

OPTRO 2010

International Symposium on Optronics
in Defence and Security

3 - 5 February 2010

OECD CONFERENCE CENTER

2, rue André Pascal - 75016 Paris, France

Optro 2010 Exhibitors

ABB Analytical - CA

ALYOTECH - FR

CILAS - FR

FISCHER Connectors - FR

HAMAMATSU - FR

HGH Systems Infrarouges - FR

HTDS Hi-Tech Detection Systems - FR

KEOPSYS - FR

LEWICKI Microelectronic - GE

LOT-ORIEL - FR

THE MATHWORKS – FR - USA

MBDA Missile Systems - FR

MICOS - GE

OPHIT OPTICS EUROPE - CH

OPTOPRIM - FR

RICOR Cryogenic & Vacuum Systems- IL

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AAAF

Association Aéronautique et Astronautique de France
6, rue Galilée – 75016 Paris, France

AAAF:

Association Aéronautique et Astronautique de France is the French society of reference with regards to scientific and technological expertise in the area of civil and military aviation and space. Thanks to its High Scientific Council, its technical committees and to the organization of numerous national and international conferences/symposia that AAAF promotes the latest scientific and technological findings.

Our Missions:

Bring together people on scientific and technical issues with the aim to:

Create links between peers

Produce excellency

Convey our passion

Clarify aerospace scientific and technical challenges, put forward our expertise, and make proposals to decision makers

Represent our members within the French, European or Overseas corresponding organizations

Promote aerospace and encourage young people to join the domain

Technical Committees:

Engineering/Science: Aerodynamics – In flight testing - Materials - Propulsion (both Space & Aeronautics) - Structure - Environment - On Board Energy - Medicine - Avionics - Optronics

Aerospace Platforms: Commercial Aviation - Military Aircraft - Light Aircraft - Business Aircraft - Helicopters - Missiles - UAV (Unmanned Aerial Vehicle) - Space Transportation (Launchers & Exploration Vehicles) - Space Exploration (Missions & Payloads)

Transversal: Strategy & International Affairs - Business Intelligence - History - Intellectual Property & Rights - Unidentified Aerospace Phenomena

Forthcoming Symposia for 2010:

9-12 February 2010, Lisbonne: 6th International Conference on Missile Defence, "Challenges in Europe"

3-6 May 2010, San Sebastian: ESA-3AF Space Propulsion 2010

7-9 September 2010, Paris: 36th European Rotorcraft Forum

19-24 September 2010, Nice: 27th Congress of the International Council of the Aeronautical Sciences

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ABB Analytical
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CANADA G1K 9H4

ABB Analytical continues to set the standards for FT-IR Spectroradiometry used in atmospheric sounding, military targets IR signature characterization and gas detection. ABB also develops solutions with reliable airborne and spaceborne optical instruments, infrared calibration systems, hyperspectral imagers, and software for ground segments and simulation. ABB counts several projects in Defense & Security and Space success stories, positioning her at the forefront of the Remote Sensing Industry.

Description of the topic of your exhibition at OPTRO 2010:

ABB will present its solutions from ground to space. Specializing in ground, air and space deployed FT-IR based radiometric solutions.

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Remote Sensing Industry
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www.abb.com/analytical



ALYOTECH
2 rue Antoine Becquerel - 35700 RENNES, France

With 1,600 employees, ALYOTECH is a major company in the field of technology consulting in Europe and North America. Its leading position in the fields of Computer Science and Industrial Technology of Information Systems, Electronics and Embedded Systems is consolidated by expertises in technologies such as optronic and radar scene generation, atmospheric propagation, meteorology, GPU computing, scientific modeling, 3D geometry, Geographical Information Systems ...

SCENE GENERATION USING GRAPHIC PROCESSOR UNIT (GPU) : This talk will focus on how numerical simulation and scene generation can benefit from Graphic Processor Units. After introducing the GPU architecture and its programming tools, possible implementations will be presented through examples: real-time simulation and accurate scene generation. Finally, a real-time raytracing engine will be briefly demonstrated.

REAL TIME MODELLING OF MULTISPECTRAL OCEAN SCENES:

The talk will introduce a GPU-based real-time model of the wind-driven sea surface radiance, operating in IR and visible spectra. Benefiting from the GPU huge computational power recently made accessible through NVIDIA's CUDA library, it aims at improving the simulated optical sea clutter, especially when detection of small floating targets is considered. The software will be briefly demonstrated on a CUDA compatible laptop.

SKYGEN : a realistic cloudy sky background and illumination generation tool The talk will present the bases and recent improvements of our multispectral cloudy-atmosphere simulator SKYGEN, and a short description of the validation work started with the DGA in the framework of the GESCINUX project.

LASUR: an active infrared synthetic scene generator

This talk will introduce LASUR, a recently developed laser active imagery simulator benefiting from our long time experience in radar/SAR simulation and optical propagation as well as from latest GPU computing techniques. Embedded geometrical algorithm and phase-screens turbulence propagation scheme will be emphasized. The software will be briefly demonstrated on a CUDA compatible laptop.

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CILAS

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45063 Orléans, France

For over 40 years, CILAS has been at the leading edge of the modern technology sector thanks to its unique expertise in laser and optronics.

With a turnover of 28 million euros, CILAS develops, manufactures and markets a wide range of products and systems for defence and civilian and military security, large-scale scientific laser programmes, and scientific and industrial instrumentation.

Defence and civilian and military security

CILAS' main activities include Ground Laser Target Designators for guiding missiles, bombs and shells (DHY 307), and Laser Detection Systems for counter sniping (SLD 500). Both systems are combat proven and equip several Armed Forces. Around 200 GLTD are in service, notably in Afghanistan and Laser Detection Systems have been acquired by US Marine Corps and French Forces.

CILAS provides rangefinders, notably for the Tiger helicopter and participates in the CESAM project for self-protection for military air-transport. The company participates also in the European project BODE - Biological Optical Detection Experiment – for biological detection.

For Navies, the company markets a visual landing aid system, Safecopter, for the landing of helicopters in varying meteorological conditions, day and night. Over 100 systems have already been installed on ships from several navies.

The scientific field

In the scientific field, CILAS is a stakeholder in the Laser Megajoule programme, which will make it possible to study the steps in the operation of nuclear weapons. It developed the deformable mirrors and the amplifiers.

Industrial and scientific instrumentation

CILAS, the inventor of laser particle-size analysis, developed a range of laser particle size and shape analyzers for measuring with accuracy the particles of all types of powders, in sectors as varied as pharmaceuticals, food, building materials and minerals.

The company is a worldwide leader in the treatment of optical surfaces. The most cutting-edge applications involve the treatment of on-board components on military and space systems, such as infrared treatments that are resistant to laser streams, micro-structured filters for observing the Earth by satellite. CILAS makes also coatings on very large surfaces.

Thanks to its expertise in optics, CILAS designs and manufactures deformable mirrors. The company designs and manufactures deformable mirrors for the world's largest telescopes, such as the VLT, Very Large Telescope and the E-ELT, European-Extremely Large Telescope, de l'ESO (European Southern Observatory).

Its adaptive mirrors equip high power lasers such as AWE in UK and LULLI in France..

CILAS employs 200 people on four sites in France.

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FISCHER Connectors

37/41 Rue Louise Weiss - 75013 Paris, France

Fischer Connectors is a leading company in the design, manufacture and distribution of high-performance connectors. Known for their reliability, ruggedness and compactness, our products are ideally suited for military applications.

Optronic systems require high contact density, in small, lightweight, rugged, sealed or hermetic connectors. Many security and armed forces around the world have chosen Fischer Connectors for their demanding air, land, and sea-based applications, as their products characteristics meet all optronic systems requirements.

Innovative and flexible, Fischer Connectors is committed to provide customized solutions and uncompromising quality to ensure that an application is equipped with the best suitable connector. Certified ISO 9001:2000 and ISO 14001:2004, Fischer Connectors embraces Total Quality through continuous improvement in all processes and procedures.

Log on to www.fischerconnectors.com for more information.

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HAMAMATSU

PHOTON IS OUR BUSINESS

HAMAMATSU Photonics France
Parc du Moulin de Massy, 19 Rue du Saule Trapu
91300 Massy 6, France

Hamamatsu develops and manufactures the most up-to-date light related sensors and instruments : Photomultipliers ; Photodiodes ; CMOS and CCD sensors ; Infrared detectors ; Microchannel plates and image Intensifiers ; Mini spectrometers ; Detectors and sources for X-rays ; Xenon - Xenon-mercury and Deuterium lamps ; Laser diodes ; Equipments for semi-conductor and pharmaceutical industries ; Microscope slides digitalization machines ; Digital CCD board cameras and High grade digital cameras.

During this exhibition we will introduce mostly products related to high performance equipments :

- Image intensifiers and high speed gated cameras
- IR enhanced Si devices
- InGaAs area image sensors
- Spatial light modulators
- IR enhanced CMOS area image sensor
- Terahertz sensors
- Mini or micro spectrometers
- QCL laser diodes for gaz detection

Our sales people will of course answer to any question on our full product range as described on www.hamamatsu.fr

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HGH Systemes Infrarouges
ZAC de la Sablière - 10 Rue Maryse Bastié - 91430 IGNY, France

For over 25 years, HGH Infrared Systems have specialized in the development of optronic and infrared systems for defence and security applications. The diversity and reliability of their products have made them an international leader of optronic instrumentation.

HGH have 3 main activities for Defence application:

Test equipment for electro-optical systems (**blackbodies**, collimators, testing software, test bench for maintenance),

Sensors for IR detection, measurement and imaging, including radiometers, imaging spectroradiometers and **panoramic infrared surveillance systems (VIGISCAN)**,

Built-to-suit optronic systems for specific needs.

For security applications, HGH have developed a passive camera **for real time infrared panoramic vision, Vigiscan**. The Vigiscan is a unique and innovative thermal imaging product that provides **day/night 360 degree panoramic surveillance**, and is well suited for use on a variety of platforms. The Vigiscan is a high resolution, cooled thermal imaging line scan camera. The Vigiscan rotates at the rate of 1Hz providing real time continuous coverage and protection in all directions simultaneously, thus eliminating or reducing the need for traditional pan and tilt positioners. The system is Ethernet enabled, allowing imagery to be viewed on a standard computer with no special hardware. The system software can be used to view imagery from the camera, and to **automatically detect and track multiple threats** based on user defined parameters. According to the model, the system can **detect one human being up to 3 km over 360°**. It can also be used for ship borne applications with an additional gyro-stabilised platform.

The main applications are:

- Perimeter Security
- Coastal and Border Passive Surveillance
- Border Patrol
- Defence sites protection: air/naval bases, camps
- Airport / Seaport security
- Oil and gas industry: refineries, oil rigs, LNG / LPG terminals, pipelines
- Maritime: fight against piracy, anti-smuggling, search and rescue, anti-collision
- Nuclear power plants

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HTDS

Parc d'activités du Moulin de Massy, 3, Rue du Saule Trapu
BP 246 - 91 882 MASSY Cedex, France

Spécialiste en optoélectronique haute technologie (émetteurs et capteurs), HTDS commercialise une gamme complète custom ou dédiés de composants et d'OEM utilisés dans les domaines d'applications de pointe :

- Industrie,
- Militaire & Aérospatial,
- Scientifique et Biomédical.

Produits :

- photodiodes APD,
- photodiodes quatre cadran,
- diodes lasers pulsées et continue,
- LED de puissance...

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KEOPSYS

21 rue Louis de Broglie - 22300 Lannion, France

About Keopsys:

Keopsys, founded in 1997, is a world leader in fiber laser technology in the 1 and 1.5 micron bands. We design and manufacture a full line of high-performance fiber amplifiers and lasers.

Our products portfolio includes CW and pulsed solutions, Ytterbium and Erbium/Ytterbium doped fiber amplifiers and fiber lasers, Raman lasers, standards and polarization maintaining devices. We provide custom optical solutions and standard products which address various applications such as: Optical radar, Telemeter, Defense, Data transmission, Test & Measurement, LIDAR, Spectroscopy, Medical Applications.

Our unique cutting-edge engineering allows us to develop and produce optical solutions with a high level of compactness, low weight and low power consumption. Those are especially dedicated to harsh environment, embedded systems and unmanned vehicle.

Description of the topic of your exhibition at OPTRO 2010:

Ultra-compact high power and high energy fiber lasers and fiber amplifiers

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LEWICKI microelectronic GmbH
Allee 35
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LEWICKI microelectronic GmbH was founded in 1967 as a specialist in hybrid circuits. Initially, mainly involved in hybrids for space activities, LEWICKI became a pioneer in military, medical, security and industrial hybrid electronics.

Over the years, LEWICKI has grown into a technology driven company in highspecification hybrid technologies such as: assembly of bare-die, wirebonding, hermetic encapsulation and screening / qualification.

Complete active implants have been developed and produced for human use.

Since 2000, LEWICKI microelectronic GmbH is a 100% subsidiary of Silicon-Sensor International AG, Berlin.

The large selection of on-site equipment, enables the experienced and motivated employees to find solutions for the most demanding and ambitious tasks.

We also perform several mechanical and electrical testing according MIL and ESCC standards in house.

The Quality System has been approved to ISO 9001:2000, EN ISO 13485:2003, DIN EN 9100:2003 (by DQS), IPC-J-STD-001 (by Lockheed Martin) and DLR-RF-PS-STD-008 (Manufacturer Audit for Assembly and Testhouse capability approval by German Aerospace Center)

The plant in Oberdischingen, near Ulm includes permanently monitored cleanrooms, giving overall 2,000 square meters of production floor. All products are manufactured in our German production site. All production steps will be performed in adequate environmental conditions according ESCC 24900.

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LOT-ORIEL
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LOT-ORIEL is a European wide scientific instrumentation distribution group, specialized originally in optics and optical systems. LOT-ORIEL presence is made through different subsidiaries covering both sales and technical activities.

LOT's expertise and quality support is now recognized in many fields such as interferometry, profilometry, spectroscopic ellipsometry, infrared optical components, multispectral imagery and infrared imagery.

- XENICS is a high-tech company, well established in the infrared imaging market. Since its creation, almost 10 years ago, the company has designed a serie of near infrared uncooled InGaAs-based detectors and integrated these sensors in ready-to-use cameras. Within a few years, Xenics has developped its technology skills and introduced on the market a comprehensive range of cameras covering the full range of infrared from 1µm to 14µm. From a scientific, sensor oriented manufacturer the company grew up and addresses different markets with application oriented products. For the high end market segment, ultimate performances are available and for the fast growing markets, such as security and industrial processes, Xenics is able to offer the appropriate cost-effective solution.
- SPECIM, which is an hyperspectral system manufacturer, offers a broad range of the ImSpector imaging spectrographs from the UV, the visible range and the Near and Mid Infrared. The ImSpector spectrographs can be integrated in your own set-up.
- II-VI Inc is an infrared material supplier able to grow ZnSe, ZnS, ZnS MS ... II-VI is also recognized as a leading company in infrared optical design for thermography and imaging applications. II-VI designs and produces a complete line of lenses, mirrors, and other optical components and controls perfectly all coatings parameters up to 14 µm.

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The MathWorks
Les Montalets, 2 rue de Paris
92190 Meudon, France

The MathWorks, Inc, 3 Apple Hill Drive
Natick - MA 01760-2098, United States

The MathWorks is the leading developer of mathematical computing software. MATLAB, the language of technical computing, is a programming environment for algorithm development, data analysis, visualization, and numeric computation. Simulink is a graphical environment for simulation and Model-Based Design of multidomain dynamic and embedded systems. Engineers and scientists worldwide rely on these product families to accelerate the pace of discovery, innovation, and development in automotive, aerospace, electronics, financial services, biotech-pharmaceutical, and other industries. MathWorks products are also fundamental teaching and research tools in the world's universities and learning institutions. Founded in 1984, The MathWorks employs more than 2,000 people in 15 countries, with headquarters in Natick, Massachusetts, USA. For additional information, visit www.mathworks.com.

MathWorks will demonstrate how to develop Image and Video Processing algorithms with MATLAB and Simulink and take advantage of a multi-core machine to speed up the simulations and Research. MATLAB is the platform for algorithm exploration and is well-know for Research. Simulink allows adopting Model Based Design approach in order to secure the development of a design. The demonstrations will provide illustrations of both platform capabilities.

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MBDA
1 Avenue Réaumur - 92350 Le Plessis Robinson, France

MBDA, a world leader in missiles and missile systems, is a multi-national group with employees in France, the United Kingdom, Italy and Germany. The group is capable of designing and producing missiles and missile systems to meet the whole range of current and future operational requirements for the three armed forces (army, navy, air force).

The mastery of cutting-edge technologies is not only an advantage for MBDA in successfully developing and producing new products. It is also a means of guaranteeing customers that innovations can be made to existing products during their life span in order to meet constantly changing specifications arising from increasingly complex engagement scenarios.

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The logo for MICOS, featuring the word "micos" in a white, lowercase, sans-serif font on a black rectangular background. A vertical blue bar is positioned to the right of the text.

MICOS

Freiburger Str. 30 - 79427 Eschbach, Germany

MICOS is offering a wide range of positioning systems and optical benches. Linear, rotary and multiaxes stages for low cost applications as well as highest performance systems can be purchased and custom designed. MICOS is specialized in several hexapodic systems especially for telecommunication and optoelectronic

We supply many products to the electronic industry, semiconductor and telecommunication technologies and provide comprehensive customer support, systems integration and after-sale service.

Furthermore MICOS offers complete opto mechanical modular systems for practical work in universities. These 24 laser kits are well established around the world.

Linear and Elevator stages, Rotary stages, Multiaxes systems and Hexapods, Controller, Optical benches Moskito and Albatros, Laser educational kits, Manual stages, Customized systems and Vacuum stages. Fibre Alignment Systems

Competence: Lasertechnology, Semiconductor Industries, Telecommunication, Biotechnology, Health Care, Sensors, Space Industry, R&D

Products: Linear stages, Rotary stages, Multiaxes and Hexapods, Controller, Optical benches, Laser educational kits, Manual stages, Customized systems and Vacuum stages

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OPHIR OPTICS EUROPE GmbH

Innoparc 02

Heinrich-Wild-Strasse 204

CH-9435 Heerbrugg

Activité :

- Systèmes d'Optique Infrarouge (3-5 et 8-12 microns)
- Objectifs standard (fixes, double/triple champ de vue, zooms)
- Objectifs sur mesure
- Assemblages opto-mécaniques sur mesure
- Composants optiques plans, sphériques, asphériques, diffractifs

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OPTOPRIM
21-23 Rue Aristide Briand - 92170 Vanves, France

OPTOPRIM is working with MIL / AERO companies and will take the opportunity of the OPTRO 2010 Conference to discuss new projects which can use high-accuracy Opto-Mechanical motorized stages, Lasers, specific Infrared Optics, InGaAs cameras and Electronic Autocollimators

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RICOR
Cryogenic & Vacuum Systems

RICOR - Cryogenic & Vacuum Systems
En Harod Ihud - 18960, Israel

Company profile:

RICOR develops, manufactures and markets a wide range of advanced products & solutions.
Our products range from Cryocoolers for Infrared, X-Ray and Gamma Detectors, Scientific Instrumentation & Vacuum Cryo Pumps – to – Wafer Storage Purge Systems for the Semiconductor Industry, as well as Semiconductors Manufacturing Equipment Diagnostic tools, Solutions for High Temperature Superconductivity Devices and Advanced Acoustic Noise & Vibration Control.

The topic of our exhibition at OPTRO 2010:

RICOR'S K508N HIGHLY RELIABLE INTEGRAL ROTARY CRYOGENIC COOLER.

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SAGEM
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Sagem is a high-tech company in the SAFRAN Group. It is a world or European leader in solutions and services in optronics, avionics, electronics and critical software for the civilian and military markets. Sagem is the European No. 1 and worldwide No.3 in INSs for aeronautic, naval and land applications. It is also the worldwide No.1 in helicopter flight controls and the European No.1 in optronic and tactical UAV systems.

Present across the globe via the SAFRAN Group's international network, Sagem and its subsidiaries employ 6000 people in Europe and the US.

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SCD SemiConductor Devices
P.O.Box 2250 - Haifa, 31021, Israel

SCD, Semi Conductor Devices, is a leading worldwide supplier of high-end Infrared Detectors and Laser Diodes. Backed by more than 30 years of accumulated experience in development and manufacturing, SCD's products have been chosen by leading companies all over the world, to become the core of their high-end electro-optical systems. SCD offers a range of off-the-shelf and custom-designed detectors and laser diodes which are applied in IR seekers, thermal imagers, smart munitions, night navigation systems, laser rangefinders and laser designators. Among SCD's products: InSb two dimensional arrays 320x256, 640x512 and 1280x1024; MCT 240x1, TDI 288x4 and 480x6, VOx Microbolometers 320x256 and 640x512.

At OPTRO we will demonstrate some of our most advanced detectors: Bird 640 (Uncooled), Mini Gali (Sebastian 480x384 EPI) and Hercules (InSb 1280x1024).

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THALES

THALES

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Thales places a premium on innovation. Each year, the company devotes close to 20% of its defence revenues to research and technology in order to anticipate future trends and meet the new requirements of defence and security forces around the world. Thales operates a policy of research and technology partnerships with the local industrial and scientific ecosystem in each country where it has major operations. Thales has created a network of corporate research laboratories called Thales Research & Technology. As well as prestigious research institutes and universities, this knowledge network also includes Thales' technology providers and customers.

Optronics, a key technology in Thales' portfolio.

The market for optronics technologies is expanding rapidly, driven in particular by asymmetrical conflicts, border surveillance and citizens security requirements which call for high-precision observation and identification systems to maximise situation awareness and operational effectiveness.

First actor in Europe and third in the world in the defence optronics market, Thales offers a complete range of solutions in land, naval, airborne and space applications, mastering the entire value chain from detectors, coolers or lasers to complex integrated equipments and systems.

Thales is honoured to be a sponsor of Optro 2010 and to contribute to innovation in the optronics technologies.

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TNO Science and Industry

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TNO is an independent research organisation whose expertise and research make an important contribution to the competitiveness of companies and organisations, to the economy and to the quality of society as a whole. TNO's unique position is attributable to its versatility and capacity to integrate this knowledge.

World Class Optics for World Class Customers

For more than 60 years, our Optics department has offered innovative and competitive solutions in the field of high-quality optical instruments and sensors, specially designed to satisfy our customers' demanding needs. These customers can be found in the space, semiconductor and oil & gas industries. For these customers we develop, design, build, test and calibrate optical systems that operate in harsh environments such as space, on Mars, in semiconductor industry equipment, vacuums, oceans and oil wells, or inside a fusion reactor. Combining our optical knowledge with other TNO expertise, such as precision mechanics and mechatronics, enables us to offer a complete measurement solution. This is strengthened by extensive in-house laboratory facilities and specialised production capabilities.

Optical Fibre Sensor Technologies

Interest is growing in the use of fibre optic sensors for applications in special environments, varying from multi-parameter structural health monitoring of future European launchers and monitoring of large civil constructions, to down-hole pressure distribution measurement for the oil industry and medical applications. Optical fibre is lightweight and, even for different physical parameters; fibre optic sensors can be multiplexed in a large sensor network with a minimal number of lead fibres.

Raman/LIBS

We present a compact instrument, designed for soil inspection on Mars, combining Raman spectroscopy and Laser Induced Breakdown Spectroscopy. This system is able to measure real time and remote the molecular and atomic composition of a sample.

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