Workshop: Reinforced Thermoplastics in Lightweight Structures and their Welding

Date: Wednesday, 15. May 2019
10:00 - 16:00

Location: OTH Regensburg, Germany
Room A 003

Contact

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Registration
Registration until 30. April 2019
by e-mail with the information
title, first name, name, company / institution
to Marco Siegl, M.Sc. (OTH Regensburg).
The number of participants is limited.
There is no participation fee.


Information
This workshop is part of the project Thermoplastic Composite Structures (TheCoS - project number 103), which is funded by the European Union-European Regional Development Fund (ERDF) for cross-border cooperation between the Free State of Bavaria and the Czech Republic with the aim of European Territorial Cooperation (ETC) 2014-2020 under the INTERREG V-A program.

Fiber-Reinforced Thermoplastics
Thermomechanical Properties
Laser Welding of Plastics
Measurements of Temperature and Optical Properties
Workshop Content

Composite Technology

Fiber-reinforced thermoplastics
Impregnation technology and winding process
- Impregnation technology of rovings with thermoplastics
- Viscosity models of thermoplastics
- Consolidation of organotapes
- Winding process for producing fiber-reinforced thermoplastic tubes

Thermomechanical properties of fiber-reinforced thermoplastics
- Rheology of thermoplastics
- Oxidation stability
- Viscoelastic properties
- Structural characterization

Laser Welding

Laser transmission welding of fiber-reinforced plastics
- Simulation and validation of a process model for laser transmission welding
- Influence of thermal decomposition on weld joint strength

Workshop Program

Wednesday, 15. May 2019
10:00 - 10:10
Welcome
Prof. Dr.-Ing. Ingo Ehrlich
Head of Laboratory Composite Technology, OTH Regensburg

Composite Technology
10:10 - 10:50
Impregnation Technology and Winding Process of Fiber-Reinforced Thermoplastics
Marco Siegl, M.Sc.
Research Associate, Laboratory Composite Technology, OTH Regensburg

10:50 - 11:20
Demonstration Winding Process of Fiber-Reinforced Thermoplastics
Sven Ladewig, M.Sc.
Research Associate, Laboratory Composite Technology, OTH Regensburg

11:20 - 11:30
Coffee Break

11:30 - 12:00
Thermomechanical Properties of Fiber-Reinforced Thermoplastics
Ing. David Rieger, Ph.D.
Researcher, Department Engineering of Special Materials, New Technologies - Research Centre, University of West Bohemia

Workshop Content

Temperature and optical properties measurement in laser welding of plastics and composites for quality inspection
- Infrared cameras and pyrometer with different wavelengths
- Temperature measurement on surface and in fusion zone
- Transmittance, reflectance, scattering and absorption coefficient
- Quality inspection methods and software

Workshop Program

12:00 - 12:30
External Presentation
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12:30 - 13:30
Lunch

Laser Welding of Composites
13:30 - 14:00
Simulation based Process Design
Johannes Käsbaeuer, M.Sc.
Research Associate, Laboratory Laser Material Processing, OTH Regensburg

14:00 - 14:30
Temperature and Optical Properties Measurement in Laser Welding of Plastics and Composites for Quality Inspection
Doc. Ing. Jiří Martan, Ph.D.
Senior Researcher, Department Thermomechanics of Technological Processes, New Technologies - Research Centre, University of West Bohemia

14:30 - 14:40
Coffee Break

14:40 - 15:10
Laser Welding of Continuous Reinforced Plastics
Korbinian Schröcker, M.Eng.
Research Associate, Laboratory Laser Material Processing, OTH Regensburg

15:10 - 15:40
Scan-Systems with In-Situ Temperature Measurement from ARGES
Daniel Schwab, M.Sc.
ARGES GmbH

15:40 - 15:50
Closing Words
Prof. Dr.-Ing. Stefan Hierl
Head of Laboratory Laser Material Processing, OTH Regensburg