



# HISTRATE

## Advanced Composites Under High Strain Loading: A Route to Certification- by-Analysis

2025 Conference  
4th - 5th June 2025



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

## PROGRAMME

2025 Conference  
4<sup>TH</sup> - 5<sup>TH</sup> 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  
*Crashworthiness 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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WEDNESDAY

**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**

**Simon Waite -  
ONLINE**

**Giuseppe  
Zumpano -  
ONLINE**

**Andre Haufe**

09:00 - 09:45 **Keynote speech -** *Developing Composite (and other advanced manufactured) product certification - a regulator's perspective*

09:45 – 10:15 **Invited Speaker -** *Powerplant Extreme Events Simulations: Impact on Certification*

10:15 - 10:30 Thoughts and Examples on Certification by Analysis in Impact Loading of Composite Structures

**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 Sarac 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 Radzienki 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\*

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Radmila Tomovska	University of Basque Country	Mohamad Alsaadi	Technological University of the Shannon
Patricia Verleysen	Ghent University	Tatjana Glaskova-Kuzmina	University of Latvia
Michel Mahe	Airbus France	Mauro Zarrelli	CNR - National Research Council of Italy
Laurent Risse	Airbus France	Simon Waite	EASA
Ali Rashed	Sabancı University	Giuseppe Zumpano	Rolls Royce UK
Ezgi Bakır	Istanbul Technical University	André Haufe	DYNAmore GmbH, an Ansys Company
Andreas Hornig	TUD Dresden University of Technology	Thanasis Kotzakolios	University of Patras
Özgen Çolak Çakır	Yıldız Technical University	Jafar Amrei	Silesian University of Technology
Michele Meo	University of Southampton	Pawel Malinowski	Polish Academy of Sciences
Nenad Djordjevic	Brunel University	Andrzej Katunin	Silesian University of Technology
Thomas Zaragkas	University of Patras	Paresh Mirgal	Polish Academy of Sciences
Çağatay Yılmaz	Abdullah Gül University	Marco Peroni	European Commission
Hatice Sinem Sas	University of Sheffield	Violeta Madjarova	Bulgarian Academy of Sciences
Volkan Eskizeybek	Canakkale Onsekiz Mart Üniversitesi	Briek Luyten	Ghent University
Sara Saeed Abdulrahman Eltahir	Abdullah Gül University	Andrei Anisimov	TU Delft
Rohan Soman	Polish Academy of Sciences	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 Blazhevská Gilev	Ss. Cyril Methodius University in Skopje
Abdulkadir Sezai Sarac	Istanbul Technical University
Rohan Soman	Polish Academy of Sciences
Maciej Radzienksi	Polish Academy of Sciences
Tomasz Rogala	Silesian University of Technology
Elena Stoykova	Bulgarian Academy of Sciences
Yüksel Çakır	Istanbul Technical University



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