

Focus on nanotechnology, lasers, and imaging **FREE**

Andreas Mandelis



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# NEW PRODUCTS

## Focus on nanotechnology, lasers, and imaging

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 the product description. For all new products submissions, please send to [ptpub@aip.org](mailto:ptpub@aip.org).

### Andreas Mandelis

#### Laser spectrum analyzer

Several devices in the 771 product line from Bristol Instruments operate both as a high-accuracy wavelength meter and a high-resolution spectrum analyzer. The latest addition, the 771A-MIR laser spectrum analyzer, combines the highest wavelength measurement accuracy and the highest spectral resolution for IR and mid-IR laser applications.

For wavelengths between 1  $\mu\text{m}$  and 5  $\mu\text{m}$ , it measures to an accuracy of  $\pm 0.2$  ppm; for wavelengths from 5  $\mu\text{m}$  to 12  $\mu\text{m}$ , it measures to an accuracy of  $\pm 1$  ppm. According to the company, that accuracy, combined with a spectral resolution as high as 2 GHz and an optical rejection ratio of more than 30 dB, provides the most detailed information about virtually any laser's spectral properties in the IR and mid-IR. **Bristol Instruments Inc**, 770 Canning Pkwy, Victor, NY 14564, [www.bristol-inst.com](http://www.bristol-inst.com)



#### Picosecond laser driver

PicoQuant gave its first smart picosecond laser driver the operational flexibility to meet the needs of demanding

applications in life and materials sciences, semiconductor diagnostics, and laser ranging. The Taiko PDL M1 monitors and controls most laser head parameters, such as temperature and optical output power. It features CW operation, external triggering, and a wide range of repetition rates and burst patterns. Two interfaces—one remote, the other a local one-button control scheme—are fully synchronized and can be used simultaneously. Robust and easy to use, the Taiko PDL M1 lets even novice users carry out demanding time-resolved applications on time scales that range from short fluorescence lifetime investigations to lengthy studies of phosphorescence dynamics. **PicoQuant**, Rudower Chaussee 29, 12489 Berlin, Germany, [www.picoquant.com](http://www.picoquant.com)

#### Nanocomputed tomography system

The x-ray source and detector geometry of Bruker's Skyscan 2214 multiscale x-ray nanocomputed tomography (nano-CT) system generate sharp images with high precision. Its modular design accommodates up to four detectors; various sample types and sizes can be scanned in one instrument. The Skyscan 2214's large field of view allows for the analysis of objects up to 300 mm in size; for objects up to 12 mm, the system provides better than 500 nm true 3D resolution. Its detector design encompasses a 6 MP flat panel and three optimized 8/11 MP cooled CCD cameras. The system produces up to  $8\text{K} \times 8\text{K}$  pixels in every slice, which Bruker claims is 16 times as large as other available nano-CT systems. The Skyscan 2214 is suitable for use in materials and life sciences, geology, and metrology. **Bruker Corporation**, 40 Manning Rd, Billerica, MA 01821, [www.bruker.com](http://www.bruker.com)



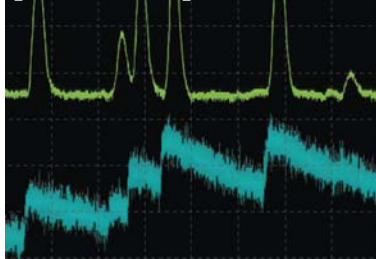
#### Antireflective optics

MKS Instruments has released a series of Newport fused silica lenses and optical windows with antireflection, nanotextured surfaces. Both the plano-convex and plano-concave lenses have a 12.7 mm diameter; the optical windows are available with 12.7 mm and 25.4 mm diameters. A nanostructure pattern is etched directly on the surface of the high-purity fused silica, which achieves a reflection loss down to 0.1%. Because thin-film materials are not used, there is no added absorption or surface heating and the optics have a high damage-threshold limit. That makes the lenses and windows suitable for pulsed- and CW-laser applications that require high laser-damage resistance. Thermal lensing is also reduced, resulting in improved beam parameters and long-term stability. The antireflection nanotextures inherently perform over a wide bandwidth and allow for coverage of multiple laser wavelengths in a single optic. **MKS Instruments Inc**, 2 Tech Dr, Ste 201, Andover, MA 01810, [www.mksinst.com](http://www.mksinst.com)

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## NEW PRODUCTS

### charge sensitive preamplifiers



readout signals from:  
**pin photodiodes**  
**CdTe/CZT semiconductor detectors**  
**photomultipliers**  
**proportional tubes**  
**surface barrier/PIPS**

*shaping amplifiers* *detect femtojoule light pulses*

Great for amplifying pulsed optical signals or pulses from nuclear radiation detectors. Our modules are designed to be plugged into your detection instrumentation. Evaluation boards and housings are available.

product specifications and application notes at:  
<http://cremat.com>  
 Cremat Inc. West Newton, MA USA

### Compact tunable diode laser

With the launch of its MDL pro, Toptica has added a compact, transportable design to its product line of tunable diode lasers. The instrument, which combines four tunable diode lasers in one 19-inch module, has the same specifications as the company's DL pro and DFB pro series. The digital, low-noise DLC pro controller is at the heart of the new platform. According to Toptica, the MDL pro combines excellent laser performance with the convenience of using standard electronic subracks. The device has the potential to advance the development of mobile experiments such as optical clocks, quantum computers, and sensors. **Toptica Photonics Inc**, 5847 County Rd 41, Farmington, NY 14425, [www.toptica.com](http://www.toptica.com)



### Compact scientific CMOS camera

PCO has used recent advances in scientific CMOS sensor technology and a new back-illuminated sensor in designing its pco.panda 4.2 bicamera system. It has a quantum efficiency of 95%, is suitable for low-light conditions, and does not need active cooling. The USB 3.1 interface provides direct power delivery via a USB cable. According to PCO, its high resolution of 2048 × 2048 pixels, 6.5 × 6.5 μm<sup>2</sup> pixel size, and low noise allow for great detail diversity and highly qualitative images. The ultracompact camera, which measures 65 mm × 65 mm × 65 mm, can be used in many microscopy and life sciences applications. **PCO AG**, Donaupark 11, 93309 Kelheim, Germany, [www.pco.de](http://www.pco.de)

### High Resolution AFM

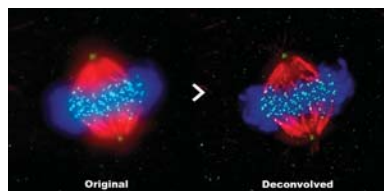


- Atomic step resolution
- Low cost, do-it-yourself AFM
- Closed loop nanopositioners
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- Integrated z- axis control loop
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### New wavelength for holography

Cobolt, a part of Hübner Photonics, has added a 640 nm wavelength to its 05-01 series of single-frequency lasers. With up to 500 mW of power and a linewidth of less than 1 MHz, the Cobolt Bolero is suitable for holographic and advanced interferometric applications. It complements Cobolt's current offering of RGB single-frequency lasers: The Cobolt Flamenco has a wavelength of 660 nm with power up to 500 mW; the Samba, 532 nm with up to 1.5 W; and the Twist, 457 nm with up to 200 mW. **Cobolt Inc**, 2635 North First St, Ste 228, San Jose, CA 95134, [www.coboltlasers.com](http://www.coboltlasers.com)



### Image analysis software

Olympus has introduced version 2.1 of its imaging platform cellSens, which delivers faster deconvolution and has improved feature sets and capabilities for flexible camera and microscope control. Advanced imaging capabilities, including panoramic and extended depth-of-focus imaging, are now available. Deconvolution calculations exploit the processing power of modern graphics cards to obtain clean and precise images up to seven times faster than before. Export functions have been made more flexible and powerful. Images are easily exported from cellSens in various file formats, including Open Microscopy Environment, as single or multiple files split according to external application need. **Olympus Corporation of the Americas**, Scientific Solutions Group, 48 Woerd Ave, Waltham, MA 02453, [www.olympus-lifescience.com](http://www.olympus-lifescience.com)

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