



COOPERATION OFFER

GENERAL DESCRIPTION

Title Co-operation for contactless online production or process control and automated inspection of dielectric compounds or plastic-metal hybrid systems; Licences agreement / Commercial Agreement for biomedical imaging

Summary

The company is a French-German start-up which offers:

- A unique solution for rapid and precise contactless non-destructive testing and biomedical imaging
- A profound know-how in terahertz analysis for various applications: composites, assemblies, packaging, multilayer coatings...

Partnership sought:

- Technology deployment on mature applications
- Custom-made development in collaboration on new applications and technologies.
- Licences agreement / Commercial Agreement, also for biomedical imaging

Description

The company is a start-up created on February 2017, which offers new solutions for contactless non-destructive testing (NDT) and for biomedical imaging based on an internationally patented technology. Fast and mobile, the instrument reveals invisible, internal defects and diseased tissue; it simultaneously controls the dimensions, without the need of radiation protection for the user or patient. This ground-breaking technology in terms of speed and stability allows exploiting the unique potential of ultrashort pulses of terahertz (THz) frequencies in industrial environments, also on large scaled objects. The funding team has developed the technology at the University of Paris Sud according to the industrial needs and applied it in industrial collaborations, particular on light weight components and their production processes; several proof of concepts have been realized during the last years.

THz-TDS (THz - Time Domain Spectroscopy) with its multitude of information offers various applications for spectroscopy, material characterization and 3D imaging, and coupling of these. New solutions for non-destructive testing (NDT) in various industrial fields can be realized with this unique approach of Ultrafast Pulsed THz Sensing and its multitude of information in time and spectral domain enabling:

- > 3D reconstruction with one sided measurement
- > Precise defect localisation and characterisation
- > High contrast on polymers buried in polymers
- > High sensitivity to polymorphism, polymerization
- > High detectability of water and humidity, polar solvent traces
- > Coupling of Imaging and Spectroscopy

The company's predestined target segments are the automotive, aerospace and wind power sectors thanks to the highly increasing use of innovative materials and procedures motivated by the reduction of greenhouse gas emissions. In general, composite and plastic markets without being exhaustive. Sectors such as photovoltaic, medical imaging and pharmaceuticals are also interesting.

Examples of industrial applications:



- > Characterisation of multilayer coatings, paintings (varnish on vehicles, TBC on turbines, refractory ceramics, thin conducting films as graphene, etc.)
- > Process monitoring (drying, polymerisation...)
- > Analysis and defect detection in composites (delamination, cracks, inclusions, impurities...)
- > Control of assemblies (adhesive bonds, plastic or ceramics welds, plastic-metal hybrids)
- > Analysis of structures and objects covered by dielectrics (cables, optical fibres, corrosion under paint, ceramics under foam, etc.)
- > Control of packaging

Examples of biomedical applications:

- > Cancer detection and spatial definition (for skin cancer precaution, breast cancer during operation e.g.)
- > Skin lesion under bandage/dressing

Licences agreement / Commercial Agreement with technical assistance for medical imaging

Technical co-operation agreement for partnership with industrial companies
 Research co-operation agreement

Advantages and Innovations

At the interface between photonics and electronics, the THz frequency range is seen as the last frontier of the electromagnetic spectrum to be overcome in economic terms, strongly emerging with a compound annual growth rate of about 20%. THz Time Domain Spectroscopy (THz-TDS) is a THz approach which is particularly effective. It provides a wealth of information, useful at once for imaging, material characterisation and spectroscopic analysis. However, the classic THz-TDS is mostly limited to the analysis for the R&D phase of new products, the control of production by random sampling and occasionally for inspection, because of its limitations in terms of acquisition time and stability. The THz spectrometer STRIPP – a genuine technological breakthrough - drastically reduces time of acquisition of 7 orders of magnitude compared to the latest spectrometers on the market. The optical acquisition time takes just several tens to hundreds of picoseconds corresponding to the detection window in the time domain – it is performed at the maximum speed, the speed of light.

With STRIPP, the full product life cycle can be followed; in particular a 100% control of the manufacture can be provided, often in the production cycle time. The speed and so the stability of measurement also allow the inspection on industrial sites. Besides the singularity to be the only single shot solution on the market, the offer of Teratonics includes another key selling point: the development of complete solutions which are ready to use, with software suitable for application in industry. In this way the rich information provided by the THz-TDS can be exploited without the requirement of a THz expert on site.

Current Stage of Development*

- | | |
|--|--|
| <input checked="" type="checkbox"/> Under development /laboratory tested | <input type="checkbox"/> Field tested / evaluated |
| <input checked="" type="checkbox"/> Available for demonstration | <input type="checkbox"/> Prototype available for demonstration |
| <input type="checkbox"/> Already on the market | <input type="checkbox"/> Concept stage |

Comments Regarding Stage of Development: transportable prototype under development, laboratory fully operational including services

Intellectual Property Rights Status*:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Patent(s) applied for but not yet granted | <input type="checkbox"/> Secret know-how |
| <input checked="" type="checkbox"/> Granted patents | <input checked="" type="checkbox"/> Exclusive rights |
| <input type="checkbox"/> Copyright | <input type="checkbox"/> Trade Marks |
| <input type="checkbox"/> Design rights | <input type="checkbox"/> Others (registered design, plant variety, etc.) |



Comments Regarding IPR Status:
patent application / grant in China, Europe, India, Japan, South Korea, USA

Preferred Countries for Dissemination:

DETAILS OF YOUR OWN ORGANISATION/COMPANY

Type* Industry R&D Institution University Private Inventor

Other: please specify

Comments:

Organisation/Company Size* (please tick one box) < 10 employees 11-50 employees
 51-250 employees 251-500 employees > 500 employees

Year Established: 2017

Turnover (only for business profiles): < 1 mio 1 – 10 mio
 10 – 20 mio 20 – 50 mio 50 - 100 mio

Already Engaged in Trans-National Cooperation Yes No

Experience Comments:

Certification Standards:

Languages Spoken: French, german, english

COLLABORATION DETAILS

Type of partnership considered:

Technology Offers

Commercial Agreement with technical assistance (an agreement arranging the acquisition of a product/technology paired with the provision of a number of services in support of a transfer of technology)

Joint Venture Agreement

License Agreement

Technical co-operation agreement

Research co-operation agreement

Business Offers

Distribution services agreement

Acquisition agreement

Franchise agency agreement



- Manufacturing agreement
- Outsourcing agreement
- Subcontracting
- Financial agreement
- Services Agreement

Type and Role of Partner Sought*:

- Type of partner sought (*such as industry, academy, research organisation*):
Industry / in biomedical sector also research organisation
- Specific area of activity of the partner (*example: manufacturer/distributor/user/disposal of plastic packages etc.*)
 - 1) end user or producer of fabrication tools or production lines
 - 2) big player in biomedical sector

Size and Type of Partner Sought (e.g. industry, research):

Additional information (pictures)

CONTACT

Please contact the RespiceSME coordinator Samantha Michaux for the contact data of the company.

Samantha Michaux
Steinbeis 2i GmbH

michaux@steinbeis-europa.de

