HISTRATE

Advanced Composites under High Strain Rate Loading
A Route to Certification-by-Analysis

2025 Conference

PROGRAMME

4TH - 5TH JUNE 2025

DAY 1 04 June

WEDNESDAY

09:00 – 09:30	**Registration**	
09:30 – 09:45	**Welcome by Local Organizer and Opening Speech** *University of the Basque Country*	**Radmila Tomovska**
09:45 – 10:00	**Introduction by Action Chair** ***HISTRATE*** *- A route to certification-by-analysis for impact-loaded aeronautical composite structures*	**Patricia Verleysen**
10:00 - 10:45	**Keynote Speech** *Crashworhiness of Fuselage Hybrid Structure*	**Michel Mahe** **Laurent Risse**
10:45 – 11:15	***COFFEE BREAK***	
11:15 – 12:45	**Session 1 - Novel simulation methods and best practices for composites under high strain rates (WG4)**	**Chair: Nenad Djordjevic**
11:15 – 11:30	*High Strain Rate Behaviour of Ceramic - Polymer Sandwich Composite Systems; Numerical and Experimental Study*	*Ali Rashed, online*
11:30 – 11:45	*Optimisation of AS4 8552 Woven Composite Lamina Under Out of Plane Impact Loading*	*Ezgi Bakır*
11:45 – 12:00	*Strain Rate Dependent 3D Shear Characteristics of Thermoplastic FRC - Experiments, modelling and analysis by machine learning*	*Andreas Hornig*
12:00 – 12:15	*Modeling the High Strain Rate Behavior of Graphene Epoxy Nanocomposites Using Viscoplasticity Theory and Mori Tanaka Homogenisation*	*Özgen Çolak Çakır*
12:15 - 12:30	*Lessons Learned from Virtual Certification of an Aircraft Structure Against Birdstrike*	*Michele Meo*
12:30 - 12:45	*Modeling and Characterisation of UD Thermoplastic Laminates under Dynamic Loading*	*Nenad Djordjevic*
12:45 – 14:00	***LUNCH BREAK***	

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14:00 – 15:00	**Poster session with 3 minute pitches**	**Chair: Hatice Sinem Şaş Çaycı**
15:00 – 16:00	***COFFEE BREAK with POSTER SESSION***	
16:00 – 18:00	**Session 2 - Novel composite materials for high strain rate applications (WG3)**	**Chair: Mauro Zarrelli / Thanasis Kotzakolios**
16:00 – 16:15	*Fracture Toughness of Survey of CF - LMPAEK Thermoplastic Composite via High-Speed Wedge Insert Fracture Method towards Stiffened Panel Design and Verification*	*Thomas Zaragkas*
16:15 – 16:30	*Effect of Rubber Interleaving on the Charpy Impact Properties of Basalt Fiber Reinforced Polymers*	*Çağatay Yılmaz*
16:30 – 16:45	*Enhancing Impact Resistance in Recycled Composite Materials for Aerospace Applications: The Role of Strand Morphology and Sandwich Structures*	*Hatice Sinem Şaş Çaycı*
16:45 – 17:00	*Enhanced Impact Resistance of 3D Spacer Composite by Hybridisation with CF Sheets*	*Volkan Eskizeybek*
17:00 – 17:15	*Charpy Impact Performance of S2 Glass/Basalt Fiber Reinforced Hybrid Composites*	*Sara S. A. Eltahir, online*
17:15 – 17:30	*Span Length Effect on Strain Rate and Flexural Performance of Natural Fibre Reinforced In-Situ Polymerisable Composite*	*Mohamad Alsaadi*
17:30 - 17:45	*Hydrothermal Ageing Effects on Basalt Fibre-epoxy Composites Modified with Star-like Polymers*	*Tatjana Glaskova-Kuzmina*
17:45 - 18:00	*Effect of Carbonaceous Fillers on Interlaminar and Compression After Impact (CAI) Properties of Aeronautical CFRP*	*Mauro Zarrelli*
19:30	***CONFERENCE DINNER***	

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DAY 2 05 June

THURSDAY

08:45 – 09:00	**Registration**	
09:00 - 10:30	**Industry Session on Certification of Composite Products**	**Chair: Michele Meo & Jens Wiegand**
09:00 - 09:45	**Keynote speech -** *Developing Composite (and other advanced manufactured) product certification - a regulator's perspective*	**Simon Waite - ONLINE**
09:45 – 10:15	**Invited Speaker -** *Powerplant Extreme Events Simulations: Impact on Certification*	**Giuseppe Zumpano - ONLINE**
10:15 - 10:30	Thoughts and Examples on Certification by Analysis in Impact Loading of Composite Structures	**Andre Haufe**
10:30 – 11:00	***COFFEE BREAK***	
11:00 – 12:15	**Session 3 - Multi-modal sensing for impact detection and damage characterisation (WG5)**	**Chair: Rohan Soman**
11:00 – 11:15	*Hybrid AI for Impact Detection in Polymeric Plate*	*Thanasis Kotzakolios*
11:15 – 11:30	*Impact Damage Identification in GFRP Structures Using the Effective Boundary Approach*	*Jafar Amraei*
11:30 – 11:45	*Full Wave Field Analysis of Damage Severity for the Impacted thermoplastic Composite*	*Pawel Malinowski*
11:45 – 12:00	*Identification of Impact damage in Sandwich Composite Structures Using High-Speed 3D Digital Image Correlation and Wavelength Analysis*	*Andrzej Katunin*
12:00 - 12:15	*Impedance Based Structural Health Monitoring for Multi-Impact Damage Classification in PLA Plates*	*Paresh Mirgal*

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DAY 2 05 June

THURSDAY

12:15 – 13:00	**Session 4 - Advanced testing and instrumentation for composites under high strain rates (WG6)**	**Chair: Andrei Anisimov**
12:15 – 12:30	*Integration of Optical Measurements in Standard Hopkinson bar Data Treatment*	*Marco Peroni*
12:30 – 12:45	*Common Path Polarisation Electronic Speckle Pattern Interferometry for Dynamic Deformation Analysis*	*Violeta Madjarova*
12:45 – 13:00	*Next Generation Dynamic Testing of Composites: A Review*	*Briek Luyten*
13:00 – 14:00	***LUNCH***	
14:00 – 14:30	**Session 4 - Advanced testing and instrumentation for composites under high strain rates (WG6) - continued**	**Chair: Tatjana Glaskova-Kuzmina**
14:00 – 14:15	*Elements for a Roadmap for Standardisation of High Strain Rate Testing of Composite Materials*	*Andrei Anisimov*
14:15 – 14:30	*Overview of Available Standards on High Strain Rate Testing*	*Marco Peroni*
14:30 - 15:00	**COFFEE BREAK with POSTER SESSION**	
15:00 - 16:00	**HISTRATE Use Cases**	**Chair: Michele Meo**
15:00 – 15:15	*Use Case 1: Infrared Curing of Composites*	*Thanasis Kotzakolios*
15:15 - 15:30	*Use Case 2: Thermoplastic Composites with in-situ Consolidation*	*Svetlana Risteska (online)*
15:30 – 15:45	*Use Case 3: Tailored Interlaminar Composite Properties*	*Andreas Hornig*
15:45 - 16:00	*Use Case 4: Bird Strike*	*Michele Meo*
16:00 - 16:15	**SUMMARY AND FAREWELL**	*Elena Stoykova Radmila Tomovska*

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Poster Presentations

Büşra Osma (online)	Investigation of Strength Properties of Polymer Based Carbon fiber-reinforced plastic (CFRP) and glass fiber-reinforced plastic (GFRP) Composites as Experimental and Numerical
Sara Srebrenkoska	The effect of laser assisted tape placement processing conditions on flexural strength of in-situ carbon fibre/PEEK laminates
Aleksandre Vanishvili	Development of Basalt Based Fiber-Metal Laminates and Analysis of Their Mechanical Properties
Sevtlana Risteska	Influence of some technological parameters in the content of voids on the in-situ thermoplastic composites in Pultrusion, FW and AFP/ATP technologies
Vineta Srebrenkoska	Ballistic strength of polyethylene composites based on directional and unidirectional fibres under the high-speed ballistic impact
Nikoloz Chikhradze	Response of sandwich structure containing aluminum honeycomb to the contact explosion
Matej Micusik	Elastomer composites with hybrid carbon fillers
Ana Cristina Restrepo Montoya	Thermo-reversible Diels-Adler polyurethane adhesives for sustainable composite bonding
Jadranka Blazhevska Gilev	New Composite Materials with enhanced mechanical properties
Abdulkadir Sezai Saraç	Thermomechanical properties of electrospun polyacrylonitrile nanofibers with embedded magnetic nanoparticles in a magnetic field
Rohan Soman	Impact localisation in a CFRP plate with unknown material properties
Maciej Radzienski	Delamination detection in complex composite laminates using guided wave conversion tracking
Tomasz Rogala	Detection of subsurface damage caused by impact in CFRP composites using an eddy current sensor
Elena Stoykova	Numerical simulation tool for speckle-based NDT systems: ESPI, shearography and laser speckle photometry
Yüksel Çakır	A study on specimen dimension for standardisation of the split Hopkinson pressure bar test

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Speakers*

NAME	ORGANISATION
Radmila Tomovska	University of Basque Country
Patricia Verleysen	Ghent University
Michel Mahe	Airbus France
Laurent Risse	Airbus France
Ali Rashed	Sabancı University
Ezgi Bakır	Istanbul Technical University
Andreas Hornig	TUD Dresden University of Technology
Özgen Çolak Çakır	Yıldız Technical University
Michele Meo	University of Southampton
Nenad Djordjevic	Brunel University
Thomas Zaragkas	University of Patras
Çağatay Yılmaz	Abdullah Gül University
Hatice Sinem Sas	University of Sheffield
Volkan Eskizeybek	Canakkale Onsekiz Mart Üniversitesi
Sara Saeed Abdulrahman Eltahir	Abdullah Gül University
Rohan Soman	Polish Academy of Sciences

NAME	ORGANISATION
Mohamad Alsaadi	Technological University of the Shannon
Tatjana Glaskova-Kuzmina	University of Latvia
Mauro Zarrelli	CNR - National Research Council of Italy
Simon Waite	EASA
Giuseppe Zumpano	Rolls Royce UK
André Haufe	DYNAmore GmbH, an Ansys Company
Thanasis Kotzakolios	University of Patras
Jafar Amrei	Silesian University of Technology
Pawel Malinowski	Polish Academy of Sciences
Andrzej Katunin	Silesian University of Technology
Paresh Mirgal	Polish Academy of Sciences
Marco Peroni	European Commissiın
Violeta Madjarova	Bulgarian Academy of Sciences
Briek Luyten	Ghent University
Andrei Anisimov	TU Delft
Svetlana Risteska	Goce Delcev University
Elena Stoykova	Bulgarian Academy of Sciences

** listed per order of talks*

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Sara Srebrenkoska	Goce Delcev University, Macedonia
Aleksandre Vanishvili	Grigol Tsulukidze Mining Institute, Georgia
Sevtlana Risteska	Goce Delcev University, Macedonia
Vineta Srebrenkoska	Goce Delcev University, Macedonia
Nikoloz Chikhradze	Grigol Tsulukidze Mining Institute, Georgia
Matej Micusik	Slovak Academy of Sciences
Ana Cristina Restrepo Montoya	University of the Basque Country
Jadranka Blazhevska Gilev	Ss. Cyril Methodius University in Skopje
Abdulkadir Sezai Saraç	Istanbul Technical University
Rohan Soman	Polish Academy of Sciences
Maciej Radzienski	Polish Academy of Sciences
Tomasz Rogala	Silesian University of Technology
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