

# Press Release

InfraTec GmbH Infrarotsensorik und Messtechnik

Dresden, 13/09/2022

## Online Event: Efficient Material Testing – Non-destructive and Contactless Thermoelastic Stress Analysis with Thermography

Conventional but especially the growing additive manufacturing processes – both in the prototype stage and in industrial production – require increasing quality control of the final products. These are mandatory to verify the properties of the material and the parts produced from it. In addition to the common destructive tests, non-destructive methods are increasingly being used, also in order to be able to expose series parts to real loads without gaps and to detect weak points.

The conceptual design of components modelled by the constructor needs to be validated by stress tests before used in practice. One of the established test methods is the measurement of deformation using strain gauges, which are attached to critical points of a component. However, apart from the time-consuming preparation, this method only provides little punctual information. At this point, thermo-elastic stress analysis based on high-resolution thermal images offers significantly more advantages. With the help of the latest thermographic cameras, which make use of cooled or uncooled infrared focal plane array detectors with up to 5.2 megapixels, even intricately shaped test objects can be analysed very efficiently and non-invasive. Based on the physical fact that materials show a thermal reaction when deformed, the cameras capture the resulting thermal signatures on the object contactless in just one inspection process. For this purpose, it is periodically stimulated by an external mechanical force, whereby the internal stress distribution can be visualised and analysed almost instantaneously. With the lock-in method, even the smallest thermal reactions of < 1mK can be registered.

In the InfraTec online event “Efficient Material Testing – Non-destructive and Contactless” participants are given an overview of this contactless and non-destructive method. The physical background, the measuring principle and the used technology are presented along with examples.

### Online Event

#### “Efficient Material Testing – Non-destructive and Contactless”

with a technical lecture from thermography practice

***“Contribution of Thermoelastic Stress Analysis in  
mechanics of materials and structures: some illustrations.”***

Speaker: Dr.-Ing. Habil. Vincent Le Saux; École Nationale Supérieure de Techniques Avancées Bretagne

Date: Wednesday, October 26<sup>th</sup>, 2022 / Time: 4:00 PM – 5:30 PM EDT (22:00 – 23:30 CEST)

Registration: <https://register.gotowebinar.com/register/3061696100542146318?source=PR2>

Date: Wednesday, October 26<sup>th</sup>, 2022 / Time: 3:00 PM – 4:30 PM (CEST)

Registration: <https://register.gotowebinar.com/register/6761349317783599627?source=PR2>

#### Headquarters

InfraTec GmbH  
Infrarotsensorik und Messtechnik  
Gostritzer Straße 61 – 63  
01217 Dresden / GERMANY

Phone +49 351 82876-610  
Fax +49 351 82876-543  
E-mail thermo@InfraTec.de  
[www.InfraTec.eu](http://www.InfraTec.eu)

#### USA office

InfraTec infrared LLC  
5048 Tennyson Pkwy.  
Plano TX 75024 / USA

Phone +1 844-226-3722 (toll free)  
E-mail thermo@InfraTec-infrared.com  
[www.InfraTec-infrared.com](http://www.InfraTec-infrared.com)

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**Information:** 2,495 characters (incl. spaces)

### About InfraTec

The InfraTec infrared sensor and measurement technology company was founded in 1991 and has its headquarters in Dresden, Germany. The privately held company employs more than 200 employees and has its own design, manufacturing and distribution capabilities.

Infrared sensors, with electrically tunable filters based on MOEMS, count among the products of the infrared sensor division, next to spectrally single and multi-channel infrared detectors. These detectors can be used in gas analysis, fire and flame sensor technology and spectroscopy.

With its infrared measurement business unit, InfraTec is one of the leading suppliers of commercial thermal imaging technology. In addition to the high-end camera series ImageIR® and the VarioCAM® High Definition series, InfraTec offers turnkey thermographic automation solutions.

### Contact

Company address:	InfraTec GmbH Infrarotsensorik und Messtechnik Gostritzer Str. 61 – 63 01217 Dresden	Phone	+49 351 82876-610
		Fax	+49 351 82876-543
		E-mail	thermo@InfraTec.de
		Internet	www.InfraTec.de

### Image



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