Prof. Dr. Klemens Rother
Institute of Material- and Building Research

Prof. Dr. Manuel Pusch
Institute for Mobility and Life in Motion

Prof. Dr. Christian Möller
Prof. Dr. Henning Stoll
Department of Mechanical, Automotive, and Aeronautical Engineering

University of Applied Sciences Munich

Prof. Dr. Philipp Höfer
Institute of Lightweight Engineering

Prof. Dr. Tobias Dickhut
Institute for Aeronautical Engineering

Universität der Bundeswehr München

Prof. Dr. Markus Zimmermann
Laboratory for Product Development and Lightweight Design

Technical University of Munich

Invitation and Agenda

MUNICH SYMPOSIUM ON LIGHTWEIGHT DESIGN 2025
MÜNCHNER LEICHTBAUSEMINAR 2025

29.10.2025 Universität der Bundeswehr München
12.11.2025 University of Applied Sciences Munich
26.11.2025 Technical University of Munich

Please register online here:

Registration: Munich Symposium on Lightweight Design 2025

CONTACT

Laboratory for Product Development and Lightweight Design
TUM School of Engineering and Design
Technical University of Munich

(+49) 089 289 15151
lightweightsymposium.lpl@ed.tum.de

Events - Laboratory for Product Development and Lightweight Design

Wednesday, 29 October 2025

Institute of Lightweight Engineering
Department of Aerospace Engineering

Institute for Aeronautical Engineering
Chair for Composites

VENUE Werner-Heisenberg-Weg 39
85579 Neubiberg
Building 33, Room 0131

Lageplan: https://osm.org/go/0JA0K1O6Y?m=

ADDITIONAL INFORMATION FOR YOUR PARTICIPATION

Access to Campus through visitor gate (Westtor, Crossing Universitätsstraße, Zwergerstraße).
ID card required.

13:00 Opening: Philipp Höfer & Tobias Dickhut (Universität der Bundeswehr München)

Session 1:

13:10 Weiblen, L., Zeitler, A., Braun, V. (Fraunhofer IGCV): Use of recycled carbon fiber nonwovens for the integral production of sandwich structures: Processing and properties of nonwoven-based sandwich core materials using the effect of fiber spring-back/lofting

13:30 Hartmann, M. (Technische Hochschule Deggendorf): Spring-Back and Deviation Analysis on an Integral RTM Prototype Component

13:50 Srb, P., Mlýnek, J. (Technische Universität in Liberec): Geometric optimization procedures for winding rovings onto non-load-bearing polymer composite frames

14:10 Keil, J., Wuerfel, V., Liebsch, A., Gude, M., Modler, N. (Technische Universität Dresden): Analysis of the mechanical behavior of tape-braided composite structures with varying coverage

14:30 Break (25 minutes)

Session 2:

14:55 Gregor, L., Di Natale, A., Bold, J., Höfer, P. (Universität der Bundeswehr München): Analytical and Numerical Investigation of the Influence of a Wing Strut on the Global Load-Bearing Behavior and the Weight of a Long-Span High-Wing Aircraft

15:15 Sachdeva, P., Kappel, A., Mittelstedt, C. (Technische Universität Darmstadt): A unified closed-form analytical model to determine stress fields due to discontinuity loads in thick-walled cylindrical composite pressure vessels

15:35 Bold, J. (Boeing): Post-failure Behavior of Composites: Nice to have or a must?

15:55 Break (25 minutes)

Session 3:

16:20 Teichmann, F., Klemm, C., Cetin, M. (Technische Hochschule Augsburg): Scalable Realignment Process for High-Performance Unidirectional Tapes from Recycled Carbon Fibers

16:40 Haider, D. R., Krahl, M., Gude, M. (Technische Universität Dresden): Beitrag zur systematischen Beschreibung des Werkzeugentwicklungsprozesses für Leichtbaustrukturen auf Basis des Methode-Modell-Daten (MMD)-Ansatzes zur Formalisierung für KI-Anwendungen

17:00 Westbeld, J., Höfer, P. (Universität der Bundeswehr München): Experimentelle Untersuchungen zur Reaktivierung der Pulverbeweglichkeit in additiv gefertigten AlSi10Mg-Partikeldämpfern

17:20 Get-together

Wednesday, 12 November 2025

Department of Mechanical, Automotive and Aeronautical Engineering
Fakultät für Maschinenbau, Fahrzeugtechnik, Flugzeugtechnik
University of Applied Sciences Munich – Hochschule München

VENUE Raum R 1.049 (Falk F. Strascheg Hall, „Blaue Tonne“, R-Bau)
Eingang Lothstr. 64, 80335 München
Parken: Lothstr. 64 (Einfahrt links neben dem „Roten Würfel”)
Straßenbahn: Haltestelle Hochschule München (Lothstr.)

13:00 Begrüßung: Klemens Rother (Hochschule München)

Session 1: Konstruktion und Simulation im Leichtbau (Chair: Klemens Rother)

13:10 Joachim Günter (Hochschule München):
Untersuchung von Herstellung und Zugfestigkeit von Gewindeverbindungen in 3D-gedruckten Bauteilen: Versuchsaufbau; Durchführung, Ergebnisse

13:30 Michael Probst (CAIQ GmbH):
NECTO®: Eine neue ultraleichte Struktur bietet neue Möglichkeiten für nachhaltiges Design in Schlüsselindustrien

13:50 Martin Denk (Hochschule München):
Geometrische, physikalisch informierte neuronale Netze für das Reverse Engineering von Freiformquerschnitten

14:10 Martin Denk (Hochschule München):
Nicht-lokale trigonometrische Materialinterpolation in der Topologieoptimierung

14:30 Natalie Wunder (Lehrstuhl für Polymere Werkstoffe – University of Bayreuth):
Mechanische Eigenschaften von Epoxidharzmischungen aus petroleum- und bio-basierten Harzen Ein Machine Learning Ansatz

14:50 Pause (40 Minuten)

Session 2: Faserverbundwerkstoffe und Strukturen (Chair: Henning Stoll)

15:30 Sebastian Strauß (Fraunhofer IGCV):
Flechtpultrusion und Biegeumformung endlosfaserverstärkter thermoplastischer Profile

15:50 Oliver Henry Schmidt (Institut für Leichtbau und Kunststofftechnik – TU Dresden):
Untersuchung des Verhaltens beschichteter Kohlenstofffasern bei magnetischer Anregung

16:10 Alexander Jänicke (Hochschule München):
Werkstoffeigenschaften von Chopped Fiber Composites

16:30 Roland Horváth[1,2], René Roos[3] ([1]Budapest University of Technology and Economics, [2]Econ Engineering Kft., [3]ANSYS Switzerland GmbH):
Numerical evaluation technique for fatigue analysis of composite plates with the aid of Finite Element Method

16:50 Ralf Cuntze:
Technische Festigkeitsbewertung von UD-Vielschicht-Laminaten

17:10 Get-together

Wednesday, 26 November 2025

Laboratory for Product Development and Lightweight Design
TUM School of Engineering and Design
Technical University of Munich

VENUE TUM Entrepreneurshipcenter
Lichtenbergstr. 6
85748 Garching bei München

Lageplan: https://osm.org/go/0JBkm9iaa?m=

13:00 Opening: Markus Zimmermann (Technical University of Munich)

Session 1: Materials and manufacturing technologies

13:10 Blacha, M., Joachim, T., Büsing, S. (Airbus Helicopters): Improved Design Principle for Damage Tolerant Structural Bonding and Increased Strength

13:30 Hüttich, P., Krause, D. (Technische Universität Hamburg): Neural Network-Based Identification of Temperature-Dependent Material Parameters of a Sandwich Structure from Experimental Modal Data

13:50 Greiner, M., Kappel, A., Mittelstedt, C. (Technische Universität Darmstadt): Fatigue behavior of strut-based lattice structures under compression-compression loading

14:10 Elsherbiny, A., Qureshi, A., Mertiny, P. (University of Alberta): Integrating finite element analysis and design of experiments to predict and optimize mechanical properties in 3D-printed structures made by interweaving fused filament deposition

14:30 Break (20 minutes)

Session 2: Topology optimization

14:50 Rosnitschek[1], T., Erber[2], M., Hartwig[1], F., Hartmann[3], C., Volk[2], W., Tremmel[1], S. ([1]University of Bayreuth, [2]Technical University of Munich, [3]TH Deggendorf): A Ray-Tracing Surrogate Model for Manufacturability-Aware Topology Optimization in High-Pressure Die Casting

15:10 Roure Pastor[1], F., Hentschel[2], R., Soika[3], J., Burger[1], S., Günther[4], D., Rosnitschek[2], T., Tremmel[2], S., Zimmermann[3], M., Volk[3], W. ([1]Fraunhofer IGCV, [2]University of Bayreuth, [3]Technical University of Munich, [4]University of Applied Sciences Munich): Optimizing a Deflection Lever Using Generative Design for Additive Casting

15:30 Weider[1], K., Montero[2], J., Bold[2], J., Schumacher[1], A. ([1]University of Wuppertal, [2]Boeing): Multi-load case screening and reduction for Topology Optimization of structural aircraft components under complex loading

15:50 Break (20 minutes)

Session 3: Applied optimization

16:10 Miler, D. (University of Zagreb): Comparison of Evolutionary Algorithm Performances for Gear Optimization Problems

16:30 Elhadidy[1], O., Bold[2], J., Soika[1], J., Zimmermann[1], M. ([1]Technical University of Munich, [2]Boeing): Computational Optimization of Bolted Joint Layouts in Aerospace Structures

16:50 Treschau, M., Witzgall, C., Wartzack, S. (Friedrich-Alexander-Universität Erlangen): An approach for structural mechanical simulations with physics-informed neural networks using the example of a framework

17:10 Get-together