The 10th ECCOMAS Thematic Conference on
the Mechanical Response of Composites

COMPOSITES 2025

9-11 September, 2025
Vienna, Austria

PROGRAMME

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Vienna, Austria
September 9-11, 2025

PREFACE

Greetings from the COMPOSITES 2025 Conference Chairpersons

On behalf of the European Community on Computational Methods in Applied Sciences (ECCOMAS) we are pleased to welcome you at the 10th Thematic Conference on the Mechanical Response of Composites (Composites2025). The conference is hosted by the Institute of Lightweight Design and Structural Biomechanics, TU Wien, Vienna, Austria.

ECCOMAS is a scientific organization grouping together European associations with interests in the development and application of computational methods in science and technology. The mission of ECCOMAS is to promote joint efforts of European universities, research institutes and industries which are active in the broader field of numerical methods and computer simulation in engineering and applied sciences and to address critical societal and technological problems with particular emphasis on multidisciplinary applications.

Following the very successful conferences in Porto, London, Hannover, the Azores, Bristol, Eindhoven, Girona, Gothenburg (on-line), and Trapani, the 10th ECCOMAS Thematic Conference on the Mechanical Response of Composites is now held in Vienna, Austria. The scope of Composites2025 is to provide a forum for the exchange of knowledge and current research and development on composite materials and structures. The conference focuses mainly on theoretical and numerical modelling and prediction of the performance of composite components, also covering experimental validation and challenging industrial applications or recent developments.

Composites2025 is certified as a Green Meeting and is organized in accordance with the criteria of the Austrian Ecolabel for Green Meetings and Events. Sustainability is a core principle of the event planning process – from selecting regional, certified partners to minimizing waste and emissions. The goal is to reduce the environmental footprint of the event while serving as a model for responsible science communication.

In this booklet you will find practical information on the conference location as well as the complete program of the keynote lectures and contributions of the participants.

We wish you a fruitful conference and we hope that you will enjoy your stay in Vienna.

Heinz E. Pettermann

Clara Schuecker

Martin Fagerström

Conference chairpersons

SUPPORTING ORGANIZATIONS

ECCOMAS Thematic Conference

TU WIEN

CIMNE

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PLANSEE

COMPOSITES UNITED | AUSTRIA

MÜCK KUNSTSTOFFTECHNIK

ORGANIZERS AND COMMITTEES

Chairs of the Conference:

Heinz E. Pettermann, TU Wien, Vienna, Austria
Clara Schuecker, Montanuniversität Leoben, Austria
Martin Fagerström, Chalmers University of Technology, Sweden

Scientific Committe:

Prof. Chiara Bisagni - Politecnico di Milano, Italy
Prof. Pedro Camanho - Universidade do Porto, Portugal
Prof. Giuseppe Catalanotti - Kore University Enna, Italy
Dr. Carlos G. Davila - NASA Langley Research Center, USA
Prof. Martin Fagerström - Chalmers University of Technology, Sweden
Prof. José Eugenio Garção - Universidade de Évora, Portugal
Prof. Stephen Hallett - University of Bristol, United Kingdom
Prof. Roland Hinterhölzl - University of Applied Sciences, Upper Austria, Austria
Prof. Endel Iarve - University of Texas at Arlington, USA
Dr. Frederic Laurin - ONERA, France
Prof. Esben Lindgaard - Aalborg University, Denmark
Prof. Erik Lund - Aalborg University, Denmark
Prof. Pere Maimí - Universitat de Girona, Spain
Dr. Francisca Martinez-Hergueta - University of Edinburg, United Kingdom
Dr. Michael May - Fraunhofer Institute, Germany
Dr. Vincenzo Oliveri - University of Limerick, Ireland
Dr. Soraia Pimenta - Imperial College London, United Kingdom
Prof. Silvestre Pinho - Imperial College London, United Kingdom
Prof. Joris Remmers - Eindhoven University of Technology, The Netherlands
Prof. Raimund Rolfes - Leibniz Universität Hannover, Germany
Prof. Martin Schagerl - Johannes Keppler Universität (JKU) Linz, Austria
Prof. Melanie Todt - TU Wien, Austria
Prof. Albert Turon - Universitat de Girona, Spain
Prof. Frans van der Meer - Delft University of Technology, Netherlands
Prof. Michael Wisnom - University of Bristol, United Kingdom

KEYNOTES

Prof. Chiara Bisagni

Politecnico di Milano, Italy
Composites at the Limit: Embracing Buckling for Innovation in Aerospace Structures

Prof. Boyang Chen

TU Delft, Netherlands
Quantum Computing for laminates optimization – stacking sequence retrieval

Prof. Ludovic Noels

University of Liège, Belgium
AI and data-driven methods for composite multi-scale analyses

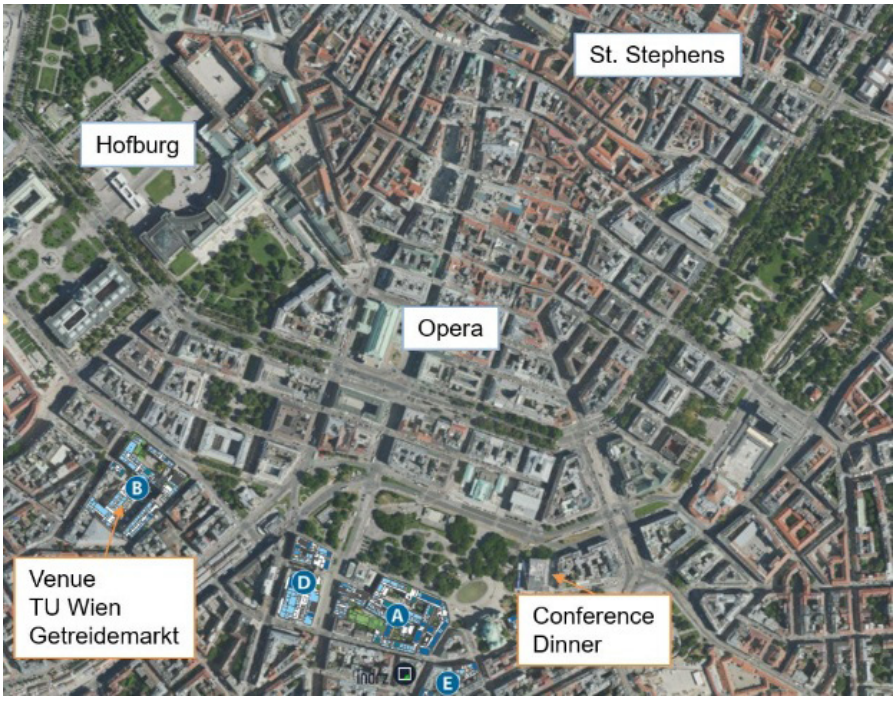
CONFERENCE TOPICS

The topics of the ECCOMAS COMPOSITES Conference are (but not limited to):

- Continuum Damage Mechanics
- Delamination
- Dynamics
- Fatigue
- Fracture Mechanics
- Hyperelastic response and soft composites
- Impact
- Machine learning and data driven approaches
- Micro/nano-mechanics
- Multi-scale Modeling
- Novel Materials
- Novel Numerical Methods
- Optimization
- Buckling and other Stability Phenomena
- Structural simulations
- Textile Composites
- Thin ply laminates
- Virtual Testing and other related themes
- Visco/elasto/plastic response

VENUE AND MEETING ROOMS

The Conference takes place at TU Wien, Getreidemarkt – BA building (Audi Max, Lehargasse 2) **which** is located in **downtown Vienna** with many of its well-known sightseeing spots right around the corner. Getting to and around the city is easy with its well organized public transportation system. Several of the subway lines have stops within walking distance of the conference venue.



To conference rooms

The event location, TU Wien (Getreidemarkt – BA building), is barrier-free accessible and provides disabled-friendly sanitary facilities.

Further information about the location and the accessibility of the individual conference rooms can be found using the following links:

- Entrance to conference rooms and registration desk:
  - Room location
- Conference room 1 (GM 1 Audi. Max):
  - Room location
  - Accessibility Statement
- Conference room 2 (GM 5 Praktikum HS):
  - Room location
  - Accessibility Statement
- Welcome reception and coffee breaks (BFEGG02):
  - Room location
  - Accessibility Statement
- Conference dinner location
  - Wien Museum

REGISTRATION

Welcome Reception (Pre-Registration) will take place on **Monday, September 8, 2025**, from 17:00 to 19:00, at the room BFEGG02 , located within the TU Wien University.

Registration will continue on Tuesday, September 9, 2025, from 08:00 onwards. You can come to the **registration desk** with your registration code, and you will be able to collect your badge.

If you are unable to pre-register on September 8, you can register on any of the following days.

Please remember to **wear your conference badge at all times** during **COMPOSITES 2025**. Badges are required for access to all sessions, events, and catering areas throughout the conference.

Registration Desk Hours – COMPOSITES 2025

The registration desk will be open at the following times:

- **Monday, September 8**: 17:00 – 19:00
- **Tuesday, September 9**: 08:00 – 12:45 / 13:30 – 18:00
- **Wednesday, September 10**: 08.40 – 12:45 / 13:30 – 18:00
- **Thursday, September 11**: 08.40 – 12:45 / 13:30 – 17:00

WI-FI ACCESS & TECHNICAL SPECIFICATIONS

WLAN Access

Eduroam Wireless is supported by TU Wien.

For any assistance you will need concerning this service, please feel free to contact us at the congress secretariat.

Time

Time slots allocated for each presentation are 20 minutes for regular presentations and 45 minutes for Keynotes. Please allow for 5 minutes of questions inside these time slots and, out of respect for the other presenters, please make sure to keep the time scheduled for your talk. Be aware that Session Chairs will interrupt your presentation if you exceed your time slot.

Lecture Hall Equipment

All parallel session rooms will be equipped with a laptop and a video projector.

Laptop: Windows 11 24H2

Available software:

- Microsoft Office LTSC 2024
- Adobe Reader
- IrfanView
- VLC Media Player

Video Projector Connection: VGA and HDMI cable

Please bring your presentation on a USB storage device to the lecture hall of your presentation **at least one session before your scheduled talk** (during intermissions or before/after the start of sessions) and hand it to the technical support to have it transferred to the presentation laptop. We also suggest to briefly test the functionality if it contains any videos or animations. Technical support will be available before and during the session in case of technical problems.

If you prefer to present from your laptop instead, please make sure to bring an appropriate adaptor if necessary and also check functionality prior to your session.

Please also make sure to **arrive at the conference room 10 minutes before the session of your talk is scheduled to start!**

Power sockets and plug converters for electricity:

Austria primarily uses Type C and **Type F** plugs, which are compatible with the Schuko system. **The standard voltage is 230V, and the frequency is 50Hz.**

For visitors from countries with different plug types, such as the UK or the USA, a power plug adapter is necessary.

SOCIAL PROGRAMME

Welcome Reception

The **Welcome Reception** will be held on **Monday, September 8, 2025**, at the Conference Venue (TU-Wien) from **17:00 to 19:00.**
Room location

Conference Banquet

The Conference Banquet will be held on **Thursday, September 11, 2025**, at the Wien Museum from **18:30 to 22:00**.
Wien Museum

Adress:
Karlsplatz 8, 1040 Wien, Austria

Coffee Breaks and Lunches

Additionally, during the conference, **Coffee Breaks** will be offered at the Conference Venue (TU-Wien) **from Tuesday, September 9, 2025 to Thursday, September 11, 2025.**
Room location

Lunches are not included in the registration fees. The Congress organization has made arrangements to offer to registered participants the option of "Lunch boxes" from Tuesday to Thursday by prior reservation. It will be provided only to those who have made a reservation and completed payment.

Lunch-box pick-up 12:15 - 13:00
Room location

TRAVEL TO VIENNA

As the Conference is a **"Green Event" we suggest using public transportation for getting to and around Vienna.** Also, public transportation works very well in Vienna (App: Wienmobil) whereas traffic on the street can become very busy during the day and parking is restricted.

This event will be organized in accordance with the criteria of the Austrian Eco-label for Green Meetings and Events!

To the Venue

Arriving on foot:

The venue is centrally located, within walking distance from many hotels.

Arriving by bicycle:

Cycling can also be a good way to travel the distance between hotel and event location. There is a bicycle parking facility with sufficient spaces in the immediate vicinity.

- A route planner for cycling in Vienna can be found here
- General tips for cycling in Vienna can be found here
- Information about the Vienna Lines' bike-sharing offer can be found here

By Train:

There are two main stations in Vienna from where the Conference Venue is easily reachable by subway:

- **Railway Station "Wien Hauptbahnhof":** Take subway U1 (direction Leopoldau) to station "Karlsplatz".
- **Railway Station "Wien Westbahnhof":** Take subway U3 (direction Simmering) to station "Volkstheater".

By Plane:

The **Vienna Airport (VIE) is located near Schwechat** and offers direct flights from many destinations. Travel to the city takes about half an hour with the following options:

- Local **"Schnellbahn"** (S7) trains run at intervals of 30 minutes and the ride to the station **"Wien Mitte/Landstraße"** (connections to U3 and U4) takes about 25 minutes.
- InterCity & Railjet trains run at intervals of approximately 30 minutes and the ride to the main station **"Wien Hauptbahnhof"** (connection to U1) takes about 20 minutes
- City Airport Train (CAT) runs at intervals of 30 minutes and takes you to the station **"Wien Mitte/Landstraße"** (connections to U3 and U4) without intermediate stops in 16 minutes.
- Bus lines offer rides to station **"Schwedenplatz"** (about 20 minute ride, connection to U1 and U4) or the main station **"Wien Hauptbahnhof"** (about 25 minute ride, connection to U1).
- **Taxi:** the ride takes approximately 20 minutes to the city center (outside of rush hours)

Alternatively, **the small Bratislava Airport (BTS)** is also only 60 Kilometers away and offers bus transport to Vienna (Flixbus).

By Car:

The conference venue is conveniently located along one of the main transit routes through Vienna. However, traffic during the day can be very busy and parking on the street is limited to 90 minutes throughout the whole city **(parking fee 2.60€ per hour)**. If you are arriving by car we suggest to book a hotel with parking and use public transportation inside the city. If you need to take your car to the venue, you need to park at one of the nearby parking garages (**WIPARK TU Lehargasse or Contipark Museumsquartier**)

GETTING AROUND VIENNA

Vienna has one of the best public transportation systems. Navigate and buy tickets on your smartphone using the "WienMobil" app. The Conference Venue is located close to the subway stations **"Karlsplatz" (7min. walk: U1, U2, U4)**; **"Museumsquartier" (5min. walk: U2)** and **"Volkstheater (10min. walk: U2, U3)**, also there are several bus and tram lines with stops nearby.

By bicycle;

Cycling can also be a good way to travel the distance between hotel and event location. There is a bicycle parking facility with sufficient spaces in the immediate vicinity.

- A route planner for cycling in Vienna can be found "here"
- General tips for cycling in Vienna can be found "here"
- Information about the Vienna Lines' bike-sharing offer can be found "here"

TAXI NUMBERS

Vienna offers a well-organized and regulated cab system. Cabs can be hailed at the roadside, at a cab rank or ordered by phone or app to your chosen location. Taximeters are used to calculate the fare. It is also possible to agree a fixed price if you book in advance.
All of Vienna's cab ranks are displayed on the interactive city map. Passengers can choose any vehicle at a cab rank.

Cabs can be ordered from the cab dispatch centers Taxi 31 300 and Taxi 40 100 by phone, app or online:

- Tel. +43 1 40 100, https://www.taxi40100.at
- Tel. +43 1 31 300, https://www.taxi31300.at

EMERGENCY CALLS

Please call the following emergency numbers in case of imminent danger:

Police 133
European Emergency Number 112
Fire Brigade 122
Ambulance 144
Medical Emergency Number 141

If you want to report a crime or if you have information on a wanted criminal or stolen/lost object or if life and limb are at risk, please contact your local police station.

Police Service Number

No matter where you are in Austria, you can dial the Police Service Number +4359 133 to be directed to the nearest police station. Calls from mobile phones will be directed to the competent district command of the Federal Police.

However, calling the service number +4359 133 does not replace an emergency call. For information on how to contact a law enforcement authority or a police station, please find the addresses and phone numbers here.

CONFERENCE SECRETARIAT

CIMNE Congress Bureau

Campus Nord UPC
Building C1 - Office C4
Gran Capità, S/N 08034 Barcelona, Spain
Tel. +34 93 405 4694
Tel. +34 93 405 4696

Conference Secretariat & Invitation Letter: composites_sec@cimne.upc.edu
Payments & Invoices: financialsupport@cimne.upc.edu

PROGRAMME OVERVIEW

TIME	Monday Sep 8, 2025	Tuesday Sep 9, 2025	Wednesday Sep 10, 2025	Thursday Sep 11, 2025
08:00-08:40		Registration		
08:40-09:00		Opening Ceremony	Registration	Registration
09:00-09:30		Plenary Lecture	Plenary Lecture	Plenary Lecture
09:30-09:45				
09:45-10:15		Coffee Break		
10:15-10:45		Regular Sessions	Regular Sessions	Regular Sessions
10:45-11:15				
11:15-11:45				
11:45-12:15				
12:15-13:00		Lunch Break		
13:00-13:30				
13:30-14:00		Regular Sessions	Regular Sessions	Regular Sessions
14:00-14:30				
14:30-15:00				
15:00-15:30				
15:30-16:00		Coffee Break		
16:00-16:30		Regular Sessions	Regular Sessions	Regular Sessions
16:30-17:00				
17:00-17:30	Welcome Reception (Pre-Registration)			
17:30-18:00				
18:00-18:30				
18:30-19:00				Banquet Dinner
19:00-19:30				
19:30-20:00				
20:00-21:00				
21:00-22:00				
22:00-23:00				

Conference on the Mechanical Response of Composites
Technical Programme

Last updated: 2025-09-05 09:39

Monday, 08/09/2025

Mon, 08/09/2025 17:00 - 19:00 BFEGG02

Welcome Reception (Pre-Registration)

Tuesday, 09/09/2025

Tue, 09/09/2025 08:00 - 08:40 BAEGD08

Registration

Tue, 09/09/2025 08:40 - 09:00 GM 1 Audi. Max

Opening Ceremony

Tue, 09/09/2025 09:00 - 09:45 GM 1 Audi. Max

Plenary Lecture: Boyang Chen

Quantum Computing for laminates optimization – stacking sequence retrieval

Chaired by: Prof. Clara Schuecker (Montanuniversität Leoben)

Quantum Computing for laminates optimization – stacking sequence retrieval

B. Chen

Tue, 09/09/2025 09:45 - 10:15 BFEGG02

Coffee Break

Tue, 09/09/2025 10:15 - 12:15 GM 5 Praktikum HS

CT - Damage Mechanics

Chaired by: Prof. Pedro Camanho (University of Porto)

A localised continuum damage mechanics model for fibre failure in explicit integration

***J. Selvaraj,** S. Hallett

Assessment of the credibility of simulations for composite Bolted L Angle in a building block approach

***F. Grotto,** S. Miot, L. Barrière

Intralaminar Failure of Laminated Composites Modelled by Continuum Damage Mechanics Combined with Computationally Efficient Homogenisation

***K. Hertelendy,** R. Larsson, R. Gutkin

A Mori-Tanaka Homogenization-based Model for Mechanical and Oxidation-induced Damage in SiC/BN/SiC CMCs

***V. Dubey,** B. El Said, L. Kawashita, G. Allegri, S. Hallett

Development of a homogenization theory to model delamination damage in composite materials with large number of layers under static and cyclic loads

***A. Taherzadeh Fard,** S. Jiménez, A. Cornejo, L. Barbu

A Macroscale Viscoplastic Damage Model for 3D-Textile Reinforced Composites and its Application to Aeroengine Components

F. Panteri, S. Saseendran, ***C. Oddy**

Tue, 09/09/2025 10:15 - 12:15 GM 1 Audi. Max

CT - Optimization & Dynamic Response

Chaired by: Prof. Chiara Bisagni (Politecnico di Milano)

A Mold Compensation Method Using Spectral Shape Representation

***S. Zein,** A. Parmentier, D. Dumas

Quantum-assisted Stacking Sequence Retrieval and Laminated Composite Design

***A. Wulff,** S. Madabhushi Venkata, B. Chen, Y. Tang, M. Möller, S. Feld

Stiffness estimation of composite bone fracture plate using numerical simulations

***K. Szymkiewicz**

A framework for simultaneous topology and layup optimization of laminated composite structures

M. Andreasson, E. Holmberg, ***E. Marklund,** C. Thore

Modal Analysis of a Laminate Panel with 10 mm Notch Focused on the Effect of a Functionally Oriented Fabric Layup with 30 mm Wide Carbon Strips

***R. Zbon?ák**

A Multi-Scale Visco-Elastic Modeling Approach Applied to DMA Tests of Multi-Layered Laminates with Thermoplastic Matrix

C. Moser, ***P. Koll,** M. Pletz, C. Schuecker

Tue, 09/09/2025 12:15 - 13:30 BFEGG02

Lunch Break

Tue, 09/09/2025 13:30 - 15:30 GM 5 Praktikum HS

CT - Delamination & Impact

Chaired by: Dr. Luiz Kawashita (University of Bristol)

Attraction of Crack Faces: In-situ Experimental Characterisation of the Cohesive Traction Field in Delaminations

***N. Stagsted,** E. Lindgaard, S. Jensen, B. Bak

Plate-theory-based Model for Delaminated Sandwich Panels with Guaranteed Interlaminar Stress Continuity

***B. Hauck**

Incremental Numerical Model to Explore Crack Propagation in Lithosphere-Inspired Multilayer Polymers

***A. Mohammad Sharifi,** M. Pletz, C. Waly, F. Arbeiter, C. Schuecker

Analytical models for the impact on composite plates

J. Wichmann, ***S. Dölling,** I. Vladimirov, J. von Lautz

Prediction of impact damage and post-impact residual load-bearing capacity of NCF CFRP components

***A. Cherniaev,** M. Kazemian

A New Engineering and Lifing Approach for Predicting Impact Damage in Various Composite Structures

***H. Alhashmy,** B. Blackman, K. Nikbin

Tue, 09/09/2025 13:30 - 15:30 GM 1 Audi. Max

CT - Novel Approaches

Chaired by: Dr. Badadjida Wintiba (Université libre de Bruxelles)

A Hybrid Virtual Element Method for laminated composite plates

***F. Liguori,** A. Madeo, S. Marfia, G. Garcea, E. Sacco

Towards Fully Discrete Modelling of Brittle Fracture Modes in Composite Materials

***E. Iarve,** K. Hoos, E. Zhou, M. Ballard, D. Mollenhauer

Virtual element method with adaptive mesh refinement for simulation of brittle fracture in composite materials

***M. Lo Cascio,** A. Milazzo

On probabilistic entropy applications in uncertainty quantification of composite materials

***M. Kami?ski**

Uncertainty Quantification of Open-Hole Coupons Through a Global-Local Approach with PC-Kriging Surrogate Modelling

***J. Moreira Lima de Sousa,** F. Danzi, C. Furtado, A. Kumar, G. Catalanotti

Tue, 09/09/2025 15:30 - 16:00 BFEGG02

Coffee Break

Tue, 09/09/2025 16:00 - 18:00 GM 5 Praktikum HS

CT - Fracture Mechanics

Chaired by: Prof. Stephen Hallett (University of Bristol)

Separation of Resistance-Welded Thermoplastic Composite Joints Produced with CF/LM-PAEK

***H. Schaefer**

Interaction of matrix cracking and diffuse delamination in cross-ply composites

***V. Pires,** M. Gfrerrer, C. Schuecker

Unveiling Interrelations among Mechanical Properties of Polymer Composites

E. Dinler, I. Rodrigues Lopes, ***C. Furtado,** P. Camanho

Multi-phase field model for fiber-reinforced composites using Puck failure theory

***P. Asur Vijaya Kumar,** H. E. Pettermann

Computational Modeling of Rate-Dependent Plasticity, Fracture and Fatigue in Bonded Thermoplastic Composite Parts

***P. Hofman,** F. van der Meer, B. Sluys

Molecular Simulation-informed Phase-field modeling of fracture in Polymer Nanocomposites

S. Zakavati, ***B. Arash**

Tue, 09/09/2025 16:00 - 18:30 GM 1 Audi. Max

CT - Thin Ply

Chaired by: Prof. Aleksandr Cherniaev (University of Windsor)

Review on ThinPly fibre reinforced composites

***B. Fiedler,** F. Touni, M. Neunacher, K. Yamada, M. Nishikawa

Mechanical properties of the hybrid Bouligand laminates and thin ply angle ply laminates with small angles

***K. Yamada,** H. Matsumoto, R. Yoshikawa, M. Nishikawa

Investigation of the optimal stacking sequence of Thin-Ply FML to suppress delamination in Transition Zone

***T. Nishiyama,** M. Nishikawa, K. Yamada

Damage Characterization and Modelling for Thin-Ply CFRP Laminates under Impact Loading

***M. Nishikawa,** N. Takatsuka, K. Yamada

Microscale Analysis of Fatigue Propagation Properties of Delamination in Thin-Ply CFRP Laminates

***R. Yamashita,** K. Yamada, Y. Sugimoto, E. Terasawa, T. Shibuya, H. Ogawa, R. Kuroda, M. Nishikawa

Numerical and Experimental Investigation of Bio-Inspired Composite Structures based on the Microstructure of Sponge Spicules

***M. Neubacher,** F. Touni, B. Fiedler

Exploring Stacking Sequences for Enhanced Damage Tolerance in Thin-Ply CFRP Bouligand Laminates: A Numerical and Experimental Approach

***F. Touni,** M. Neubacher, B. Fiedler

Wednesday, 10/09/2025

Wed, 10/09/2025 08:40 - 09:00 BAEGD08

Registration

Wed, 10/09/2025 09:00 - 09:45 GM 5 Praktikum HS

Plenary Lecture: Chiara Bisagni

Composites at the Limit: Embracing Buckling for Innovation in Aerospace Structures

Chaired by: Prof. Carolina Furtado (University of Porto)

Composites at the Limit: Embracing Buckling for Innovation in Aerospace Structures

C. Bisagni

Wed, 10/09/2025 09:45 - 10:15 BFEGG02

Coffee Break

Wed, 10/09/2025 10:15 - 12:15 GM 5 Praktikum HS

CT - Buckling / Stability

Chaired by: Prof. Antonio Madeo (University of Calabria)

Delamination Growth Characteristics in Postbuckled Composite Laminates under Fatigue Loading

***S. Subramaniyan Venkat,** P. Anilkumar, S. Scheffler, E. Baranger, R. Rolfes

A Preliminary Study of an Aeronautical Multi-Stable Composite Stiffened Panel

***X. Li,** C. Bisagni

Solving post-buckling Ritz equations involving mode changes

***S. Dillen,** C. Mittelstedt

Approximate Computational Model for the Local Buckling and Postbuckling of Thin-Walled Stiffened Composite Panels

***C. El Yaakoubi-Mesbah,** C. Mittelstedt

A Single-Domain Ritz Approach for Buckling Analysis of Curvilinearly Grid-Stiffened Composite Panels

***A. Alhaj Ahmad,** C. Mittelstedt

Modelling of Thermomechanical Warping in Carbon Fibre/Peek Laminates manufactured using Laser Assisted Tape Placement

***G. Zucco,** E. Tobin, R. O'Higgins, P. Weaver

Wed, 10/09/2025 12:15 - 13:30 BFEGG02

Lunch Break

Wed, 10/09/2025 13:30 - 15:30 GM 5 Praktikum HS

CT - Structures

Chaired by: Prof. Endel Iarve (University of Texas at Arlington)

Advanced Analytical Model for the Design and Mechanical Analysis of Thick-walled Composite Pressure Vessels for Hydrogen Storage

***M. Hondekyn,** M. Pastrello, N. Ali, W. Van Paepegem

Finite Element Modelling of Alternative Repair Methods for Damaged Honeycomb Sandwich Beams

***A. Wiegmink,** J. Vroon, M. Post

Nonlinear response of a laminated composite structure including ply and interface damage

***A. Jahn,** H. Pettermann

Finite element analysis (FEA) of bio-inspired helicoid carbon fibre-reinforced polymers (CFRPs) under open-hole tension and compression

***H. Wang,** E. Kazemi, L. Mencattelli, O. Walsh, S. Pinho

Integrating Laminate-Level Bolted Joint Failure Envelope Data into Low-Fidelity Finite Element Models for Composite Joint Stiffness and Failure Prediction

***A. Volpi,** F. Danzi, G. Catalanotti, C. Furtado

Rapid digital manufacturing and structural analysis of 3D textiles

***P. Foster, *M. Pei, *S. Hallett**

Wed, 10/09/2025 15:30 - 16:00 BFEGG02

Coffee Break

Wed, 10/09/2025 16:00 - 18:00 GM 5 Praktikum HS

CT - Multi-scale modeling

Chaired by: Dr. Boyang Chen (TU Delft)

The Application of Potential Energy Landscape based Method in Material Properties Analysis of Nanoparticle Reinforced Epoxy Resin

***T. Wang,** B. Bahtiri, A. Dean, S. Scheffler, R. Rolfes

The Cylindrical Microplane Model for FRPC Laminates

***F. Caner,** R. Miquel

Higher-Order Homogenisation of Large-Scale RVEs: Challenges and Implementation Strategies

***A. Kumar,** A. K.W. Hii, S. R. Hallett, B. El Said

Bridging Manufacturing Processes and Structural Analysis: A Robust Workflow for High-Fidelity Mechanical Simulations

***S. Abdel-Monsef,** G. Guillamet, A. Sasikumar, D. Kandil, A. Turon

Stiffness of Plant Fiber-reinforced Biocomposites: Mean-field Homogenization and Partially-Bayesian Kolmogorov-Arnold Network Surrogate Modeling

***M. Königsberger,** T. Härkönen, M. Mi?kowski, S. Särkkä, J. Füssl

Numerical Modelling of Tow-Based Discontinuous Composites for Stiffness and Strength predictions with a Parametric Study

***L. Gulfo Hernandez,** I. Katsivalis, L. Asp, M. Fagerström

Thursday, 11/09/2025

Thu, 11/09/2025 08:40 - 09:00 BAEGD08

Registration

Thu, 11/09/2025 09:00 - 09:45 GM 5 Praktikum HS

Plenary Lecture: Ludovic Noels

AI and data-driven methods for composite multi-scale analyses

Chaired by: Prof. Martin Fagerström (Chalmers University of Technology)

AI and data-driven methods for composite multi-scale analyses

***L. Noels,** C. Anglade , L. Wu

Thu, 11/09/2025 09:45 - 10:15 BFEGG02

Coffee Break

Thu, 11/09/2025 10:15 - 12:15 GM 5 Praktikum HS

CT - Novel Materials

Chaired by: Prof. Bodo Fiedler (Hamburg University of Technology)

Analysis of the damage resistance and damage tolerance of novel unconventional laminates (Double-Double)

***G. Aquotti,** N. da Silva, A. Arteiro

Recycling of Carbon Fibre and Amine-Epoxy Composites Through Sustainable and Low-Cost Chemical Treatment Using Hydrogen Peroxide

***G. Petropoulos,** P. Tsokanas, V. Kostopoulos

A Resin Infiltration Model to Optimize Transparent Wood Production

***T. Verho,** R. Dsouza, J. Vaari, A. Puisto, S. Fortino, D. Nuvoli, A. Mariani

The influence of the density on the mechanical behaviour of geopolymers

***A. Valenza**

Experimental and Numerical Characterization of Fracture Mechanics of Glass-Carbon Hybrid Composites

***J. Mahishi,** V. Aitharaju

Micromechanical Modelling of Transverse Cracking in Unidirectional Composites Using Periodic 3D RVEs with Realistic Fiber Packing

R. Guo, M. Mehdikhani, ***C. Breite,** Y. Swolfs

Thu, 11/09/2025 12:15 - 13:30 BFEGG02

Lunch Break

Thu, 11/09/2025 13:30 - 15:30 GM 5 Praktikum HS

CT - Machine Learning I

Chaired by: Dr. Christian Breite (KU Leuven)

Interaction-Based Stochastic Deep Material Networks for stochastic and damaging composite materials

***L. Wu,** L. Noels

Simulation of Fiber Bridging via Physics-based and Data-driven Models.

***R. Grosselle,** E. Lindgaard, A. Olesen, S. Mosbjerg Jensen, B. Lau Verndal Bak

Real-time Prognosis of AFP Manufacturing Defects using Artificial Intelligence

***A. Koptelov,** B. El Said, I. Tretiak

A Data-driven Approach to predict Strain Rate Effect of Carbon/epoxy Composites incorporating Constitutive Artificial Neural Networks (CANNs)

***S. Yoo,** I. Aslamsha, D. Bhattacharya, J. Kowalski, N. Toso, H. Voggenreiter

Graph Neural Networks for Efficient Prediction of Mechanical Response in Composite Structures with Unstructured Meshes

***L. Patrignani,** S. Pinho

Deep Eshelby Network: An AI Framework for Multiscale Mean-Field Homogenization with Arbitrary Inclusion Shapes

***M. Schwaighofer,** M. Königsberger, S. Pech, M. Lukacevic, J. Füssl

Thu, 11/09/2025 15:30 - 16:00 BFEGG02

Coffee Break

Thu, 11/09/2025 16:00 - 17:30 GM 5 Praktikum HS

CT - Machine Learning II

Chaired by: Dr. Ling Wu (University of Liege)

Determining Feasibility Bounds of Lamination Parameters using Neural Networks

***S. Madabhushi Venkata**

Machine Learning-Accelerated Predictions of Design Allowable of Composite Laminates

***C. Furtado,** L. Rodrigues, J. Ferreira, I. Lopes, J. Esteves, F. Danzi, G. Guillamet

A Data Driven Constitutive Model for the Elasto-Damage Response of Transversely Isotropic Materials

***M. Kofler,** L. Peyker, K. Key, C. Fricke, M. Luxner, H. Pettermann

Prediction of shear angles in molten state thermo-stamped thermoplastic composites using a graph neural network

***B. Wintiba,** C. Viviers, F. Caetano, J. Chevalier, F. Van Der Sommen, T. Massart, P. Berke

From Material Sample to Statistically Representative Elastic Properties: an X-Ray CT-Based End-to-End Pipeline to Predict as-Manufactured Properties of 3D-Textile Reinforced Composites

***J. Friemann,** L. Pilgaard Mikkelsen, C. Oddy, M. Fagerström

Thu, 11/09/2025 18:30 - 22:00 Wien Museum

Banquet Dinner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