

# Thursday, 21<sup>st</sup> September

Registration from 09:00 am

**Welcome and Opening  
Keynote speeches**

Lunch

## Session 1.1

Preform Materials, Semi-Finished Products and Composite Structures

## Session 2.1

Processing, Systems and Application for Mass Production

## Session 4.1

Smart Systems Integration

Networking coffee

## Poster session

## Session 2.2

Processing, Systems and Application for Mass Production

## Special Session

International Lightweight Innovation Networks

Networking coffee

## Session 3.1

Modelling and Simulation of Hybrid Structures and their Production Processes

## Session 1.2

Bio-based Composite Structures

Conference dinner at pumpwerk eins  
Best Paper/Poster Award

Parallel Events

SAB-Meeting (only for Members of the Scientific Advisory Board)

17:00 - 18:00

# Friday, 22<sup>nd</sup> September

Registration from 08:30 am

## Session 1.3

Interface Design, Adhesives and Joining Technologies

## Session 2.3

Processing, Systems and Application for Mass Production

## Session 4.2

Smart Systems Integration

Guided tour MERGE Technology Centre

Lunch

## Session 3.2

Modelling and Simulation of Hybrid Structures and their Production Processes

## Session 2.4

Processing, Systems and Application for Mass Production

Networking coffee

## Session 4.3

Smart Systems Integration

## Session 1.4

Preform Materials, Semi-Finished Products and Composite Structures for Lightweight Design

Discussion/Closing remarks

Parallel Events

„MERGE Unternehmerforum“ including World-Café



10:00 - 14:00

10:00 - 12:00

13:00 - 14:30

15:00 - 16:30

17:00 - 18:00

19:30

09:30 - 11:00

11:00 - 13:00

13:00 - 14:30

15:00 - 16:30

# Programme Thursday, 21<sup>st</sup> September

Registration from 09:00

Welcome/Opening/Keynote Speeches/Parallel Sessions/SAB-Meeting/Conference Dinner

from **Registration** Central Lecture Hall Building: Foyer  
09:00

**10:00 Opening** Central Lecture Hall Building: N114  
Prof. Lothar Kroll, Coordinator Cluster of Excellence MERGE  
Prof. Gerd Strohmeier, President of Chemnitz University of Technology

## Welcome

Uwe Gaul, Saxon State Secretary, Ministry for Higher Education, Research and the Arts

Sören Uhle, Managing Director of Economic Development Corporation,  
City of Chemnitz

## Keynote speeches

### Materials Meet Changes in Automotive Applications

Dr. Olaf Täger, Volkswagen Aktiengesellschaft

### Industry 4.0: Impacts on control and switchgear construction

Uwe Scharf, RITTAL GmbH & Co. KG

## 12:00 Lunch

Parallel Sessions 13:00 - 14:30

Session 1.1 Preform Materials, Semi-Finished Products and Composite Structures		Chairman: Prof. Daisy Nestler Room: N111		Session 2.1 Processing, Systems and Application for Mass Production of Lightweight Structures		Chairman: Prof. Wolf-Guntram Drossel Room: N112		Session 4.1 Smart Systems Integration		Chairman: Prof. Sven Rzepka Room: N113	
13:00	<b>Tailored fibre placement in thermoplastic composites</b> Dr. A. Spickenheuer, et al., Leibniz Institute of Polymer Research Dresden; R. Haase, Fraunhofer IWU; D. Garray, SIRRIIS (BE)	13:00	<b>Additive manufactured structures with improved properties for tissue engineering</b> Prof. A. Lanzotti, M. Martorelli, Fraunhofer JL IDEAS—University of Naples Federico II; A. Gloria, National Research Council of Italy (I)	13:00	<b>Development of activated carbon web for effective EMI shielding applications</b> Dr. V. Baheti, Prof. J. Miltky, S. Naaem, et al., Technical University of Liberec (CZ)						
13:25	<b>Comparison of manufacturing fiber metal laminates based on thermoplastic and thermosetting material: Analyses of mechanical properties and economic effects</b> M. Trautmann, C. Symmank, Dr. A. Schmidt, et al., CUT	13:25	<b>The most filigree structure made by remote laser cutting</b> B. Baumann, Prof. E. Beyer, Technische Universität Dresden, Fraunhofer IWS; Dr. P. Herwig, et al., Fraunhofer IWS	13:25	<b>Integrated platform for advanced smart textile applications</b> Dr. H. Illing-Guenther, F. Weigand, et al., Saxon Textile Research Institute; F. Ebert, CUT						
13:45	<b>Automated orbital winding of fiber reinforced structural components</b> B. Wallasch, R. Tirschmann, C. Teichgraber, CUT	13:45	<b>New additive manufacturing technology for fiber reinforced plastics in skeleton structure</b> M. Holzinger, BMW Group; J. Blase, Fraunhofer IWU; Prof. L. Kroll, CUT	13:45	<b>Enhanced lightweight design by composites: Results of the EU project ENLIGHT</b> Dr. D. Mayer, Prof. T. Bein, Fraunhofer LBF						
14:10	<b>Influence of the cooling behaviour on the mechanical properties of hybrid laminates with carbon fibre-reinforced plastics</b> C. Zopp, Prof. D. Nestler, et al., CUT; S. Nendel, Cetex Institute of textile- and processing machines non-profit GmbH	14:10	<b>High-performance machining of fiber-reinforced materials with hybrid ultrasonic-assisted cutting</b> Dr. A. Stoll, C. Rüger, A. Busch, et al., Fraunhofer IWU	14:10	<b>Hybrid hierarchical composite material based on carbon nanostructures</b> E. Y. Matsubara, J. M. Rosolen, University of São Paulo (BR)						

## 14:30 - 15:00 Networking coffee

Parallel Sessions 15:00 - 16:30

Session 2.2 Processing, Systems and Application for Mass Production of Lightweight Structures		Chairman: Dr. Rafael Codeiro Room: N112		Special Session International Lightweight Innovation Networks		Chairman: Dr. Katharina Schöps Room: N113		Poster Session		Chairman: Dr. Verena Kräusel Room: N111	
15:00	<b>FAUSST: Bridging the gap between steel and fibre reinforced materials</b> Dr. B. Luterbacher, Dr. L. Molter, Center of Maritime Technologies e.V.	15:00	<b>European future challenges for lightweight innovation networks</b> Dr. J. Tröltzsch, Scientific Director Cluster of Excellence MERGE, CUT								
15:25	<b>Advanced joining technology for the production of highly stressable lightweight structures, with fiber-reinforced plastics and metal</b> Prof. H. Seidlitz, F. Kuke, N. Tsombanis, Brandenburg University of Technology Cottbus-Senftenberg	15:25	<b>MERGEurope: Lightweight Innovation Network mastering the challenges</b> A. Bochmann, Project coordinator MERGEurope, CUT								
15:45	<b>Investigation of integral endless fibre reinforced aluminium-polyamide 6 hybrid joints</b> B. Van der Auwera, et al., Fraunhofer IFAM; T. Gebken, et al., Braunschweig University of Technology; M. Busse, University of Bremen	15:45	<b>Good practice for Lightweight Innovation Networks in Upper Austria</b> Mag. B. Löw-Baselli, Johannes Kepler University of Technology <b>A2LT – Austrian Advanced Lightweight Technology</b> F. Danmayr, Automotive Cluster of the Business Upper Austria agency								
16:10	<b>Life Cycle Engineering and Management methods for designing hybrid structures: Cases, potentials and challenges</b> Prof. U. Götze, C. Symmank, Dr. A. Schmidt, CUT	16:10	<b>Good practices for pan european cooperation in lightweight application</b> N. N.								

## 16:30 - 17:00 Networking coffee

Parallel Sessions 17:00 - 18:00

Session 3.1 Modelling and Simulation of Hybrid Structures and their Production Processes		Chairman: Prof. Jörn Ihlemann Room: N111		Session 1.2 Bio-based Composite Structures		Chairman: Prof. André Wagenführ Room: N112		SAB Meeting (only for Members of SAB) Room N113	
17:00	<b>Methodological approach to investigate the behavior of the structure under dynamic loading using multiple criteria decision making method</b> J. Oleksik, S. Natarajan, Prof. T. Vietor, Technical University of Braunschweig	17:00	<b>Optimisation of fibre reinforced plastics by using the life cycle engineering methodology</b> Dr. J. Kaufmann, CUT, silbaerg GmbH; Prof. I. Ribero, et al., Instituto Superior Técnico (P); Prof. U. Götze, et al., CUT						
17:20	<b>Lightweight car door made out of a net shape and load adapted hybrid fabric</b> M. Fleischmann, L. Bratge, et al., CUT; Dr. A. Spickenheuer, Leibniz Institute of Polymer Research Dresden	17:20	<b>Investigation of bio-based polyamide with short fibers for lightweight structures</b> Dr. B. Rinberg, T. Hartmann, et al., CUT; A. Nikiforov, et al., Kazan National Research Technological University (RUS)						
17:40	<b>Residual stress analysis of fibre-reinforced structures with fibre BRAGG grating sensors</b> E. Peretzki, N. Schramm, Prof. J. Ihlemann, et al., CUT	17:40	<b>Natural fibre reinforced biocomposites: Innovative and optimized processes for series production</b> A. A. Quali, Dr. R. Rinberg, Prof. W. Nendel, et al., CUT						

## 19:30 Conference dinner at pumpwerk eins

### Dinner speeches

Thomas Schmidt, Saxon State Minister of Environment and Agriculture  
Frank Heinrich, Member of the German Bundestag

Awarding of Best Paper & Poster Awards

Subject to alternation.

# Programme Friday, 22<sup>nd</sup> September

Registration from 08:30

Parallel Sessions/Tour MERGE Technology Centre/"MERGE Unternehmerforum"

Parallel Sessions 09:30 - 11:00

<b>Session 1.3</b> Interface Design, Adhesives and Joining Technologies		Chairman: Prof. Thomas Lampke Room: N111
09:30	<b>Adhesive bonding of CFRP-Steel lightweight constructions for car body mass production</b> <u>R. Dietrich</u> , BMW Group; Dr. H. Körber, Prof. K. Drechsler, Technical University of Munich	
09:55	<b>Cold surface treatments on fiber-reinforced plastics by pulsed laser</b> <u>J. Gebauer</u> , V. Franke, Dr. U. Klotzbach, et al., Fraunhofer IWS	
10:15	<b>Prefinished metal polymer hybrid parts</b> <u>Dr. I. Kühnert</u> , Dr. M. Gedan-Smolka, et al., Leibniz Institute of Polymer Research Dresden; P. Scholz, et al., Fraunhofer IWU	
10:40	<b>Microstructuring of joining areas in aluminum alloy sheets by jet electrochemical machining</b> <u>R. Schimmelpfennig</u> , Dr. M. Hackert-Oschätzchen, A. Martin, et al., CUT	

<b>Session 2.3</b> Processing, Systems and Application for Mass Production of Lightweight Structures		Chairman: Prof. Holger Seidlitz Room: N112
09:30	<b>Lightweight piston design in hand-held power tools</b> <u>Dr. C. Karrar</u> , S. Meuser, Dr. A. Wolf, ANDREAS STIHL AG & Co. KG	
09:55	<b>Evaluation of process chains for manufacturing hybrid structures in early design stages: A source of impulses to R&amp;D activities</b> <u>J. Boll</u> , A. Graf, L. Markov, et al., CUT	
10:15	<b>Product-oriented turn-key solutions for fiber-reinforced thermoplastic components</b> <u>Dr. M. Cetin</u> , KraussMaffei Automation GmbH; <u>S. Fenske</u> , KraussMaffei Technologies GmbH	
10:40	<b>Multifunctional FRP-aluminium foam setup for battery housings of electric vehicles</b> <u>B. Schmerler</u> , C. Lies, et al., Fraunhofer IWU; T. Gebken, et al., Braunschweig University of Technology	

<b>Session 4.2</b> Smart Systems Integration		Chairman: Prof. Jan Mehner Room: N113
09:30	<b>Material-integrated composite humidity sensors for condition monitoring of fiber-reinforced plastics</b> <u>Dr. J. Martin</u> , et al., Fraunhofer ENAS; K. Shetty, et al., CUT; S. Neukirchner, et al., Saxon Textile Research Institute	
09:55	<b>Development and characterization of highly sensitive thin film strain sensors consisting of nickel-carbon composite for integration in thermoplastic-based hybrid laminates</b> <u>C. Karapepas</u> , Prof. D. Nestler, Dr. D. Wett, et al., CUT	
10:15	<b>Design and economic evaluation of synthetic jet actuators for the integration in heterogeneous composite structures</b> <u>M. Schüller</u> , M. Lipowski, et al., Fraunhofer ENAS; M. Walther, et al., CUT	
10:40	<b>Additive manufacturing of capacitive humidity sensors by screen printing for condition monitoring of FRP composites</b> <u>T. Seifert</u> , Dr. J. Martin, et al., Fraunhofer ENAS; Prof. T. Otto, CUT	

11:00 - 13:00 Guided tour MERGE Technology Centre, Lunch

Parallel Event 10:00 - 14:00

"MERGE Unternehmerforum" including World-Café Room N005

Parallel Sessions 13:00 - 14:30

<b>Session 3.2</b> Modelling and Simulation of Hybrid Structures and their Production Processes		Chairman: Dr. Sascha Müller Room: N111
13:00	<b>Modelling the deformation of continuous fibre-reinforced thermoplastics subjected to hygrothermal loading</b> <u>T. Grätzl</u> , M. Hille, BMW Group; N. Schramm, et al., CUT	
13:25	<b>Integrating models for fiber reinforced materials into finite element simulations</b> <u>Dr. M. Hofmann</u> , R. Dietze, N. Goldberg, et al., CUT	
13:45	<b>Simulation of solid tire curing process for quality improvement</b> Asst. Prof. A. Chaikittirattana, et al., King Mongkut's University of Technology North Bangkok (TH)	
14:10	<b>Modelling damage and failure in composite materials with probabilistic approach</b> <u>Prof. V. V. Astanin</u> , Dr. G. O. Shchegel, National Aviation University Kyiv (UA)	

<b>Session 2.4</b> Processing, Systems and Application for Mass Production of Lightweight Structures		Chairman: Dr. Jürgen Tröltzsch Room: N112
13:00	<b>Automated composite production - in-situ processing of (epsilon) caprolactam and structures made of thermoplastic tapes</b> <u>Dr. N. Müller</u> , Dr. L. Reith, P. Zwickhuber, ENGEL AUSTRIA GmbH (AT)	
13:25	<b>Smart process combination for aluminium/plastic hybrid components</b> <u>A. Albert</u> , W. Zorn, et al., Fraunhofer IWU; M. Layer, et al., CUT	
13:45	<b>Potentials of the modular injection molding system solution MXW 2500 for lightweight and multi-material moldings</b> <u>S. Fenske</u> , KraussMaffei Technologies GmbH; Prof. W. Nendel, CUT; Dr. V. Reichert, A&E Produktionstechnik GmbH	
14:10	<b>Multi-material design for a physiologically optimised lightweight car seat</b> <u>S. Ren</u> , K. Schäfer, Prof. D. Nestler, et al., CUT	

14:30 - 15:00 Networking coffee

Parallel Sessions 15:00 - 16:30

<b>Session 4.3</b> Smart Systems Integration		Chairman: Dr. Steffen Kurth Room: N113
15:00	<b>Investigation on inkjet printing for electromagnetic compatibility application</b> <u>M. Hartwig</u> , M. Polomoshnov, et al., CUT; Dr. R. Zichner, et al., Fraunhofer ENAS	
15:25	<b>Realization of sensitive functionality by integration of electromagnetic resonators in composite materials</b> <u>T. D. Großmann</u> , et al., CUT; M. Heinrich, et al., Fraunhofer IWU; Dr. S. Kurth, et al., Fraunhofer ENAS	
15:45	<b>Technologies for the integration of miniaturized silicon sensor systems in fiber reinforced composites</b> <u>B. Arnold</u> , R. Decker, et al., CUT; F. Rost, et al., Fraunhofer ENAS	
16:10	<b>Mass production enabled manufacturing and measurement technologies for hybrid laminates with sensory function</b> <u>Dr. V. Kräusel</u> , A. Graf, et al., CUT; M. Heinrich, et al., Fraunhofer IWU	

<b>Session 1.4</b> Preform Materials, Semi-Finished Products and Composite Structures		Chairman: Prof. Holger Cebulla Room: N112
15:00	<b>Mikrosandwich: Lightweight for the automotive interior</b> C. Menzel, Daimler AG	
15:25	<b>Impregnability and performance of rCF-nonwovens with epoxy resin</b> <u>J. Mankiewicz</u> , Prof. E. Cleve, Prof. M. Heber, University of Applied Sciences Krefeld	
15:45	<b>Manufacturing of lightweight parts by sandwich injection molding of metal-replacement plastics combined with light foams</b> A. Hüttl, N. Pönisch, <u>Dr. P. Bloß</u> , Kunststoff-Zentrum in Leipzig gGmbH	
16:10	<b>Laser beam melting of complexly curved honeycomb structures</b> G. Schlick, M. Binder, <u>M. Illgner</u> , Fraunhofer IGCC	

Discussion/Closing remarks