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Press Release

LASER World of PHOTONICS 2019

Focus on imaging and sensors: end-to-end monitoring of industrial processes and profound insights into nature

- The world's leading trade fair in Munich showcases the full gamut of modern imaging and sensor solutions
- Components, modules and systems for industry and research
- More than 100 international exhibitors and a comprehensive supporting program in the key imaging and sensors arena

Imaging systems and sensors are the nerve system of the Internet of things (IoT). Optical measurement techniques enable contactless 100 per cent industrial quality controls. In the research field, they confer high resolution insights into nano worlds and the universe. Hyperspectral analysis fast tracks laboratory discoveries. Single photon counters pave the way for quantum imaging. LASER World of PHOTONICS, taking place from June 24 to 27, 2019 in Munich, will be showcasing modern imaging and sensors, the leading international drivers in this key focus area – together with a substantial congress and supporting program.

The human eye's capabilities are limited. It is no more capable of perceiving nanostructures than it is meteorite impacts on the Moon or individual details of high-speed industrial processes. It is also restricted to a very narrow band of the light spectrum in which many material differences are not apparent.

Imaging and sensor systems offer solutions. For example, since February 2017 sCMOS cameras made by Andor/Oxford Instruments have been recording object impacts on the Moon's surface. Filmetrics/KLA measuring instruments can detect layer thicknesses down to one nanometer.

From component to system and from start-up to traditional company

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More than 100 international exhibitors will be showcasing solutions in the key focus area of imaging and sensors at LASER World of PHOTONICS 2019. Presenting this technological diversity will be not just traditional companies and established SMEs but start-ups as well. They include Moscow-based [DEPHAN](#) with highly advanced silicon-based photo multipliers, the Finnish Nokia spin-off [Emberion Oy](#) with its imaging and sensor solutions based on graphene and nano materials or Braunschweig-based [FiSens](#), which makes fiber-optic sensors using high quality Fiber Bragg Gratings. The new providers include [Single Quantum](#) from Delft, which develops superconducting nanowire single-photon detectors or [XARION](#), offering optical microphones for industrial process control and machine monitoring. Also among the newcomers is the [ELI-Alps](#) laser research center (Attosecond Light Pulse Source) in Szeged/Hungary, set up at the initiative of **G rard Mourou, winner of the Nobel Prize in Physics.**

Imaging systems and sensors are the nerve system of the Internet of things

Imaging systems and dense sensor networks also pave the way both for a seamless, quality-monitored Industry 4.0, as well as smart cities and autonomous vehicles. Imaging specialist PCO AG and system manufacturer EOS have recently teamed up with user MTU to create fully-monitored, additive laser melting processes. Processes such as optical coherence tomography (OCT) and heat flow thermography are being employed to look for defects inside lightweight construction components. Providers are thus systematically expanding the range of applications by means of innovative approaches such as [hyperspectral imaging](#) and by ever greater camera system bandwidths. No sensors, no Industry 4.0 – which entails manufacturers transferring ever more intelligence and computing power into the sensors themselves to pave the way for comprehensive, decentralized monitoring of manufacturing processes, smart buildings or semi-automated, medical procedures.

Comprehensive supporting program expands on imaging know-how

While exhibitors will be focusing on product and application trends from June 24 to 27, 2019, the trade fair's visitors will be able to find out all about the latest

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research and ground-breaking applications in the imaging and sensor arena at various application panels in the trade fair halls and at the accompanying [World of Photonics Congress 2019](#).

Three of the seven Congress sub-conferences have an imaging theme. The OSA conference “**Imaging and Applied Optics**“ deals with computer-aided optical sensors and imaging, mathematical principles and environmental influences on imaging processes. “**Digital Optical Technologies**” by SPIE Europe is concerned with the hot topic of mixed, virtual and augmented reality. And the SPIE “**Optical metrology**” conference will address the use of Artificial Intelligence and multimodal sensors, as well as automated inline inspection and biomaterials’ imaging.

There will also be an expert panel on Photonics 4.0 by the SPECTARIS industry association and [application panels](#) spanning the entire gamut of modern imaging. For example, Prof. Andreas Tünnermann, Director of the Fraunhofer Institute for Applied Optics and Precision Engineering in Jena and Dr. Jürgen Stuhler, Senior Director Quantum Technologies of TOPTICA Photonics AG will get to the bottom of the future role of photons as quantum objects and as an information support in imaging and communication. And experts from the Deutsche Gesellschaft für Lasermedizin (German Society for Laser Medicine) and LMU Munich will offer insights into medical practice using virtual and augmented reality. Yet another [panel](#) involving PCO and Omicron-Laserage is given over to the expanding range of processes in laser-based light microscopy. Innovations in the fields of visual optics, optical imaging and diagnostics and laser-based medical therapies are also on the program.

Further information, interviews, trends and topics can also be found in the [photonics industry portal](#), the information platform for photonics.

About LASER World of PHOTONICS

The LASER World of PHOTONICS is the world's leading platform for the laser and photonics industry. Europe's largest World of Photonics Congress will be taking place in parallel with the trade fair. The program comprises a variety of scientific conferences of leading global organizations. Supplementing this Messe München GmbH will be offering practical lectures on the applications of photonics (“Application Panels”). In 2017 the trade fair set an exhibitor record with 1,293 exhibitors from 42 countries. More than 32,000 trade visitors from 90

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countries entered the Messe München site. The World of Photonics Congress registered around 3500 participants, with around 3,000 lectures and presentations including poster presentations on offer. The LASER World of PHOTONICS has been organized by Messe München International every two years since 1973; the next event will take place in Munich from June 24–27, 2019, the next World of Photonics Congress will take place in parallel from June 23–27, 2019 in the ICM - International Congress Center Munich.

www.world-of-photonics.com

About the LASER World of PHOTONICS global network

The LASER World of PHOTONICS has developed an international trade fair network. The LASER World of PHOTONICS in Munich is the world's leading laser and photonics trade fair and as the innovation pacemaker is where the global photonics industry gathers every two years. The [LASER World of PHOTONICS CHINA](#) and the [LASER World of PHOTONICS INDIA](#) are leading regional trade fairs for laser and optical technologies and are staged annually in China (Shanghai) and in India (alternating between Bengaluru, Mumbai, Bangalore and New Delhi). With these trade fairs in Munich, China and India, Messe München is the world's leading trade fair organizer for lasers and photonics.

Messe München

Messe München is one of the leading exhibition organizers worldwide with more than 50 of its own trade shows for capital goods, consumer goods and new technologies. Every year, a total of over 50,000 exhibitors and around three million visitors take part in more than 200 events at the exhibition center in Munich, at the ICM – Internationales Congress Center München and the MOC Veranstaltungszentrum München as well as abroad. Together with its subsidiary companies, Messe München organizes trade shows in China, India, Brazil, Russia, Turkey, South Africa, Nigeria, Vietnam and Iran. With a network of associated companies in Europe, Asia, Africa and South America as well as around 70 representations abroad for over 100 countries, Messe München has a global presence.