUID microscope

High Precision Devices, a FormFactor company, has introduced its IQ1000 scanning SQUID microscope. It is used to study the dynamics of trapped magnetic flux, or magnetic vortices, that can negatively impact superconducting circuit operation. IQ1000 users can image magnetic vor-

tices in devices cooled through the superconducting transition temperature in controlled magnetic fields. It also enables studies of vortex dynamics in the circuit using XYZ-vectored magnetic fields, direct manipulation of vortices using the sensor field coils, and precise control of sample temperature. With rapid scan speed and process automation, the IQ1000 is the first commercial product of its kind to enable unattended and high-throughput characterization, according to the company. Those characterization techniques and capabilities may advance the development of operationally robust superconducting circuits. **High Precision Devices Inc**, 4601 Nautilus Ct S, Ste 100, Boulder, CO 80301, <https://hpd-online.com>

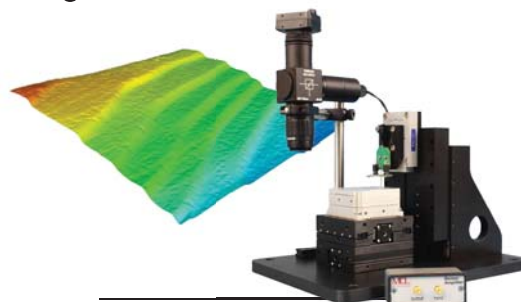


Video-rate atomic force microscope

The Cypher VRS1250 video-rate atomic force microscope (AFM) from Oxford Instruments Asylum Research enables scan rates up to 1250 lines/s and frame rates up to 45 fps. According to the company, the high speed will enable researchers to capture nanoscale details of dynamic events that were previously inaccessible. Those include biochemical reactions, 2D molecular self-assembly, etch and dissolution processes, and more. According to the company, the Cypher VRS1250—alone among high-speed AFMs—can also support a full range of modes and accessories, which makes it suitable for large interdisciplinary research groups and shared imaging facilities with multiple projects. To generate fast, high-resolution imaging, the microscope's small-spot cantilever detection maintains a very low signal-to-noise ratio even on the extremely small cantilevers required for video-rate AFM. **Oxford Instruments America Inc**, 300 Baker Ave, Ste 150, Concord, MA 01742, www.oxinst.com

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(Act of 12 August 1970; Section 3685, Title 39, USC)

1. Title of publication: PHYSICS TODAY
2. Publication no.: 0031-9228
3. Date of Filing: 16 September 2021
4. Frequency of issue: Monthly
5. No. of issues published annually: 12
6. Annual subscription price: \$25.00
7. Complete mailing address of known office of publication:
1305 Walt Whitman Road, Suite 300, Melville, NY 11747-4300
8. Complete mailing address of the headquarters or general business offices of the publisher: American Institute of Physics, One Physics Ellipse, College Park, MD 20740-3842
9. Full names and complete mailing addresses of publisher, editor, and managing editor:
Publisher: Richard Fitzgerald, American Institute of Physics, One Physics Ellipse, College Park, MD 20740-3842
Editor: Charles Day, American Institute of Physics, One Physics Ellipse, College Park, MD 20740-3842
Managing Editor: Richard J. Fitzgerald, American Institute of Physics, One Physics Ellipse, College Park, MD 20740-3842
10. Owner (if owned by a corporation, give the name and address of the corporation immediately followed by the names and addresses of stockholders owning or holding 1 percent or more of the total amount of stock. If not owned by a corporation, give the names and addresses of the individual owners. If owned by a partnership or other unincorporated firm, give its name and address as well as that of each individual owner. If the publication is published by a nonprofit organization, give its name and address.): American Institute of Physics, One Physics Ellipse, College Park, MD 20740-3842
11. Known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities: None
12. The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes: Has not changed during the preceding 12 months
13. Publication title: PHYSICS TODAY
14. Issue date for circulation data below: August 2021
15. Extent and nature of circulation:
 - A. Total number of copies (net press run)

Average*	74 860	August**	73 728
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 - B. Paid subscriptions
 - 1,2. Mailed subscriptions

Average*	51 569	August**	49 953
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 - 3,4. Sales through dealers and carriers, street vendors, counter sales outside USPS; other classes mailed

Average*	9 923	August**	9 410
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 - C. Total paid distribution (sum of B1–B4)

Average*	61 492	August**	59 363
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 - D. Free or nominal rate distribution
 - 1,2. Free or nominal rate mail copies

Average*	10 121	August**	11 073
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 - 3,4. Free or nominal rate copies mailed at other classes or other distribution

Average*	2 707	August**	2 745
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 - E. Total free or nominal rate distribution (sum of D1–D4)

Average*	12 828	August**	13 818
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 - F. Total distribution (sum of C and E)

Average*	74 320	August**	73 181
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 - G. Copies not distributed (office use, leftovers, and spoiled)

Average*	540	August**	547
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 - H. Total (sum of F and G—should equal net press run shown in A)

Average*	74 860	August**	73 728
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 - I. Percent paid (C/F × 100)

Average*	82.74%	August**	81.12%
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16. Electronic copy circulation: PHYSICS TODAY
 - A. Paid electronic copies

Average*	35 898	August**	37 670
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 - B. Total paid print copies (line 15C) plus electronic copies (line 16A)

Average*	97 390	August**	97 033
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 - C. Total print distribution (line 15F) plus electronic copies (line 16A)

Average*	110 218	August**	110 851
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 - D. Percent paid (both print and electronic copies) (B/C × 100)

Average*	88.36%	August**	87.53%
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* Average number of copies of each issue during preceding 12 months.

** Actual number of copies of single issue published nearest to filing date.

I certify that the statements made by me above are correct and complete.

Richard Fitzgerald, Publisher



Scientific CMOS camera for microscopy

Teledyne Photometrics has launched its Kinetix22 scientific CMOS camera for demanding applications such as spinning-disk confocal imaging and light-sheet microscopy. The Kinetix22 delivers a unique combination of speed, sensitivity, low noise, high resolution, and versatility, according to the company. It features a 22 mm field of view and a 2400 pixel × 2400 pixel sensor with 6.5 μm × 6.5 μm pixel size. Back illumination allows weak signals to be displayed as high-quality images; the camera achieves 95% quantum efficiency. Four modes let users prioritize different camera specs and optimize imaging: The 8-bit speed mode offers 498 fps across the full frame, the 12-bit sensitivity mode offers low 1.2 e⁻ read noise at approximately 90 fps, the 16-bit dynamic-range mode has large full-well capacity for varied signal levels in the sample, and the 16-bit subelectron mode offers electron-multiplying CCD-like sensitivity with 0.7 e⁻ read noise. **Teledyne Photometrics**, 3440 E Britannia Dr, Ste 100, Tucson, AZ 85706, www.photometrics.com

Improvements to multichannel event timers

PicoQuant has announced a free firmware update for its MultiHarp 150 4P, 8P, and 16P high-throughput multichannel event timers. One major improvement is the change in temporal resolution from 10 ps to 5 ps, which does not affect other parameters, such as the excellent data throughput or ultrashort dead time. The update also provides a programmable input hysteresis for noise suppression in difficult environments. According to the company, those MultiHarp 150 models provide the best temporal resolution on the market for event timers that have subnanosecond dead time. Comprising electronics for time-correlated single-photon counting, they are suitable for fast, precise fluorescence-lifetime imaging using PicoQuant's rapidFLIM and high-throughput multichannel photon correlation. **PicoQuant**, Rudower Chaussee 29, 12489 Berlin, Germany, www.picoquant.com



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