

**NON-DESTRUCTIVE  
ANALYSIS & CONTROL  
INTO THE MATTER**



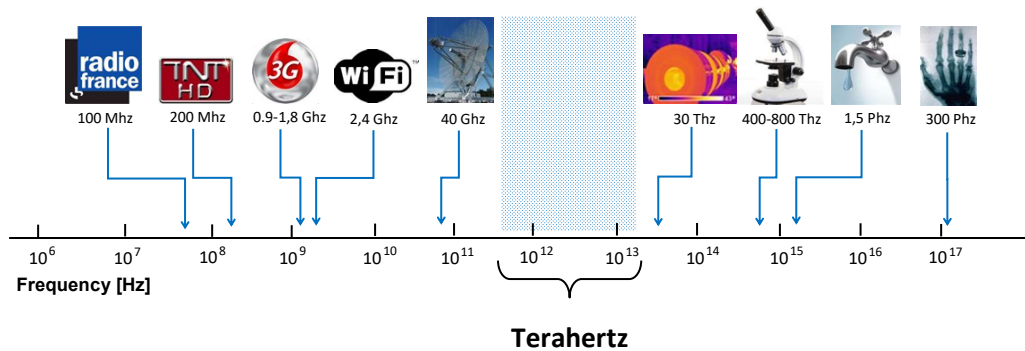
**R&D DEVELOPMENTS  
SOLUTIONS  
AND SERVICES**

# DESIGN & MANUFACTURING—TeraHertz deployable solutions for industry and science

Based upon **10 years of experience in TeraHertz optronic technologies**, our engineers and researchers ensure the design and development of generic or customized systems for the analysis or control of materials. Based on material samples, we demonstrate the feasibility and performance of our solutions on **our technological platform**.

Our partnership with the **CNRS and the University of Montpellier**, combined with our expertise in technology transfer, allows us to propose very innovative solutions while meeting the requirements of industrial and scientific applications.

## ► A new domain of electromagnetic waves with huge potential of applications



## ► Disruptive innovations in the field of non destructive analysis and control



### PROVIDES DATA

- Inner structural
- 3D + spectral
  - Real-time
- At a macromolecular scale



### BY A MEAN

- Contactless
- Non destructive
  - Harmless
- Non invasive



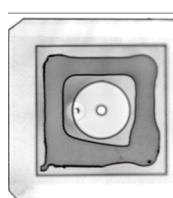
### FOR APPLICATIONS

- Content measurement, density
  - Thickness measurement
  - Imaging, tomography
  - Spectrometry

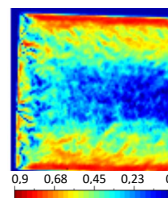
## Examples of TeraHertz analysis and control



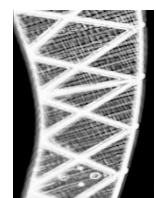
Control of a polymer-composite adhesive bond



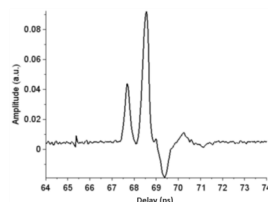
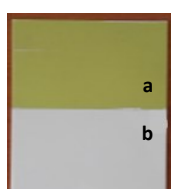
< Injection direction



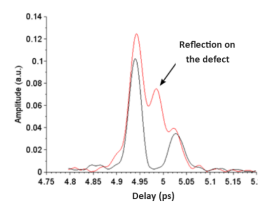
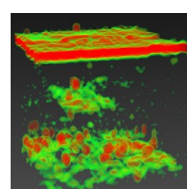
Fibers alignment rate in a composite material



Defect control in composite material with fabrics reinforcements



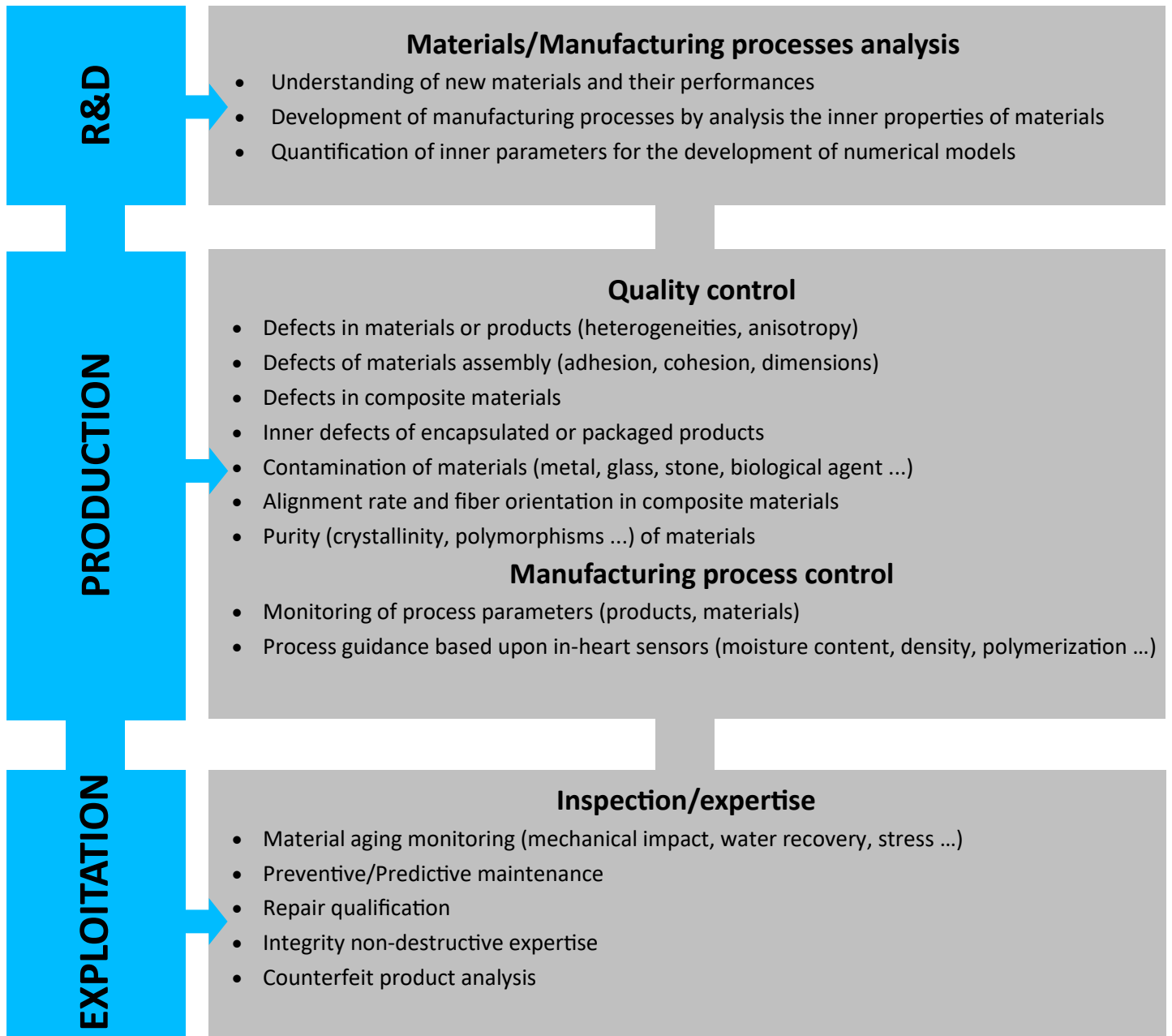
Thickness measurement of multilayer coating on carbon-epoxy composite



Mapping of delamination in the depth of a composite patch

## IMPROVING SCIENTIFIC AND INDUSTRIAL PERFORMANCE

### ► For automatic applications or providing assistance to operators



### ► For various applications, matter focused or manufacturing process focused

MATTERS
Polymers, Rubbers, Foams
Ceramics, Glasses
Composites, Honey comb Sandwiches
Wood, Papers, Cardboards
Plasters, Cements
Semi-conductors

PROCESSES
Assembling, Separation
Multi-layer coating
Addition of reinforcement, Fillers
Drying, Hydration, Heating
Welding, Gluing
Coating, Packaging

## ► OUR COMPETENCIES

- Opto-electronics
- Mechanical
- Physics, chemistry of materials
- Software development
- Signal & image processing
- Systems engineering

## ► OUR SOLUTIONS

- Measurement of water content
- Measurement of filler content
- Heterogeneity imaging
- Anisotropy imaging
- Thickness measurement
- Spectrometry

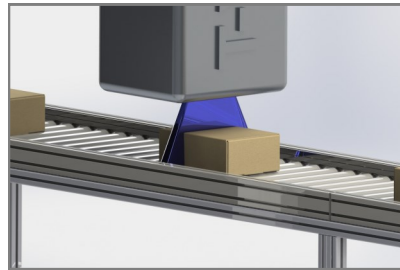
## ► OUR EQUIPMENT OF ANALYSIS AND CONTROL

### IN-DEPTH



TK-LAB RANGE

### FAST



TK-LINE RANGE

### PORTABLE



TK-FIELD RANGE

## ► OUR SERVICES

- Feasibility studies - Tests on samples
- Technical specification elaboration
- Prototyping
- Design & development
- Assistance to commissioning
- Training

## ► OUR TECHNICAL MEANS

- Multidisciplinary team
- Materials characterization platform
- TeraHertz waves simulation software
- TeraHertz multimodal analysis benches
- Oven with controlled temperature and humidity

## ► CONTACT



### TERAKALIS

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