

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



Sample scanning AFM

Mad City Labs designed its MadAFM sample scanning atomic force microscope (AFM) for ease of use and simple installation. For precise movement of the sample and probe, the MadAFM includes the company's piezo closed-loop nanopositioners with proprietary PicoQ sensors. The sensors enable the *xyz* nanopositioners to deliver the lowest noise and highest resolution available, according to Mad City Labs. Together with the company's resonant probe AFMs, they yield true decoupled motion with less than 1 nm out-of-plane motion over the scan range. The AFM also integrates intelligent-control motorized micropositioners for long-travel, high-stability micropositioning. The MadAFM can accommodate samples up to $50 \times 50 \times 40$ mm in size and supports multiple microscopy modes. Those include phase microscopy; magnetic, electric, and lateral force microscopy; and scanning tunneling and Kelvin probe microscopy. **Mad City Labs Inc.**, 2524 Todd Dr, Madison, WI 53713, www.madcitylabs.com

High-resolution laser wavelength meters

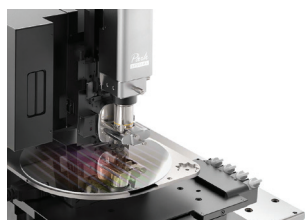
Bristol Instruments has announced a series of wavelength meters for the frequency stabilization of lasers. According to the company, its 872A-VIS and 872A-NIR laser wavelength meters combine high measurement resolution with reliable accuracy. The 872A models support



laser wavelength measurements from 375 to 1700 nm and offer a frequency resolution better than 300 kHz at 300 000 GHz, which results in high sensitivity to wavelength deviations. With a built-in proportional-integral-derivative controller and a 1 kHz sustained measurement rate, the 872A system is well suited to precisely stabilize lasers used for applications such as atomic cooling and trapping. **Bristol Instruments Inc.**, 770 Canning Pkwy, Victor, NY 14564, www.bristol-inst.com

Ultrafast femtosecond fiber laser

The VALO Tidal femtosecond laser from Hübner Photonics offers ultrashort pulse durations of less than 50 fs (full width at half maximum), a pulse energy greater than 66 nJ, and a pulse repetition rate of 30 ± 1 MHz. Operating at a wavelength of 1050 nm with an accuracy of ± 10 nm, the compact, low-noise laser features an output power of more than 2 W, a peak power of 1.6 MW, a dispersion compensation range of $-30\,000$ to 5000 fs², and beam divergence of up to 2 mrad. The Tidal laser's high peak powers, low average power, and ability to produce bright, high-contrast multiphoton images enable longer imaging times and higher cell viability. Those qualities make it suitable for multiphoton microscopy imaging, optogenetics, two-photon polymerization, terahertz generation, supercontinuum generation, and spectroscopy applications. **Hübner Photonics Inc.**, 2635 N 1st St, Ste 202, San Jose, CA 95134, <https://hubner-photonics.com>



Scanning microwave impedance microscopy

For its research atomic force microscopes (AFMs), Park Systems has introduced PrimeNano's ScanWave scanning microwave impedance microscopy (sMIM) as an imaging mode. The sMIM technique uses microwave reflections from the tip-sample nanometric interaction to gather local electrical properties, such as permittivity and conductivity, of a sample. The properties can then be converted to dielectric constant, capacitance, resistivity, and dopant concentration for semiconductors at the nanoscale. Knowledge of those properties helps users reliably process and maintain the quality of such materials as semiconductors, thin films, and dielectrics. Scan-

Wave offers several advantages over other electrical AFM modes: Because it is based on a microwave signal, little to no sample preparation is required. Because no current flows through the sample, no path to ground is needed, and floating insulators and dielectrics can easily be directly imaged. **Park Systems Inc.**, 3040 Olcott St, Santa Clara, CA 95054, <https://parksystems.com> **PT**