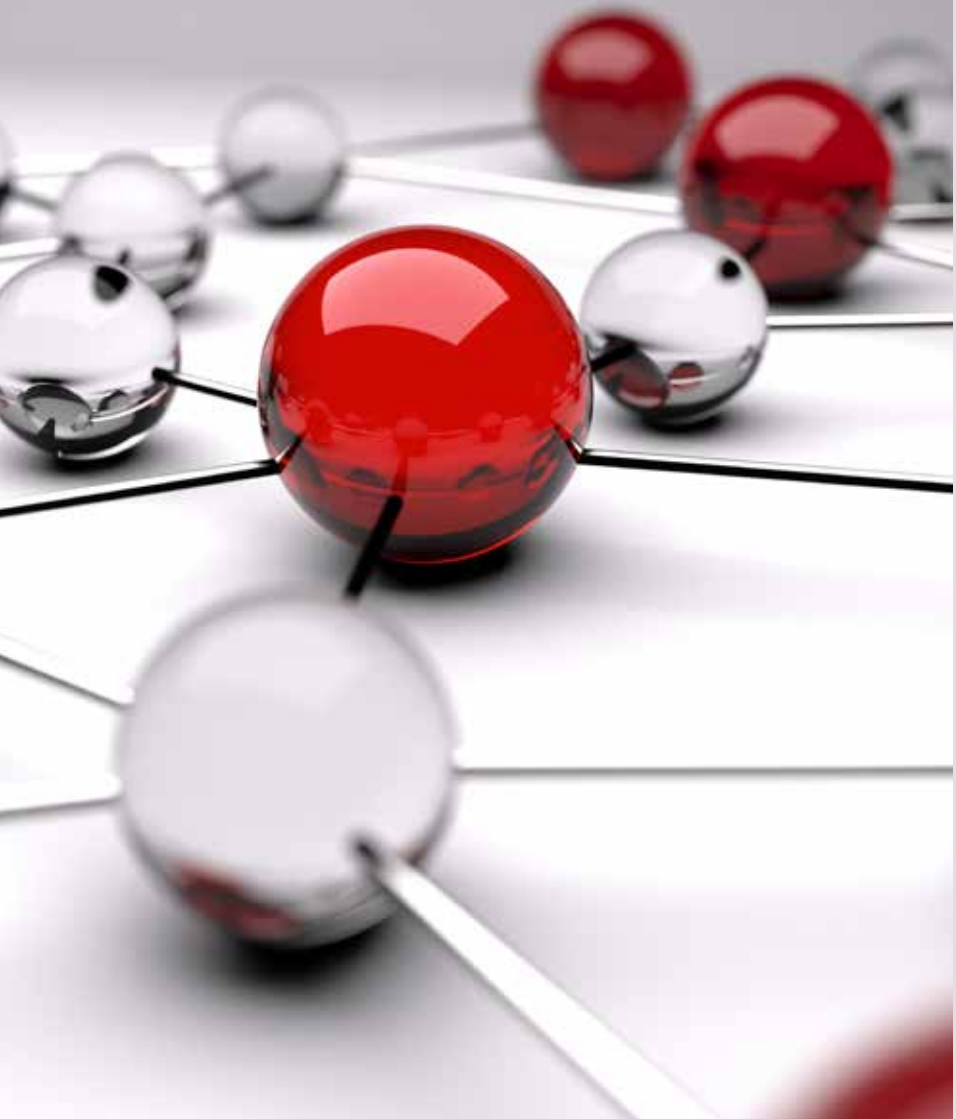

European Strategic Partnership in Photonics for Health

30 INNOVATION CHAMPIONS

LASER-GO

LASER-GO

European Strategic Partnership
in Photonics for Health

EUROPEAN CLUSTER COLLABORATION PLATFORM

ESCPoi LASER-GO Partnership

Co-funded by the COSME programme of the European Union

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The selected companies from BIOCAT

biocat

CONTACT BIOCAT

Roi Villar
Head of Internationalization
rvillar@biocat.cat
www.biocat.cat

IMPETUX
The Force of Light

www.impetux.com

News

http://www.impetux.com/comunication/#news/

Description

The latest advances in *Mechanobiogy* suggest that changes in cell mechanics can explain the development of different kind of diseases. It is known that cells interact with its surroundings through physical forces, key for processes like: stem cell differentiation, embryo morphogenesis or cell migration. To study and measure these mechanical properties it is a must to have access inside living tissues non invasively.

Competitive advantage

What sets us apart from any competition is our distinctive and patented technology for measuring forces and elastic properties inside cells and tissues non-invasively. The panteted method we use to measure this kind of properties is completely independent on the medium and its properties, what turns the measurement done with such a method in a key objective and quantitative reference for any biological activity analysis.

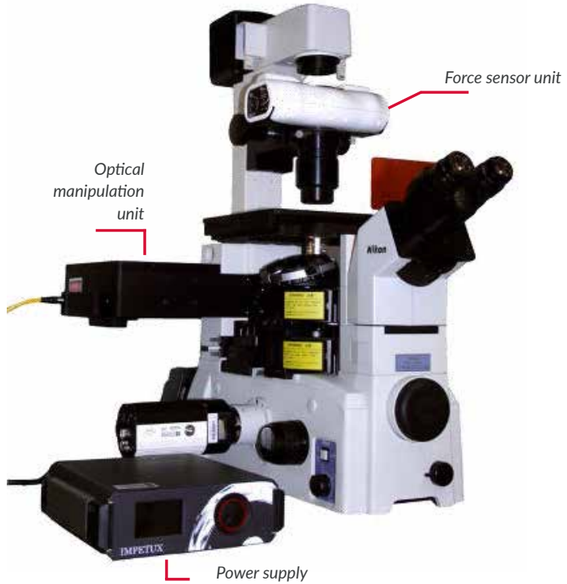
Products

We offer laboratory equipment, a microscope accessory having: an infrared laser radiation source for the manipulation module *(Optical manipulation unit),* a detection system for measurements *(Force sensor unit),* a software for data processing and analysis, and control electronic modules. The complete set allows the *study of elastic properties, force and tension measurements, inside living tissues and cells non-invasively.*

"Impetux's exclusive, patented technology leads you where other force methods cannot. Our products represent a breakthrough in how optical trapping forces are measured; enabling and making simple unprecedented experiments where traditional trap stiffness calibration fails."

Lunam™ T-40i
Force sensor

OPTICAL TWEEZERS PLATFORM



GALGO MEDICAL

www.galgomedical.com

News

https://www.galgomedical.com/en/news.html

Description

Galgo Medical SL is a Barcelona-based company that emerged from the Department of Information Technologies (DTIC) of the Universitat Pompeu Fabra (Barcelona, Spain). It was incorporated in July 2013 and co-founded by Luis Serra, Antoni Riu, Yves Martelli, Xavi Planes, Ignacio Larrabide, Hector Fernandez, and Ludovic Humbert. GALGO develops and commercializes post-processing medical imaging applications in the domins of neurovascular, osteoporosis and arrhythmia care.

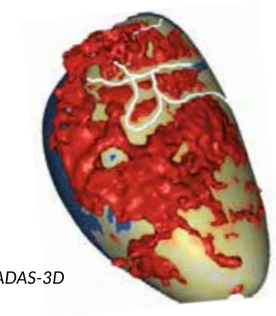
Competitive advantage

GALGO has filed 7 patents to protect core elements of its technology. GALGO products have been tested in leading hospitals in Europe, USA and Asia and they are currently being sold directly by GALGO or through leading medical device manufacturers

Products

Currently GALGO product portfolio include:

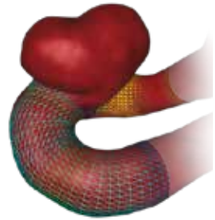
- *ADAS-3D.* Automatic Detection of Arrhythmic Substrate
- *ANKYRAS.* Revealing braided stent behavior
- *3D-Shaper.* Assessment of the proximal femur and cortical thickness



ADAS-3D

3D-Shaper

ANKYRAS



"The recent arrival of 3D MRI data with anatomical and functional unprecedented detail is revolutionizing the understanding of the heart infarction structure and its function. This will improve not only the ablation treatment, but also predicting the risk of sudden death for patients at risk, leading to better treatment."

Dr Antonio Berruezo, co-inventors, electro-physiologist from the Hospital Clinic

Imaging Software Solutions for a Global Medical Industry

monocrom

www.monocrom.com

News

https://www.monocrom.com/en/blog-news

Solid State Laser

Description

Monocrom is a global, consolidated company, manufactrer of low and high power diode lasers, solid state lasers and laser electronics. Monocrom contribution is especially relevant in the medical industry, mainly in the Ophthalmologic and Dermatological sectors. As an OEM company, Monocrom develops their products in close collaboration with equipment integrators and professionals from the medical industry. It has a solid experience in the development and production of diode lasers and diode-pumped solid state lasers modules, including optics, cooling hardware, mechanical housings and driver electronics.

"...we are also very happy to see that your zero defect statistics continues. Congratulations to a solid performance. "

Urban Konradson

High Powered Lasers for Medical Application

Reliable. Precise. Cost-efficient.

Competitive advantage

- an ISO certified company with a commitment to the highest quality standards.
- own patented laser technology for mounting laser diode bars without soldering. The unique technology is exclusive from Monocrom and is proven to improve laser performance and solve the non desired "smile effect"
- Monocrom has demonstrated over the years its ability to adapt to their customers needs, offering a high degree of flexibility and versatility when it comes to integration issues.

Products

Monocrom has a wide portfolio of *laser solutions for medical applications* covering mainly:

- Dermatology
- Skin cancer treatment by Photodynamic therapy
- Refractive eye surgery
- Retinal scan

Solid State Laser

SENSOFAR

www.sensofar.com

News

https://www.sensofar.com/news/

Description

Sensofar Medical is a leading-edge technology division within the Sensofar group. Sensofar Medical provides dedicated inspection systems of implantable medical devices and components, including stents and heart valves.

Competitive advantage

Sensofar detects and classifies surface defects based on a customer-defined defect library and displays the position of each defect on a high-resolution unrolled image. Classification algorithms are easily trained from representative defect images stored in the library.

Products

Currently there are 5 products, one of them with applications in life sciences field:

Q six

The Q six has been designed as a comprehensive solution for simplifying and streamlining stent assessment and approval. High-resolution imaging and 3D optical measurement allow for complete surface inspection of the stent structure, reducing errors, quality control costs and inspection time.

Q six

Assisted Stent Inspection

"The outcome of my vascular interventions relies on the quality of the devices I implant to my patients. I feel safer knowing they have been carefully inspected using innovative technology like Q six."

Dr. Vincent Riambau. M.D., Ph.D. Professor and Chief of Vascular Surgery Division. CardioVascular Institute. Hospital Clínic of Barcelona. Source: webpage of Sensofar.

Meaningful innovation for Medical technology

www.transmuralbiotech.com

News

http://www.transmuralbiotech.com/news/

Description

Transmural Biotech is a spin-off one of the most important groups of Fetal Medicine Research in Europe that develops innovative clinical products and services using disruptive medical technologies based on image diagnosis, analysis and processing for solving clinical needs on a non-invasive way, helping to reduce public health costs and improve personalized patient care

Competitive advantage

Thanks to the research support and expertise, Transmural Biotech identifies unsolved clinical needs on the medical field and provides more reliable, fast, easy-to-use and non-invasive solutions for each of them based on the automatic analysis of the ultrasound image's texture.the library.

Products

Currently there is 1 product:

quantusFLM is the very first 100% non-invasive Fetal Lung Maturity test that predicts Neonatal Respiratory Morbidity risk within minutes through a worldwide easy-to-use web application with results as reliable as current test, without any discomfort or trouble for the baby or the mother.

"We have recently start using quantusFLM in some of our patients and the experience, by far, is very positive. We believe that under certain circumstances, it is very interesting to know the level of the lung maturity, which is often a determining factor on choosing the timing to terminate the pregnancy. For us it is very easy to use because it requires a very standard image acquisition process and the turnaround of the results is incredible fast (we usually have the results within minutes.) It is so amazing that we don't need to analyze the amniotic fluid to determine the fetal lung maturity. We believe that It will become an essential tool for any center dedicated to the Fetal Medicine. "

Dr.Guillermo Azumendi Perez, Centro Gutenberg Málaga Spain

First Fetal Lung Maturity Test Based on Ultrasound Images

A Revolutionary Solution to an Unsolved Clinical Need

The selected companies from HTS

CONTACT HTS

Katharina Weinzerl

Business Developement

katharina.weinzerl@human.technology.at

www.humantechnology.at

JOANNEUM RESEARCH

www.joanneum.at/materials/

News

https://www.joanneum.at/en/materials/news/

Description

JOANNEUM RESEARCH is one of the largest non-university research institutions in Austria. Its research institute MATERIALS has long-standing experience in managing a wide range of research cooperations, thus enabling the clients to successfully participate in national and international funded research projects.

Competitive advantage

Provides access to the latest technologies required for implementing innovative products and services, for example:

- Green Photonics and Electronics, Structured (biomimetic) surfaces
- Piezoelectric sensors and energy harvesters
- Large-scale production of organic layers (roll-to-roll, screen printing), (Optical) Chemo-and Biosensors
- Laser Production Technology, Aerosol and inkjet printing
- Laser and plasma-assisted vacuum deposition process

Products

Currently there is 1 product available:
PyzoFlex® - The Intelligent Surface

MAT - bedruckte Sensorfolie © Bernhard Bergmann

www.meteka.com

News

https://www.joanneum.at/en/materials/news/

Description

METEKA GmbH is a leading provider of system solutions for the safe management of infectious waste from health care facilities, laboratories, research centres, and production plants.

Competitive advantage

With the MEDISTER HF-Waste Decontamination Devices infectious waste is sterilized on-site safely, quickly, and economically. The result is inactivated non-hazardous waste material.

The patented METEKA System ensures that infectious fluids, which may be generated either continuously or discontinuously, are sterilized in a fully automated manner. The entire process is carried out directly at the place of generation, e.g. in bio-tech or high-risk laboratories, veterinary medicine institutes, animal experimentation facilities or production plants

Products

Currently there are 2 products available:

- *COQUINA – HF-Terminal Disinfection Technology*
- *MEDISTER – Continuous Flow Sterilization Device*

"Meteka's research and developement activities are aimed at improving our living conditions and protecting the environment. A highly motivated team of experts, together with state-of-the-art planning, developement and production facilities, ensure that our products are of the very highest quality."

Medister

ortner
cleanrooms unlimited

www.ortner-group.com

News
https://www.ortner-group.com/en/latest-information.php

More Product Info:
www.ortner-group.com/en/company/research-and-development/technology/pdct.php

Description
As an internationally recognized partner with over 30 years of experience in cleanroom technology, Ortner focuses on development and manufacturing of innovative equipment and systems for all kinds of cleanroom requirements in the pharma-, bio-technology, health-care and food industries. The range of services covers process and product development for decontamination locks, isolators, clean air systems and decontamination processes as well as an individual, customized solutions and integration of Ortner Technology into the production process of its customers.

Competitive advantage
With the novelty “Photodynamic Disinfection certified Technology – PDcT” has Ortner for the first time succeeded in developing a system which verifiably enables deactivating particles and germs on complex surfaces. Also for the first time is the system suitable and safe for use on humans.

Photodynamic Disinfection is a natural reaction caused by light and the presence of a particular dye - the so-called photosensitiser. If the appropriate light wave strikes the clothing, the photosensitizer is automatically activated and generates highly reactive oxygen. The activated singlet oxygen is created directly on the microorganisms and destroys them by way of oxidation.

Products
- *PDc-Cleanroom Clothing*
- *PDc-Wardrobe System*
- *PDc-Textile Air Duct System*
- *PDc-Personnel Air Lock*

Cleanroom Clothing

Wardrobe System

Textile Air Duct System

Personnel Air Lock

perception park

PERCEPTION SYSTEM

THE FUTURE IS NOW

www.perception-park.com

News

https://www.perception-park.com/examples/

Description

Perception Park is your partner for high performance data processing of Hyperspectral data. Whether you want to process your data offline with highest efficiency or if you need an inline data processing solution, with the generic data processing products of Perception Park you are always perfectly equipped to implement your ideas.

Competitive advantage

The Perception System is a generic, configurable data processing solution enabling the industrial use of hyperspectral cameras for high speed tasks like sorting in many industries like food processing, recycling, mining, pharmaceuticals and many more. By adapting a hyperspectral camera with a Perception System, Chemical Colour Imaging turns the camera system into an easy-to-understand and intuitive configurable “chemical colour camera”. The chemical colours reflect the molecular properties of the scanned objects.

Products

Currently there is 1 product available :

Perception System

WILD

www.wild.at

News

https://www.wild.at/en/news-en/

Description

WILD is the most trusted partner in optomechatronics systems for both market leaders and start-ups in medical technology, optical technologies and industrial technology. WILD develops and manufactures exclusively on behalf of its customers and also makes all research, development and design results available. Customer value the optomechatronics expertise and the combination of optics, precision mechanics, electronics, application software and plastics engineering. WILD guarantees reliable processes throughout the entire product life cycle and impresses with a high level of innovation, flexibility and a distinct market and costumer focus. All processes are in compliance with the EN ISO 9001 as well as the EN ISO 13485 and the QSR.

Our service modules

WILD solves complex problems with a flexible combination of suitable elements from our range of services:

Engineering | Co-Engineering | Re-Engineering | Value Engineering | Life Cycle Engineering | Process Engineering | Validation | Standards | Supplier Qualification | Prototyping | Supply Chain Design | Production Transfer

Market Focus

Medical & Life Sciences, Laboratory Tehnology, InVitro Diagnostics & Analytics, Laser Technology, Optical Measurement Technology, Semiconductor Technology

The selected companies from LITEK™

LITEK

CONTACT LITEK™

Julius Paužolis
Director
julius.pauzolis@litek.lt
www.litek.lt

EKSMA OPTICS

www.eksmaoptics.com

News

http://eksmaoptics.com/news/

"EKSMA Optics BBO Pockels cells for high power lasers"

Description

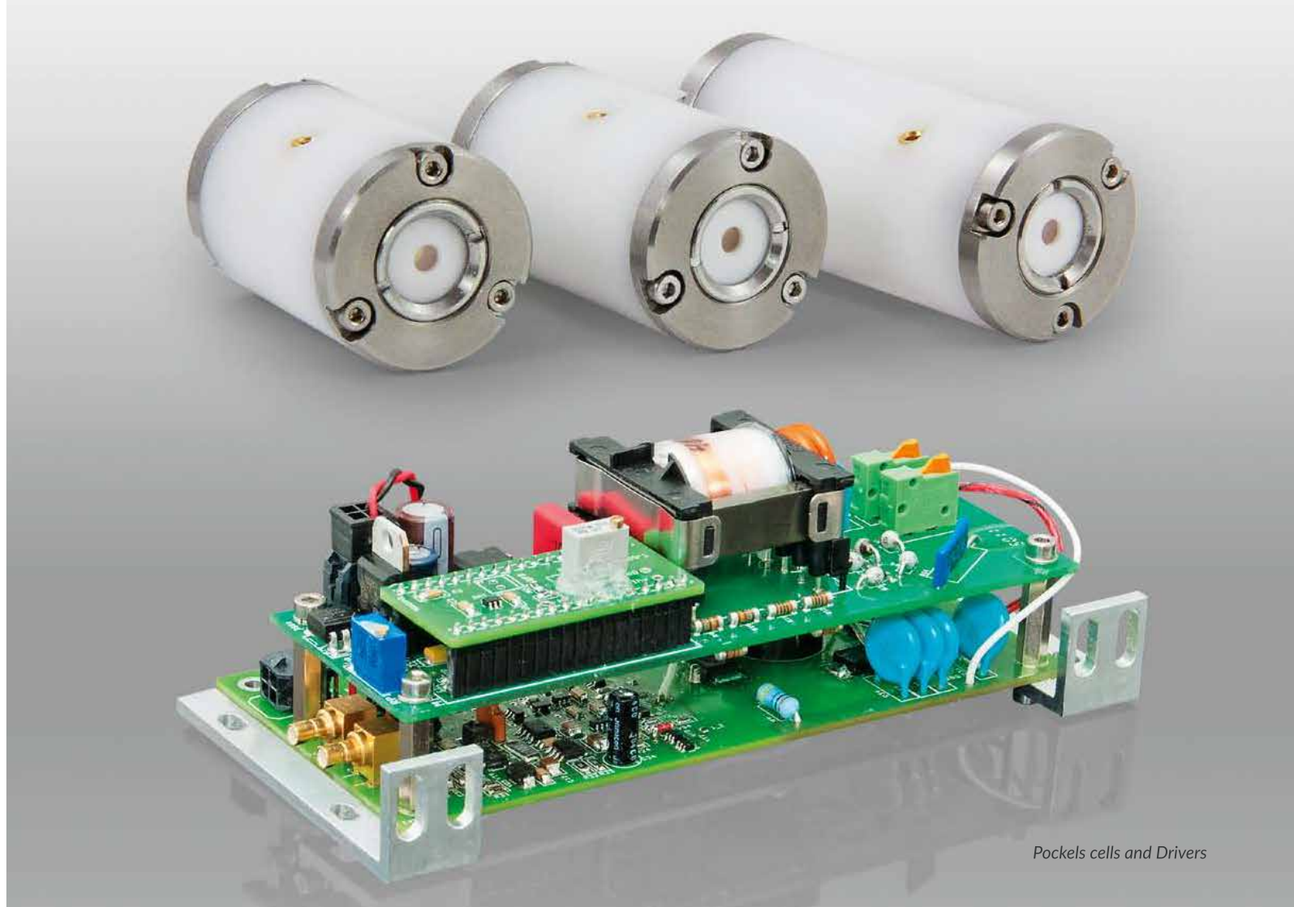
EKSMA OPTICS is a manufacturer and global supplier of precision optical components and optical systems for high power laser applications, laser media & nonlinear frequency conversion crystals, opto-mechanics, electro-optical Pockels cells with drivers and ultrafast pulse picking systems used in lasers and other optical instruments.

Competitive advantage

EKSMA OPTICS is a manufacturer and global supplier of precision optical components and optical systems for high power laser applications, laser media & nonlinear frequency conversion crystals, opto-mechanics, electro-optical Pockels cells with drivers and ultrafast pulse picking systems used in lasers and other optical instruments. .

Products

Ultrafast BBO Pockels cells can be used in medical systems equipped with femtosecond lasers for laser pulse picking application.
Pockels cells are used to change the polarization state of light passing through it when a voltage is applied to the electrodes of electro-optic crystals such as BBO.
When used in conjunction with polarizer, Pockels cells can be used as fast optical switches. Typical applications include Q-switching of the laser cavity, laser cavity dumping and coupling light into and from regenerative amplifiers.



Pockels cells and Drivers

EKSPLA

www.ekspla.com

News

http://ekspla.com/company-industry-news/

Description

Innovative manufacturer of solid state and fiber lasers, systems and components from unique custom system to small OEM series. In-house R&D team and more than 25 years' experience enable to tailor products for specific applications and/or according to specific requirements.

Competitive advantage

Ekspla provide optimised/tailored solutions for specific requirements that enables to make customers unique product. Unlike of the shelf manufacturers, we at EKSPLA provide / offer close partnership / collaboration and our commitment that will help to create value to your (customers) clients.

Products

Currently there are 4 products with applications in life sciences field:

- *PhotoSonus*
  Mobile high energy tunable laser system for photoacoustic imaging
- *NT235*
  High energy tunable wavelength nanosecond laser

Complete spectroscopy systems

SFG spectrometer
Sum Frequesncy Generation (SFG) spectrometer features powerful and versatile method for in-situ investigation of surfaces and interfaces.

CARS microspectrometer
System for Coherent anti-Stokes Raman scattering (CARS) spectroscopy

Mobile High Energy Tunable Laser System for Photoacustic Imaging

Pump laser, OPO and PSU in a single mobile unit

Ekspla PhotoSonus

www.femtika.com

News

https://www.linkedin.com/company/10254411/

Description

Femtika is working in the area of femtosecond laser 3D micro-fabrication. Comapny's goal – to supply growing worldwide demands of available tools and technologies enabling hybrid 3D laser fabrication, with custom design components in micro- and submicro-scale.

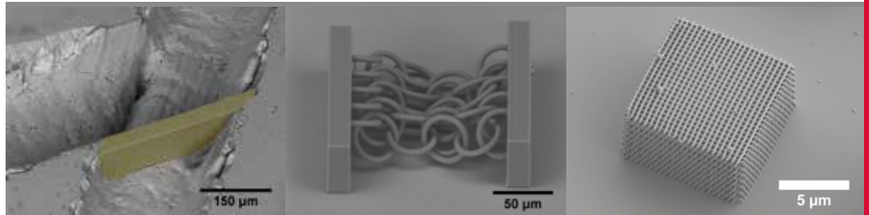
Competitive advantage

Femtika is equipped with deep working knowledge in the femtosecond laser material processing. That allows company to investigate and develop new methods and applications of laser-based technologies.

Products

Laser Nanofactory – femtosecond laser hybrid micro-fabrication workstation. It combines two different technologies: additive and subtractive manufacturing. Laser Nanofactory device can be used as a universal tool for manufacturing 3D objects with complex geometries of various materials and with high resolution.

Laser Nanofactory



"We are collaborating with Femtika for the fabrication of micro-robots for medical purposes. With the experience of team members, ability to solve various problems on the fly and great technological solutions – we could not find better partner than Femtika"

Bertrand Duplat, CEO of Robeaute, Paris, France.

FERENTIS

www.ferentis.eu

News

http://www.ferentis.eu/en/news/

Description

JSC Ferentis is a research-intensive biomaterials and regenerative medicine company focused on in vitro tissue models and tissue repair product (implant) development.

Competitive advantage

Ferentis proprietary technology is based on a unique biosynthetic hydrogel system, that has demonstrated clinically to promote regeneration of the corneal tissue. The scientists of Ferentis have been able to produce and patent a completely synthetic collagen substitute. Based on the recent success in animal trials, the team is currently collaborating with a number of research groups, physicians and companies to develop next generation solutions for regenerative medicine. Ferentis' biointeractive hydrogels are chemically crosslinked, self-supporting, transparent materials, based either on natural (e.g. recombinant) collagen or its 100% synthetic analogue- collagen mimetic peptides (CMPs). These materials are highly promising also for hybrid applications, including photonic structures, sensors and theranostics.

Customer opinions

"You have a good team."

Products

Currently, there are available *3 in vitro product lines:*

- Multiwell format-compatible cell culture substrates
- Tissue slice culture kit
- Microstructure-based scaffolds for 3D cell culture and tissues

PhotoSana

https://photosana.eu

News
https://photosana.eu/products/

Description
PhotoSana is the developer and the manufacturer of medical laser systems.

Competitive advantage
PhotoSana develops and manufacturers medical lasers for fast, safe and effective pigment treatment and tattoo removal.

Products
The offered product is a picosecond aesthetic laser *PicoClarans* is suitable for tattoo removal, skin remodelling and lifting, pigmented lesions and skin brightening.

The system is using the shortest pulse duration (150 ps) lasers on the medical laser market which breaks the pigment to much more tiny size. High peak power (1,7 GW) enables to achieve less thermal damage to surrounding tissue as well as less downtime.

PicoClarans™ - Picosecond Aesthetic Laser

Innovative medical laser systems manufacturer

Fast, Safe, and Effective Pigment Lesion Treatmend & Tattoo Removal

The selected companies from MEDICEN

medicen PARIS REGION | innovation for health

CONTACT MEDICEN

Olivier Fontaine

International Affairs

ofontaine@medicen.org

www.medicen.org

BioAxial

www.bioaxial.com

News

http://www.bioaxial.com/latestnews/

Description

BioAxial develops and sells CODIM (Conical Diffraction Microscopy), a new technology for super-resolved fluorescence microscopy for extended imaging of live cells currently with a resolution of 100 nm. The modules manufactured by BioAxial can be adapted as an add-on to commercial microscopes. CODIM 100 is the fruit of a collaboration with Imagopole from Pasteur Institute.

Competitive advantage

CODIM is distinguished by the unique combination of several performance features : high performance super resolution multicolor imaging, seamless integration with confocal microscopy (example: New Nikon-BioAxial Super-Resolution Platform Offering 90 nm Resolution with Conventional Fluorophores), standard fluorescence microscopy sample preparation workflow, low photo-toxicity and photobleaching

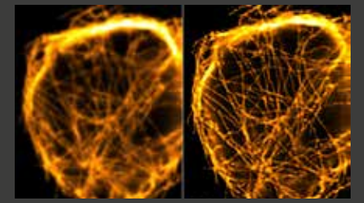
Products

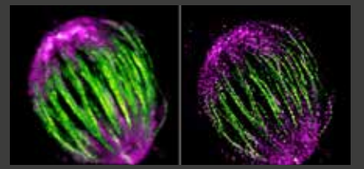
Currently there is 1 product available: *CODIM100* for Live-cell super-resolution imaging (cell biology, developmental biology, host pathogens interaction). Works with any fluorescent sample without any special preparation and low phototoxicity.

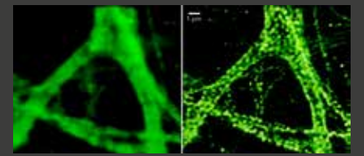
SEEING THE UNSEEN

Innovative and Intuitive Super Resolution Microscopy Solution

CODIM100







imagine eyes®

www.imagine-eyes.com

News

http://www.imagine-eyes.com/community/news/

Description

Imagine Eyes is a recognized pioneer in retinal imaging. Its breakthrough products enable examining the back of the eye with cellular resolution. Such unique performance is provided by Adaptive Optics (AO), a technology that Imagine Eyes' engineers derived from astrophysics.

Competitive advantage

Imagine Eyes offers the highest resolution on the market of ophthalmic devices. By visualizing single cells in the retina, doctors can detect microscopic lesions and early signs of pathology which remain invisible with conventional examinations. It also enables tracking minute changes in the retina, for precise monitoring of disease progression and faster evaluation of new treatments.

Products

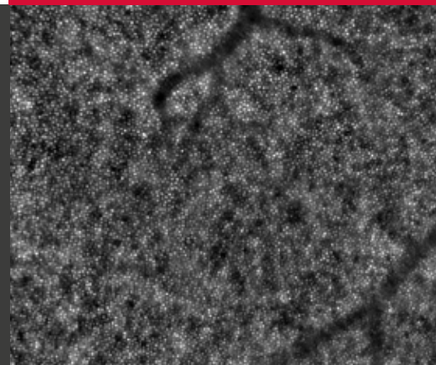
Currently there are 2 products available :

- *rtx1™ Adaptive Optics Retinal Camera:* enables clinicians to visualize the living retina at the cellular scale, it is an approved medical device in the European Union and in Japan.
- *AOdetect application:* computes candidate AO biomarkers (density of cells, wall structure of arteries), it is for research use only.
- *AOkit™:* a complete set of AO components (mirao™52-e deformable mirror, HASO™4 first wavefront sensor, WaveTune™ software) specially designed for living eyes

rtx1™

Examine the retina beyond current limits

Picture below: Detail-view of the retina with the rtx1™



"For the first time, adaptive optics enables us to visualize retinal neurons – the photoreceptors- and offers totally new options to evaluate retinal therapies".

Pr. José Sahel, Hôpital des Quinze-Vingts, Paris.

Source: webpage of Imagine Eyes

LLTECH
LIGHT FOR LIFE TECHNOLOGIES

www.lltechimaging.com

News

http://www.lltechimaging.com/category/news-press/

Description

LLTech designs optical imaging system (Light-CT Scanner) to allow real-time cancer diagnosis in radiology suites, surgical suites and pathology labs. LLTech's optical technology is based on Full Field Optical Coherence Tomography (FFOCT), a technique that enables volumetric image capture on tissue samples at micron resolution in 3D.

Competitive advantage

LLTech anticipates the following benefits: better image quality (sole technique to offer axial resolution of 1 µm), speed (image capture on a 1 cm² region of tissue in 4 to 5 minutes, thereby enabling immediate quality control of biopsies), avoiding patient recall in the event of complex biopsies that require hospitalization and/or anesthesia, non-destructive technology that allows reuse of the biopsy, analysis can be carried out remotely, and ease of use (no calibration or complex set-up procedure is necessary).

Products

Currently there is 1 product available :
The Light-CT Scanner is intended to acquire, store, retrieve, display, and transfer optical coherence tomography images of unsectioned excised surgical tissue for review by physicians to assist in forming a clinical judgment. The Light-CT Scanner is certified for research use only.

LLTech's team and technology have received multiple grants and awards from US, French as well as European agencies, highlighting the unique potential of LLTech.

Mauna Kea Technologies

www.maunakeatech.com

News

http://www.maunakeatech.com/en/news-events

Description

Mauna Kea Technologies provides Cellvizio, the first and only probe-based confocal laser endomicroscopy platform available to healthcare providers worldwide. Cellvizio generates optical biopsies using the world's smallest flexible microscope, providing clinicians with microscopic images of tissue instantaneously and in a minimally-invasive manner. Today Cellvizio is used in over 40 countries and 550 clinics worldwide.

Competitive advantage

Cellvizio technology is simple to use, with an intuitive interface. Cellvizio produces extremely high quality images delivered by advanced image processing. Confocal MiniprobesTM are inserted into the working channel of standard endoscopes. Various models of Confocal Miniprobes have been designed in time to meet the specific needs of different types of procedures. Cellvizio Images come from a very thin focal plane that is optically projected into the tissues.

Products

- *"Cellvizio"*
- *"Cellvizio Lab"* for in vivo preclinical imaging : "Cellvizio Dual Band" and dedicated confocal microprobes

"Monitoring gastroesophageal reflux disease (GERD) is critical because Barrett's esophagus is associated with increased risk of developing esophageal cancer… Probe-based Confocal Laser Endomicroscopy is considerably more sensitive, as demonstrated in this study, even when performed by novice users"

Paul A. Severson, MD, FACS, Co-Director, Minnesota Reflux and Heartburn Center.

Source: webpage of Mauna Kea Technologies

PHASICS

The phase control company

www.phasicscorp.com

News

http://phasicscorp.com/news-about-wavefront-analysis/

Description

Phasics offers a full range of measurement and imaging solutions based on an innovative high resolution wavefront sensing technology. They address the needs of laser engineers, lens manufacturers and cell biologists.

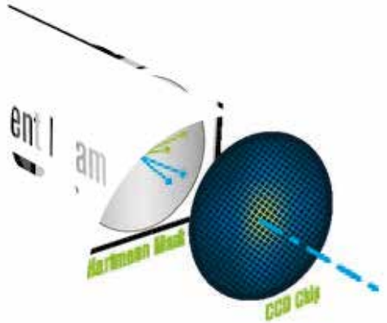
Competitive advantage

Quadriwave lateral shearing interferometry offers high resolution (4x more than Shack-Hartmann), achromaticity in the detector spectral range, direct measurement of diverging beam and no reference arm unlike classical interferometry. Phasics introduces Quantitative Phase Imaging, relying on a camera-like instrument. It enables easy label-free imaging of specimens such as live cells, tissues or any other semi-transparent samples. It provides accurate measurement of valuable parameters (morphology, dry mass, density of individual cell...). It applies to cancer and stem cell research, drug screening, blood test... The smart instrument simply plugs to any optical setup for easy multimodality such as phase-fluorescence combination.

Products

- Solutions for *laser measurement*
- Solutions for *lens metyrology*
- *Quantitative Phase Imaging*
- *Wavefront imaging cameras*

HIGH RESOLUTION WAVEFRONT SENSORS



Our primary objective is to make our users fully benefit from our innovative technology. Our teams commit to offer their best expertise so as to deliver high quality solutions that meet and exceed each user's expectations.

The selected companies from OPTENCE

optence NETWORKING IN PHOTONICS

CONTACT OPTENCE

Nina Yeoman
Project Manager
Technology Transfer
yeoman@optence.de
www.optence.de

DIOPTIC

www.dioptic.de/en/home

News

https://www.dioptic.de/en/latest-news

Description

We develop custom optical metrology solutions in close co-operation with our customers. Our core competences are in the areas of optics design, measuring systems, LED-based light sources, data analysis, image processing, diffractive optics and interferometry. Our service portfolio spans optics development and development of inspection systems. Products we regularly provide are customer-specific infrared lenses, computer-generated holograms for asphere metrology, and the ARGOS surface inspection system.

Competitive advantage

DIOPTIC researches and develops optical technologies, working for companies from both industry and science. From the very first draft idea to feasibility studies and their implementation into running processes all the way to technological support and in-house training, the company sees itself as a sparring partner for all issues concerning new technologies with light.

Products

- Optics design
- Custom Inspection Systems
- Diffractive Optics
- IR Lenses
- ARGOS: Inspection system for optical surfaces
- Software development

ARGOS

"We have been using the ARGOS inspection tool on our production line for approximately 12 months now, utilizing the tool to inspect high-quality optics. We chose the ARGOS tool over other options because it offered an automated solution for inspecting to the ISO 10110-7 Standard.

The tool has integrated seamlessly into our manufacturing systems and offers a simple, fast, operator interface and quantitative assessment to the ISO 10110-7 Standard. We have been very happy with the inspection tool's performance and the support of the DIOPTIC team."

Dr. David Moser, Director, Process Engineering, nLIGHT, Vancouver, Canada

Source: webpage of DIOPTIC

IMT

www.imtag.ch

News

https://www.imtag.ch/en/tech-updates

Description

IMT has its roots in the microstructuring of metallic coatings on planar optical substrates. Our solutions are used in medical technology, Life sciences, biophotonics, sports optics and optical measurement technology.

Competitive advantage

Development and high volume manufacturing. All processes under one roof. Fast prototyping. In ophthalmology, excimer lasers (LASIK) are used to correct defective vision, whilst in dermatology ruby and Er:YAG lasers are used for tattoo removal and skin rejuvenation. We are proud to be able to offer a wide range of products for this challenging market.

Products

- *Flow Cells* for Life Science and microfluidics
- *Apertures and spatial filters* for endoscopy
- *Optical filters* (including structured interference filters)
- *Elements for slit projection* (3D measurement technology), *eye diagnostics* and for *dermatological diagnostics and treatment*
- *Diffractive optical elements* for beam manipulation
- *Elements for mammography and radiology*
- *Calibration targets*

Microfluidic component

Calibration target

«We identify new applications and markets with the aim of sustainably developing our company.»

Dr. Alexios P. Tzannis, Business Development

Source: webpage of imtag.ch

Reticle for optics

Structured filters

www.omicron-laser.de

News

http://www.omicron-laser.de/english/newspress.html

Description

We develop and produce laser and LED light sources for companies around the globe. Customers come from areas as diverse as microlithography, 3-D printing, medicine and biotechnology etc. We offer them highly innovative products exactly tailored to their needs.

Competitive advantage

Modern medicine is no longer conceivable without laser and LED technology. Omicron develops and produces laser and LED systems for areas such as flow cytometry, laser-scanning-microscopy and endoscopy.

Products

- *Lasers:* compact high performance, picosecond pulsed, CW
- *Light Engines:* multiwavelength solutions with up to 6 wavelengths
- *LED Sources:* intelligent LED modules, high power LED solutions
- *PDT Medical Laser Systems:* flexible solutions for cancer treatment

If you can imagine it,
we can build it!

PRECITEC

www.precitec-optronik.com

News

http://www.precitec.de/nc/en/news/news/

Description

We are a leading company in the medical eye tracking technology. Our development and production of embedded systems is located close to Frankfurt/Main, Germany. We offer customized, precise, and robust eye tracking solutions conform to medical regulatory requirements.

Competitive advantage

With increasing quality and individualization demand from patients and surgeons alike requirements for refractive eye surgery become more challenging. As a result, a highly versatile and robust eye tracking system is needed for high speed, low latency, and precise pupil movement detection in 6 dimensions.
In addition, individual patient eyes can be recognized based on static and dynamic iris pattern matching. This permits to significantly improve the overall treatment quality and customer satisfaction. Furthermore, all hardware, optics, and software are developed and manufactured in-house providing a major advantage to offer short reaction and lead times for custom requirements.

Products

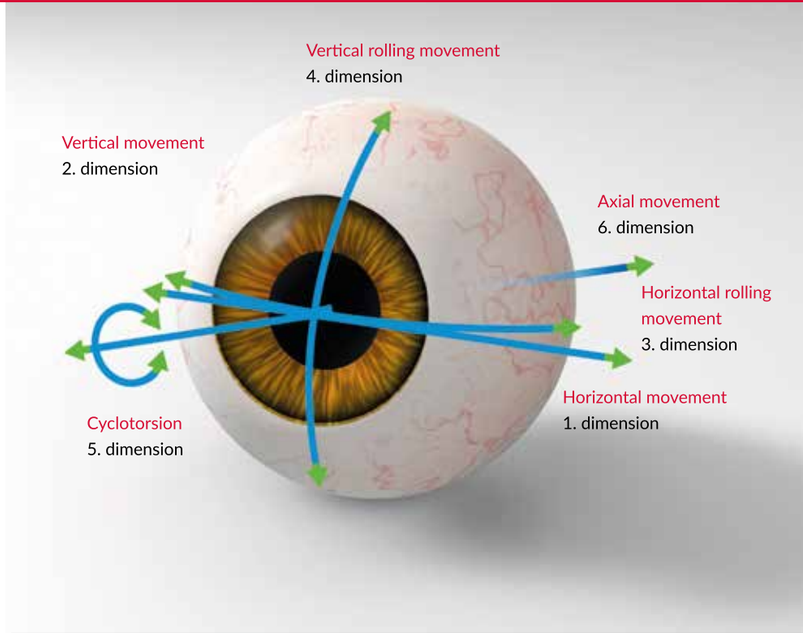
3D & 6D Eye-Tracker

- High speed >1kHz
- Low latency <2ms
- Precise <50µm resolution

Tracking of eye movement in 6 dimensions

Market

- Long time market experience (30+ years)
- World wide market availability of 6D eye tracking solution since 2017
- Incorporated as standard eye tracking system by two major German medical eye surgery system providers



SENSITEC
KÖRBER SOLUTIONS

www.sensitec.com

News

https://www.sensitec.com/about-sensitec/news-events/news/

Description

We are a leading company in MagnetoResistive sensor technology and in the development and production of magnetic microsystems with sites in Lahnau and Mainz. We offer simple, durable, precise and dynamic path, angle, current and magnetic field sensor solutions.

Competitive advantage

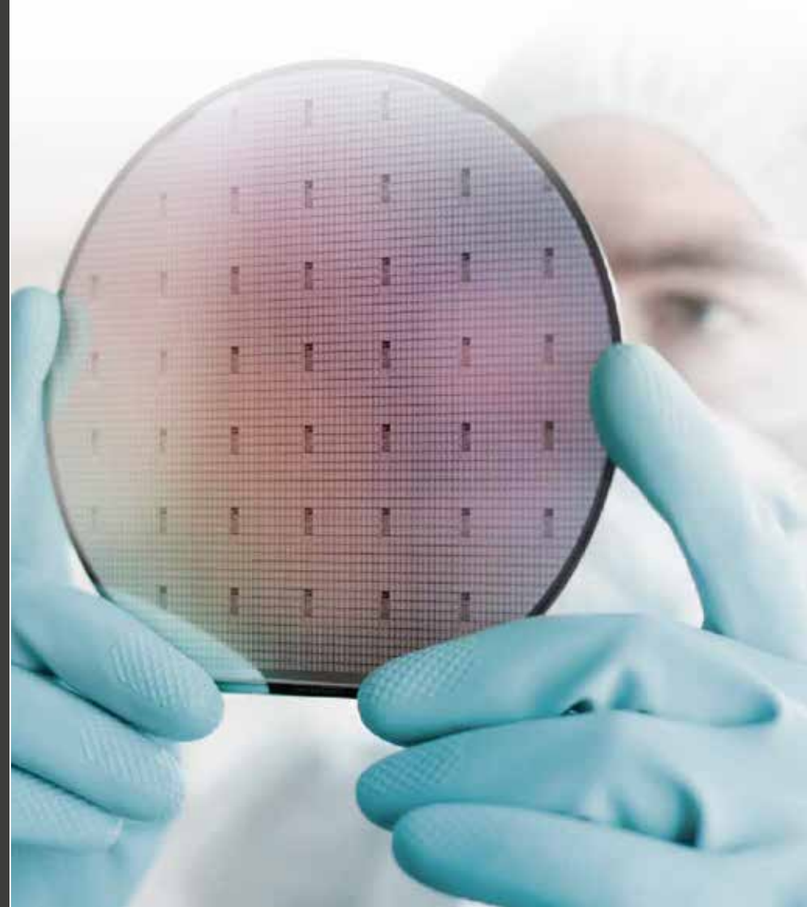
With increasingly powerful, reliable and more compact electronics, it is possible to advance into new areas of medical and biotechnology. As a result, medical devices are becoming more accurate. Furthermore, pacemakers and defibrillators are becoming increasingly durable and reliable with the aid of modern sensors. Prostheses can be adjusted specifically for their application using electronic sensors and actuators. Point-of-care diagnostics is becoming possible as a result of new and faster methods so infections can be detected in the shortest possible time.

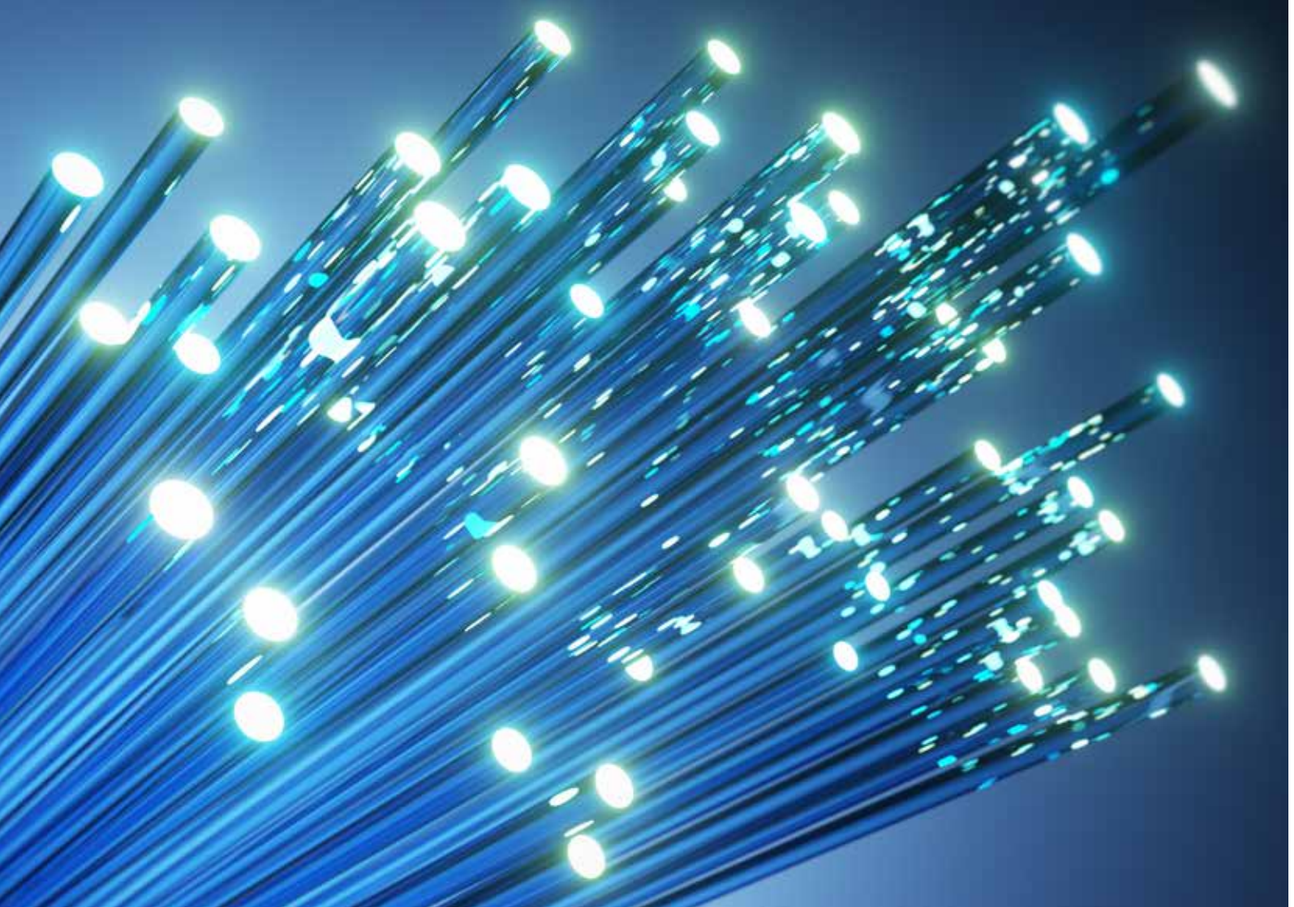
Products

- Sensors for *Angle- & Length Measurement*
- Sensors for *Current and Magnetic Field Measurement*
- Sensors for *Magnetic Solutions*
- *Customized Developement*

“Our IOL Master 500 biometer is used by ophthalmologists around the world to determine eye length and, hence, an IOL for cataract eyes and so will preserve the patient’s eyesight. The magnetoresistive measurement system by Sensitec is measuring the movement of a prism in an interferometer for many years – with high precision and no field failures.“

Ulrich Maiwald, Strategic Purchasing Corporate Area Medical Technology, Carl Zeiss Meditec AG, 07745 Jena, Germany





The selected companies from OPTICSVALLEY

CONTACT OPTICSVALLEY

Geoffrey Delattre
Project Manager
g.delattre@opticsvalley.org
www.opticsvalley.org

DAMAE MEDICAL

SEE BEYOND APPEARANCES

www.damaemedical.fr

News

http://damaemedical.fr/w/?page_id=2191&lang=en

Description

DAMAE Medical's mission is to put the great power of bio-photonics at the service of opening new opportunities in medical imaging and diagnosis

Competitive advantage

DAMAE Medical brings a unique answer to the public health issue of skin cancer, by developing a new approach to dermatological diagnosis through OCTAV®, a novel non-invasive imaging device, based on a groundbreaking optical technology, which allows for immediate, non-invasive, in depth assessment of skin lesions.

Products

The company has developed a groundbreaking technology called Line-field Confocal Optical Coherence Tomography (LC-OCT) resulting from 15+ years of cutting-edge research conducted by Pr. Arnaud Dubois, the CSO of DAMAE Medical, in the Charles Fabry Laboratory (CNRS, Institut d'Optique). The innovation strength is to combine the principles of reflectance confocal microscopy (RCM) and optical coherence tomography (OCT).

"I have been using OCTAV, the device developed by DAMAE Medical, for almost a year now. I am impressed by the accuracy of the new technology, it is really a revolution! I am convinced that this will change the way we detect both carcinomas and melanomas at early stage."

Pr. Jean-Luc Perrot, Saint-Etienne Hospital, France

OCTAV

INNOVATION 2030
CONCOURS MONDIAL D'INNOVATION

CERTIFIED ISO 13485 MEDICAL DEVICES • QUALITY MANAGEMENT

FIRST LIGHT
ADVANCED IMAGERY

www.first-light.fr

News

www.first-light.fr/news/

Description

First Light Imaging (FLI) designs and manufactures high-end scientific cameras for visible and infrared spectra, based on EMCCD, e-APD and InGaAs sensors. Emanating from French public research laboratories in astronomy (LAM, IPAG/CNRS), FLI is working with world leading companies, research institutes and universities. Partnerships with French Laboratories for Biological research ongoing.

Competitive advantage

FLI offers the most advanced imaging solutions for extremely low light environment and real time applications, allowing very high frame rates and ultra low noise at the same time, in the visible and infrared (SWIR) spectra.

Made in France dual-use products, no ITAR restriction.

Products

- *C-RED 2:* a compact and smart scientific SWIR camera used for research, from astronomy to art inspection or biological imaging; 35 customers equipped in 6 months.
- *C-RED One:* an outstanding technology allowing the world's fastest frame rates and read out noise for a SWIR commercial camera, supported by H2020 SME Instrument, already mounted on the MIRC-X interferometry instrument.
- *OCAM²:* the fastest low light EMCCD camera, already at the heart of complex optics systems such as the SCExAO

C-RED 2

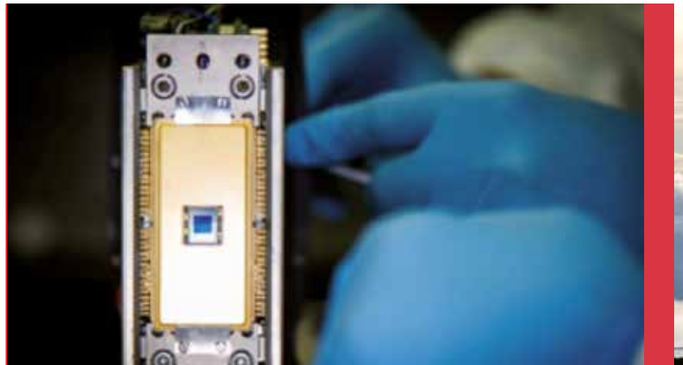
C-RED One

OCAM²

Subaru Telescope, or GranTeCan. A shuttered version allows laser pulsed applications or fluorescence microscopy.

SPIE Photonics West publication:
"C-RED One and C-RED2: SWIR high-performance cameras using Saphira e-APD and Snake InGaAs detectors"

Press release:
"Infrared Interferometry: First Light Imaging's C-RED One is looking at the sky!"



isonic Medical

www.isonic-medical.fr

News

http://www.isonic-medical.com/news---events.html

Description

A clinical stage ophthalmological device company building precise, non-contact tonometers based on a novel vibration technology for measuring intraocular pressure or eye pressure (IOP).

Competitive advantage

Necessity to measure Eye pressure (IOP) simply and in all places of care to diagnose the illness early and urgent need for frequent measures in the home by self-measurement as is done with blood pressure .

Products

Vibration Tonometry: A clinical stage ophthalmological device company building precise, non-contact tonometers based on a novel vibration technology for measuring intraocular pressure or eye pressure (IOP)

Subcontractors and Partners

HOLO3, Westline electronics Device development LAAS/CNRS Toulouse Device development
LMDC, White-Tillet, Regulatory
E.N.S. P Jacquier
Laboratoire Kassler Brossel
APHP, Institut du glaucome, Public healthcare institutions

2. Simplified Professional tonometer for screening

Opticians/optometrists
Retirement homes
Occupational screening

1. Specific Professional tonometer for screening

Better diagnostic
Greater patient comfort
Faster patient throughput
Screening out Corneas unfit for surgery

3. Homecare Tonometer

Improved patient compliance
Delayed recourse to surgery
Prevention of blindness

Creation of Epidemiology Data Base (CLOUD BIG DATA)

www.neurallys.com

News

http://neurallys.com/news-en/

Description

Neurallys is developing a very innovative connected medical device to improve the quality of life of patients suffering from hydrocephalus (having a shunt implanted) and provide the neurosurgeons with a new tool for aided-diagnosis and pathology follow-up, with health cost reduction objectives.

Competitive advantage

Neurallys is developing a fully ambulatory solution to measure the intracranial pressure, associated with a recording of the patients symptoms. The device allows the patients for self diagnosis and the data historic will be used by the neurosurgeons for a better follow-up of their patients.

Products

Neurallys develops a *mini-invasive communicating medical device* providing patients with the possibility of self-diagnosis in case of symptoms (headache, vomiting...) with a suspicion of malfunctioning of the shunt or of any issues related to intracranial pressure (over drainage situation...) increasing patient comfort and preventing exploratory surgeries.

“ High intracranial pressure situations due to shunt malfunction are not always visible using MRI and thus difficult to diagnose. The innovative device developped by Neurallus is a dream for all neurosurgeons. “

Pr Philippe Cornu.
Head of neurosurgery department Pitié Salpetrière hospital - Paris

Mini-invasive communicating medical device

Novel aided-diagnosis tool

weeroc

www.weeroc.com

News

https://www.weeroc.com/en/contact/conferences-calendar/year.listevents/2018/04/17/-

Description

WeeROC is a spin-off company from Omega laboratory (IN2P3/CNRS, french governmental agency for fundamental research in astrophysics, particle physics and nuclear physics). Weeroc designs and provides analogue and mixed ASICs for industry.

Competitive advantage

More channels, less room, les power budget, better performance... WeeROC designs customer specific read-out chips to help them achieve the upcoming technical breakthrough in the medical imaging field.

Products

Weeroc offers a *complete family of programmable versatile read-out chip* to meet your specification requirements.
Weeroc provides : *off-the-shelf front-end ASIC* (the ROC chip family) – *customer-specific ASICs* – Services, Audit, Expertise.

Publications

IEEE Nuclear Science Symposium and Medical Imaging Conference
Typical Workshop for Electronics in Particle Physics
PSMR conference presentation
NDIP conference

High-performance analogue and mixed signal ASICs

We know there is a long way from a good idea to a good product. WeeROC provides all services to get your innovative project up and running. We are committed to fast and efficient design that will allow your product to embed dedicated state-of-the-art microelectronics in no time.

Contact us

LITEK™
Linas Eriksonas
(Project Coordinator)
Savanoriu ave. 235
LT-02300 Vilnius
Lithuania

Phone: +37 061 410 640
E-Mail: linas.eriksonas@litek.lt

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