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The latest machine vision news

**Spectroscopic Methods Guide Precision Medicine**

Raman spectroscopy captures the effect when light partially scatters inelastically as it interacts with matter. The amounts of energy transferred between photons and molecules during this process correspond to specific molecular vibrations. Therefore, Raman spectroscopy is ideally suited for characterizing and identifying the chemical composition of various samples because the spectra provide a "molecular fingerprint."

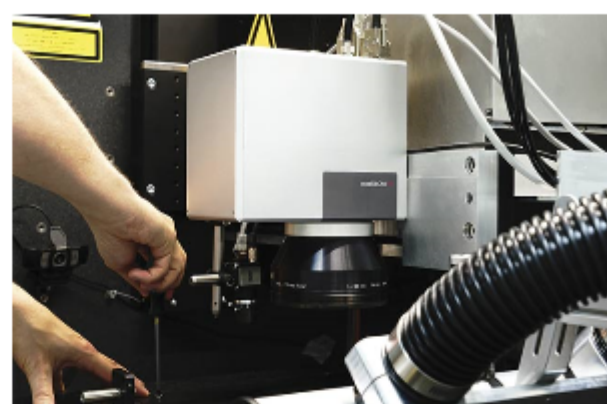
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**Smart Control Methods Speed Up Micromachining**

Considerable advancements have been made in the precision and dynamic control of laser scan systems during the last few years. Depending on the application, new control methods can bring additional productivity to users in fields such as microstructuring, bitmap processing, and display fabrication.

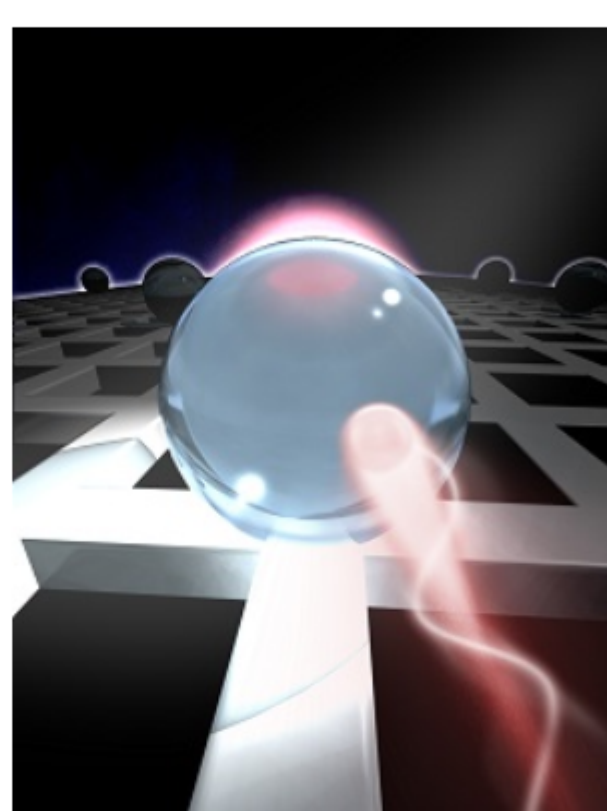
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**'Whispering-Gallery' Effect Enhances Optical Pulses**

Researchers in Germany have proven that when electrons are grouped with an optical whispering-gallery mode (WGM) inside a tiny sphere, the resulting pulses gain strength, similar to how audio waves move in a dome. Thanks to the interchange of energy between the electrons and photons, it also allows the pulses to be stored for an extended period to produce the desired level of intensity.

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**.: Featured Products**

**Extreme Low-loss Mirrors**



**OPTOMAN**

With extreme low loss coating technology, OPTOMAN manufactures super mirrors (R>99.999%), thin film polarizers featuring extinction ratio Tp/Ts>10000:1, and AR coated optics with residual reflectance below 0.01%.

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**Pulsed MIR Laser Spectrum Analyzer**

**Bristol Instruments Inc.**

Bristol Instruments offers the 772B-MIR Laser Spectrum Analyzer for pulsed lasers that operate from 1 to 12 μm. The model 772B-MIR measures wavelength to an accuracy of ±10 parts per million, and bandwidth and longitudinal mode structure to a resolution of 4 GHz.

[Visit Website](#)

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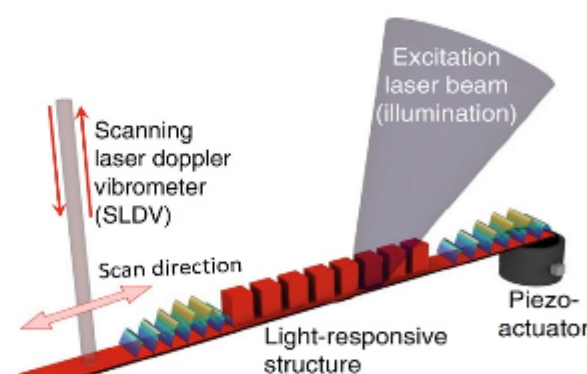


**.: More News From Europe**

**Tunable Photosensitive Metamaterials Could Improve Elastic Wave Control**

An international team from the Institute of Electronics, Microelectronics, and Nanotechnology (IEMN), the Polytechnic University of Turin, Empa, and the Norwegian University of Science and Technology has found a way to create adaptable metamaterials. The researchers demonstrated a polymeric, 3D-printed, elastic metamaterial whose transmission spectrum could be deterministically tuned by illuminating it in a targeted manner with a laser beam.

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**International Research Team Applies Metasurface Photonic Device Potential to Cold Atom Quantum Technology**

Researchers at the UK Quantum Technology Hub Sensors and Timing, led by the University of Birmingham, have designed and implemented an approach for miniaturizing devices used in quantum sensing systems. A new technique for shrinking the size of quantum sensors drives the discovery, which relies on optical metasurfaces cutting the amount of space a laser delivery system needs to achieve functionality in quantum technology.

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**Optical Pliers Made with Smart, Flexible Material Operate Remotely**

Liquid crystal elastomer (LCE) technology was applied to practical use by a group of researchers who used this material to demonstrate a miniaturized gripping tool grown on optical fibers. Scientists from the University of Warsaw worked with colleagues from the AGH University of Science and Technology in Krakow to build the miniaturized "optical pliers" using LCE microstructures.

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**.:Next Issue:**

**Features**

Super-Resolution Microscopy, Laser Processing of Biofuel, EPIC Insights, and more.

Photonics Media is currently seeking technical feature articles on a variety of topics for publication in our magazine *EuroPhotonics*. Please submit an informal 100-word abstract to Senior Editor Doug Farmer at [Doug.Farmer@photronics.com](mailto:Doug.Farmer@photronics.com), or use our online submission form [www.photronics.com/submitfeature.aspx](http://www.photronics.com/submitfeature.aspx).



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