EMRP-PROJECT VITCEA

Defects in FRP structures may be introduced during the processing and fabrication of composite components and can initiate or grow in-service. In the context of this JRP, the term ‚defect' refers to imperfections introduced during manufacture/processing and/or secondary machining operations, as well as damage sustained during a component's service life. One of the challenges facing accurate and repeatable defect detection in FRP composites is the multitude of defect types that exist, each with characteristics that present different challenges to the NDE practitioner. In order for a particular NDE technique to achieve broad acceptance by industry, it is desirable for the technique to be able to detect a range of defect types with a high level of confidence. Project VITCEA (Validated Inspection Techniques for Composites in Energy Applications) is developing and validating traceable procedures for novel NDE techniques with contrasting detection capabilities, which will underpin the increased use of FRP composites for improved efficiency and reliability in energy related applications e.g. wind and marine turbine blades, nacelles, oil and gas flexible risers.

http://projects.npl.co.uk/vitcea/

EURAMET

ORGANISATION

Location
Bundesanstalt für Materialforschung
und -prüfung (BAM)
House 6, Room 217
Unter den Eichen 87
12205 Berlin, Germany

Registration
claudia.behm@bam.de
christiane.maierhofer@bam.de
+49 30 8104-1809

Hotels
https://hotel.berlin.de/BerlinOnlineUKV/ukv/search?lang=en
http://www.ravenna-hotel.de/
http://www.si-hotel.com
http://www.seminaris.de/hotels/seminaris-campushotel-berlin.html

Fees
Fees for the Training Course are not required. Coffee is included. Lunch and dinner have to be paid by the participants.

Bundesanstalt für Materialforschung
und -prüfung (BAM)
Unter den Eichen 87
12205 Berlin, Germany

info@bam.de

20170207

BAM
Bundesanstalt für Materialforschung und -prüfung

Sicherheit in Technik und Chemie

Non-destructive testing of fiber reinforced polymers

TRAINING COURSE
ULTRASONICS AND ACTIVE THERMOGRAPHY

March 28 to 30, 2017

SCOPE AND CONTENT

The training course

Within the training course, the knowledge gained within the EMRP-project VITCEA on the development and validation of ultrasonic and active thermography will be presented. Lectures are given on the basics of both methods which have to be considered when these methods are applied to fiber reinforced composite structures. Carbon fibers as well as glass fibers and different matrix systems are considered. In the afternoon of each day, the participants can join practical works in the laboratories with the different techniques. For ultrasonics, phased array techniques and air coupled ultrasonics are available. For active thermography, flash and lock-in excitation will be presented. Further on, different methods for data analysis as well as analytical and numerical simulations will be discussed.

Target group

Students, young scientists, engineers and technicians from universities, research institutes, SMEs and industrial companies are invited to join this training course. The course is particularly suited for people who plan to use and/or to apply NDT methods for testing of structure made of fiber reinforced polymers.

NPL National Physical Laboratory

PTB

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CMI CZECH METROLOGY INSTITUTE

PROGRAM

Tuesday, March 28 2017

9:30	Reception and coffee
10:30	Introduction to the EMRP-Project VITCEA
12:00	Lunch
13:00	Basics of ultrasonics applied to CFRP and GFRP structures
14:30	Coffee break
15:00	Practical work on ultrasonic phased array in the laboratories of BAM 8.4
17:30	End

Wednesday, March 29 2017

8:30	Ultrasonic phased array: Data acquisition and analysis
10:00	Coffee break
10:30	Standardization of NDT methods, operational procedures
12:00	Lunch
13:00	Air coupled ultrasonics: Theory and experimental realization
14:30	Coffee break
15:00	Practical work on air coupled ultrasonics in the laboratories of BAM 8.4
17:30	End
19:00	Dinner in a restaurant close to BAM

PROGRAM

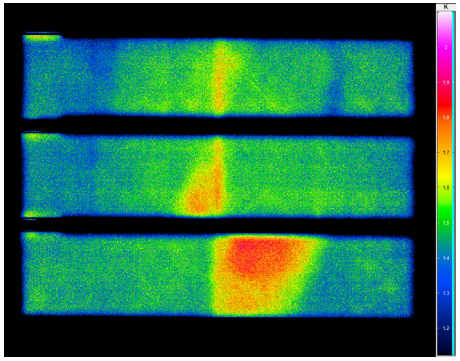
Thursday, March 30 2017

8:30	Basics of active thermography applied to CFRP and GFRP
10:00	Coffee break
10:30	Theory and data analysis of pulse and lock-in thermography
12:00	Lunch
13:00	Flash and lock-in thermography, practical work in the laboratories of BAM 8.7
15:00	Coffee and discussion
15:30	End of the training course

Lecturers

BAM 8.4:
Thomas Heckel, Mate Gaal, Florian Schadow, Dirk Gohlke, Daniel Brackrock

BAM 8.7:
Christiane Maierhofer, Rainer Krankenhagen, Mathias Röllig, Sreedhar Unnikrishnakurup



Thermograms of delaminations in CFRP