EPIC Online Technology Meeting on mid-IR Technologies for industrial manufacturing

14 June 2021

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NIT
New Infrared Technologies

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New Infrared Technologies: A vertically integrated company supplying innovative mid-IR detectors, cameras and industrial solutions

New Infrared Technologies (NIT) is a company located in Madrid (Spain), which develops and commercializes industrial solutions for real-time process monitoring and smart control of industrial processes.

These solutions are based in **self-produced infrared cameras** manufactured with a unique proprietary technology (sensitive in the **medium wavelength infrared - MWIR, 1 - 5 microns, high-speed capabilities and uncooled operation at room temperature)**, and **thermal uncooled cameras** sensitive in **LWIR (8 – 14 microns).**

Proud member of:

New Infrared Technologies: Product and Solutions portfolio targeted to Integrators, Solution Developers and End-users

Single pixel

Linear array (256 px)

OEM modules (1x256, 32x32)

TACHYON 1024 microCAMERA

CLAMIR & I3MS monitoring system

Quality assurance of L-DED 3D metal printing

Closed-loop control of laser power

Real time monitoring of melt pool width

Direct integration in laser optics

Winner of the Innovation Radar Prize 2018, category 'Industrial & Enabling Tech', awarded by the European Commission

High-speed uncooled MWIR camera TACHYON 16k CAMERA PLUS

128x128 px, pixel size: 50 um, uncooled operation

Max. frame rate @128x128: 4,000 fps

Snapshot acquisition

GigE VISION & GenICam compliant

Power-over-Ethernet

GiGE VISION

GENICAM

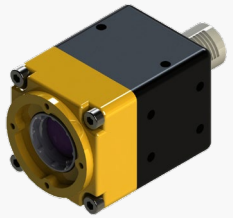
PoE Power over Ethernet

Thermal camera LIR320

Thermal measurements

Compact design

USB comm's and power

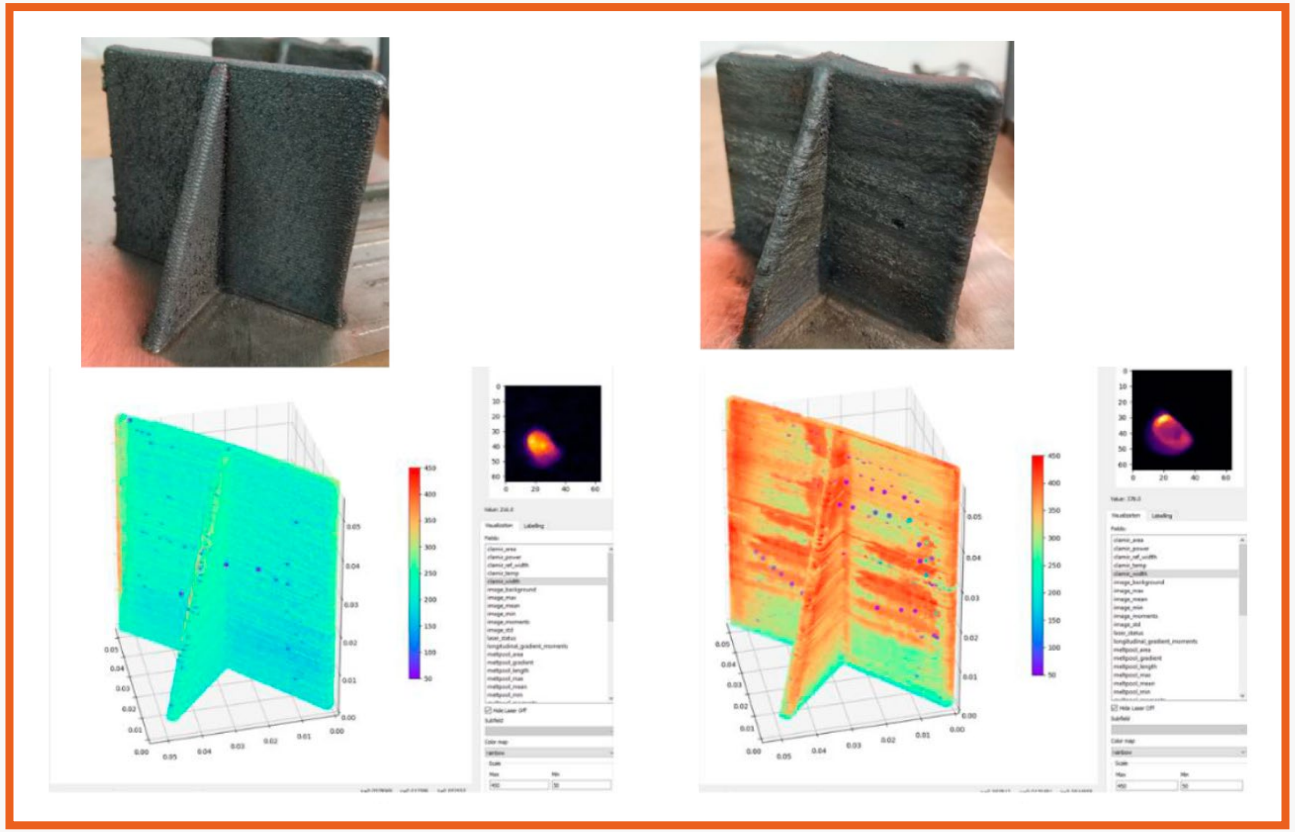


CLAMIR for L-DED LMD process control

- **Continuous closed-loop control of the laser power avoids overheating** of the part under process and allows a **continuous and high-quality manufacturing process**

- **Use of CLAMIR** reduces rates of defective parts, material use and energy than uncontrolled processes. It can also help to **optimize the process and improve the productivity**.

- Compatible with **EHLA** (high-speed process)



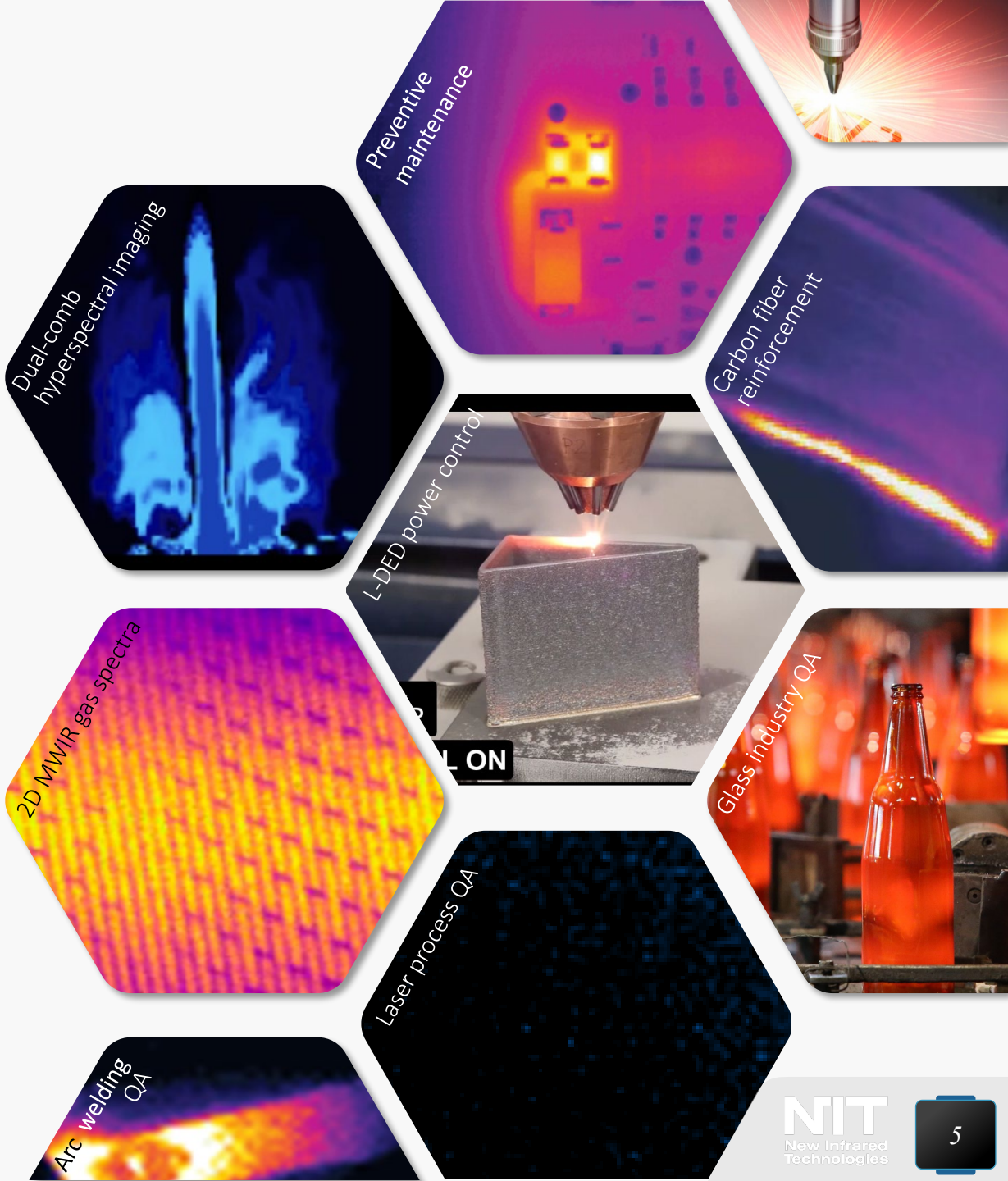
3D part thermal gradient reconstruction using information provided by CLAMIR*
Left: the part is built using CLAMIR laser power control
Right: the part is built with constant laser power and NO control

** '3D thermal mapping during AM by LMD towards better part quality', C. Prieto et al, presented at LIM / LWofPh 2019*
Work completed under INTEGRADDE project, EC grant agreement No 820776

New Infrared Technologies: mid-IR applications for Industrial Manufacturing

- **Many applications in multiple industries:** automotive, aerospace, steel, among others
- **Quality assurance of laser-based processes:**
  - Laser DED 3D metal printing & laser cladding process monitoring and control
  - Laser welding with real-time Machine Learning processing
  - SLM processes (melt pool geometry, position and cooling rate monitoring)
  - Hardening & surface structuring process control
- **Arc welding & WAAM process monitoring and control**
- **Glass manufacturing quality control**
- **Spectroscopy & dual-comb hyperspectral imaging**
- **Strong collaboration with the industry through H2020 projects**

integradde Custodian LAMPAS



NIT

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