



HISTRATE

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

2025 Conference
4th - 5th June 2025



Funded by
the European Union

© 2025 HISTRATE - COST Action CA21155

 **cost**
EUROPEAN COOPERATION
IN SCIENCE & TECHNOLOGY



HISTRATE

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

2025 Conference

4TH - 5TH JUNE 2025

PROGRAMME

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



UNIVERSITY
OF BASQUE COUNTRY, SAN
SEBASTIÁN, SPAIN

radmila.tomovska@ehu.es



Funded by
the European Union

This conference programme is within the scope of COST Action HISTRATE, CA-21155, supported by COST (European Cooperation in Science and Technology).



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

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



UNIVERSITY OF THE BASQUE
COUNTRY, SAN SEBASTIAN, SPAIN

radmila.tomovska@ehu.es



Funded by
the European Union

This conference programme is within the scope of COST Action HISTRATE, CA-21155, supported by COST (European Cooperation in Science and Technology).



HISTRATE

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

2025 Conference

PROGRAMME

4TH - 5TH JUNE 2025

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



UNIVERSITY OF THE BASQUE
COUNTRY, SAN SEBASTIAN, SPAIN

radmila.tomovska@ehu.es



EUROPEAN COOPERATION
IN SCIENCE & TECHNOLOGY



Funded by
the European Union

This conference programme is within the scope of COST Action HISTRATE, CA-21155, supported by COST (European Cooperation in Science and Technology).



HISTRATE

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

2025 Conference

PROGRAMME

4TH - 5TH JUNE 2025

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	<i>Integration of Optical Measurements in Standard Hopkinson bar Data Treatment</i>	Marco Peroni
12:30 – 12:45	<i>Common Path Polarisation Electronic Speckle Pattern Interferometry for Dynamic Deformation Analysis</i>	Violeta Madjarova
12:45 – 13:00	<i>Next Generation Dynamic Testing of Composites: A Review</i>	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	<i>Elements for a Roadmap for Standardisation of High Strain Rate Testing of Composite Materials</i>	Andrei Anisimov
14:15 – 14:30	<i>Overview of Available Standards on High Strain Rate Testing</i>	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	<i>Use Case 1: Infrared Curing of Composites</i>	Thanasis Kotzakolios
15:15 - 15:30	<i>Use Case 2: Thermoplastic Composites with in-situ Consolidation</i>	Svetlana Risteska (online)
15:30 – 15:45	<i>Use Case 3: Tailored Interlaminar Composite Properties</i>	Andreas Hornig
15:45 - 16:00	<i>Use Case 4: Bird Strike</i>	Michele Meo
16:00 - 16:15	SUMMARY AND FAREWELL	Elena Stoykova Radmila Tomovska



UNIVERSITY OF THE BASQUE
COUNTRY, SAN SEBASTIAN, SPAIN

radmila.tomovska@ehu.es



Funded by
the European Union

This conference programme is within the scope of COST Action HISTRATE, CA-21155, supported by COST (European Cooperation in Science and Technology).



HISTRATE

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

2025 Conference

PROGRAMME

4TH - 5TH JUNE 2025

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



UNIVERSITY OF THE BASQUE
COUNTRY, SAN SEBASTIAN, SPAIN

radmila.tomovska@ehu.es



Funded by
the European Union

This conference programme is within the scope of COST Action HISTRATE, CA-21155, supported by COST (European Cooperation in Science and Technology).



HISTRATE

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

2025 Conference

PROGRAMME

4TH - 5TH JUNE 2025

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
Pareesh Mirgal	Polish Academy of Sciences
Marco Peroni	European Commission
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



UNIVERSITY OF THE BASQUE
COUNTRY, SAN SEBASTIAN, SPAIN

radmila.tomovska@ehu.es



Funded by
the European Union

This conference programme is within the scope of COST Action HISTRATE, CA-21155, supported by COST (European Cooperation in Science and Technology).



HISTRATE

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

2025 Conference

PROGRAMME

4TH - 5TH JUNE 2025

Speakers*

NAME

ORGANISATION

Büşra Osma

Yıldız Technical University, Türkiye

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 Blazhevskia 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

Elena Stoykova

Bulgarian Academy of Sciences

Yüksel Çakır

Istanbul Technical University



UNIVERSITY OF THE BASQUE
COUNTRY, SAN SEBASTIAN, SPAIN

radmila.tomovska@ehu.es



Funded by
the European Union

This conference programme is within the scope of COST Action HISTRATE, CA-21155, supported by COST (European Cooperation in Science and Technology).