



**AMADE**

ANALYSIS AND ADVANCED MATERIALS  
FOR STRUCTURAL DESIGN

Universitat  
de Girona

## PROGRAM

11TH INTERNATIONAL CONFERENCE  
ON COMPOSITE TESTING AND  
MODEL IDENTIFICATION

# COMPTEST 2023

31 MAY - 2 JUNE 2023  
GIRONA, SPAIN

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**Jordi Renart**



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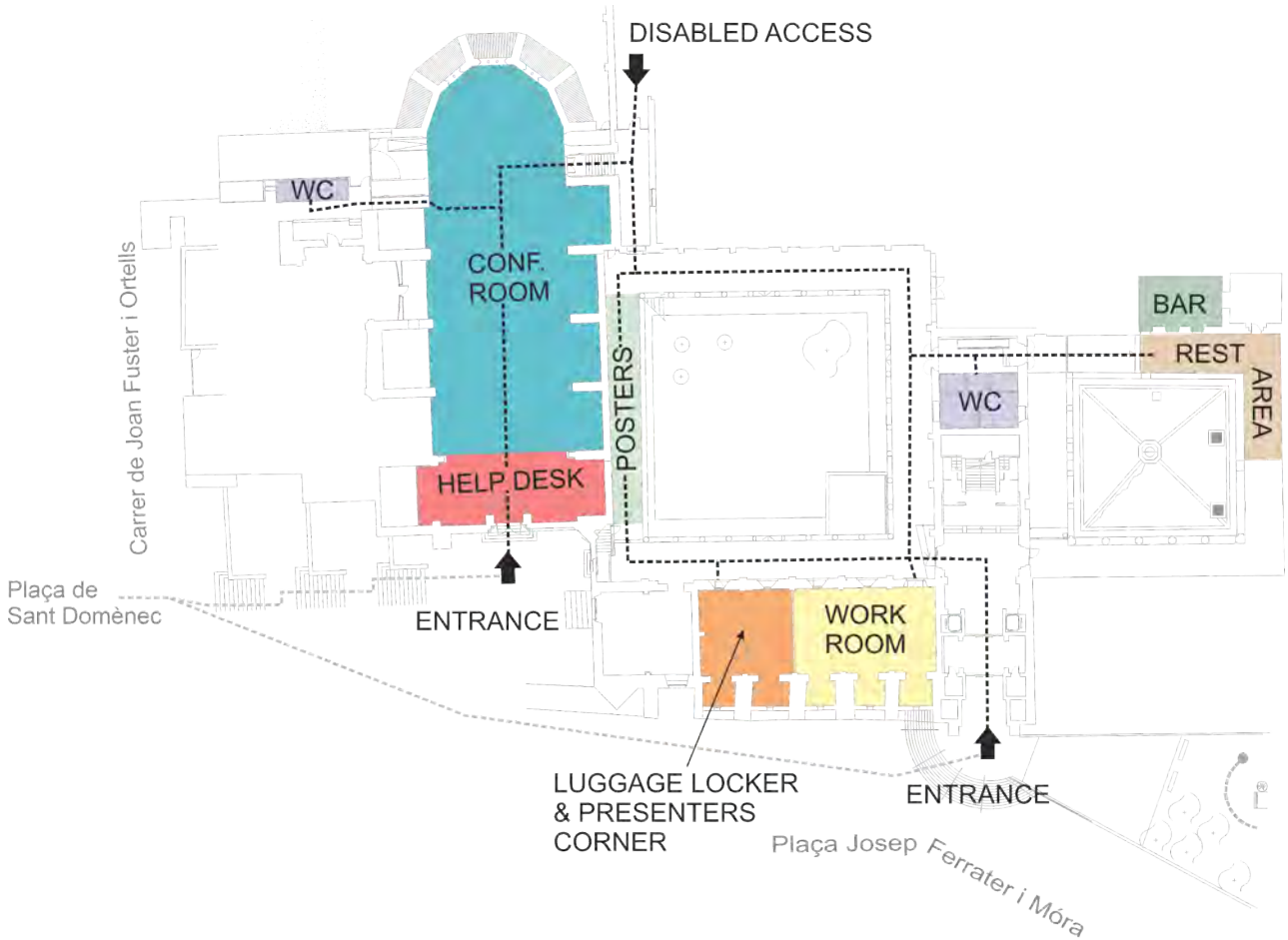


# USEFUL INFORMATION

## Conference venue



The conference will be held at the Faculty of Humanities of the University of Girona, located next to the Middle Ages city wall, at the old town of Girona, in the former XIII century gothic convent of Sant Domènec.



## Wi-Fi

Username and password: **comptest2023**



## Taxi

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## Public transport

There is a bus stop in front of the Faculty of Humanities called "UdG Campus Barri Vell". Line 7 (pink)

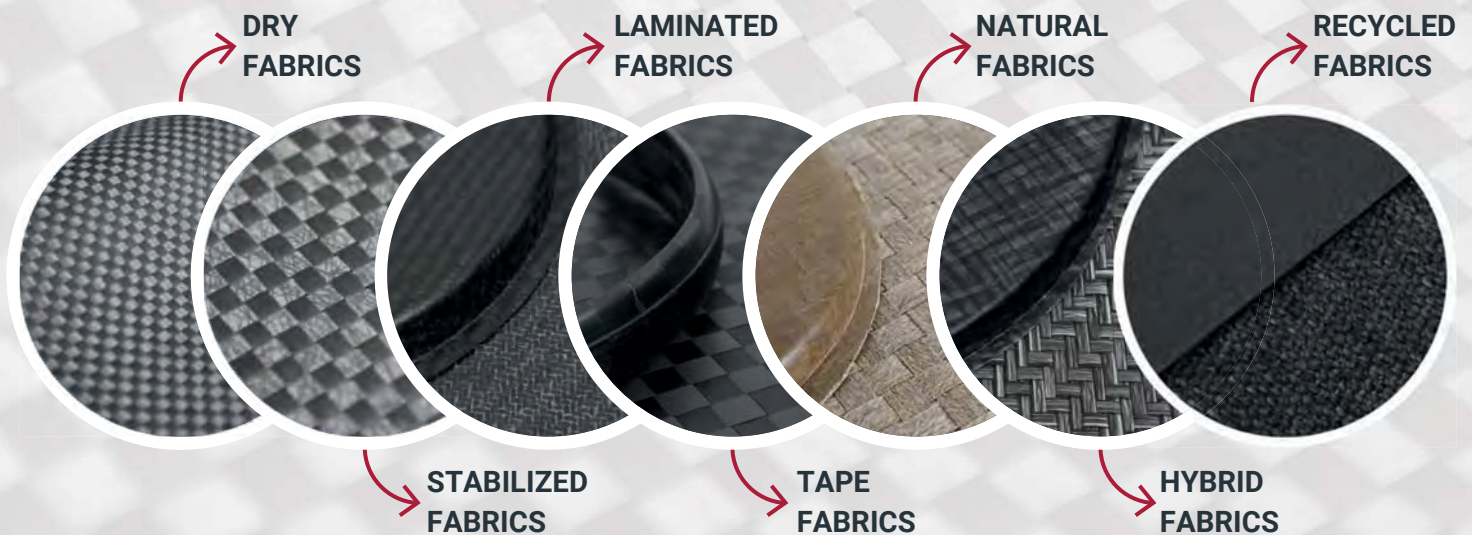
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## WEAVING NEXT GENERATION OF FIBER REINFORCED COMPOSITES

In 2019 Marina Textil S L and Texfire S L decided to start a new project together, taking profit of their knowledge in design and production of technical fabrics, to launch a new production plant of evolved fabrics for composites world.

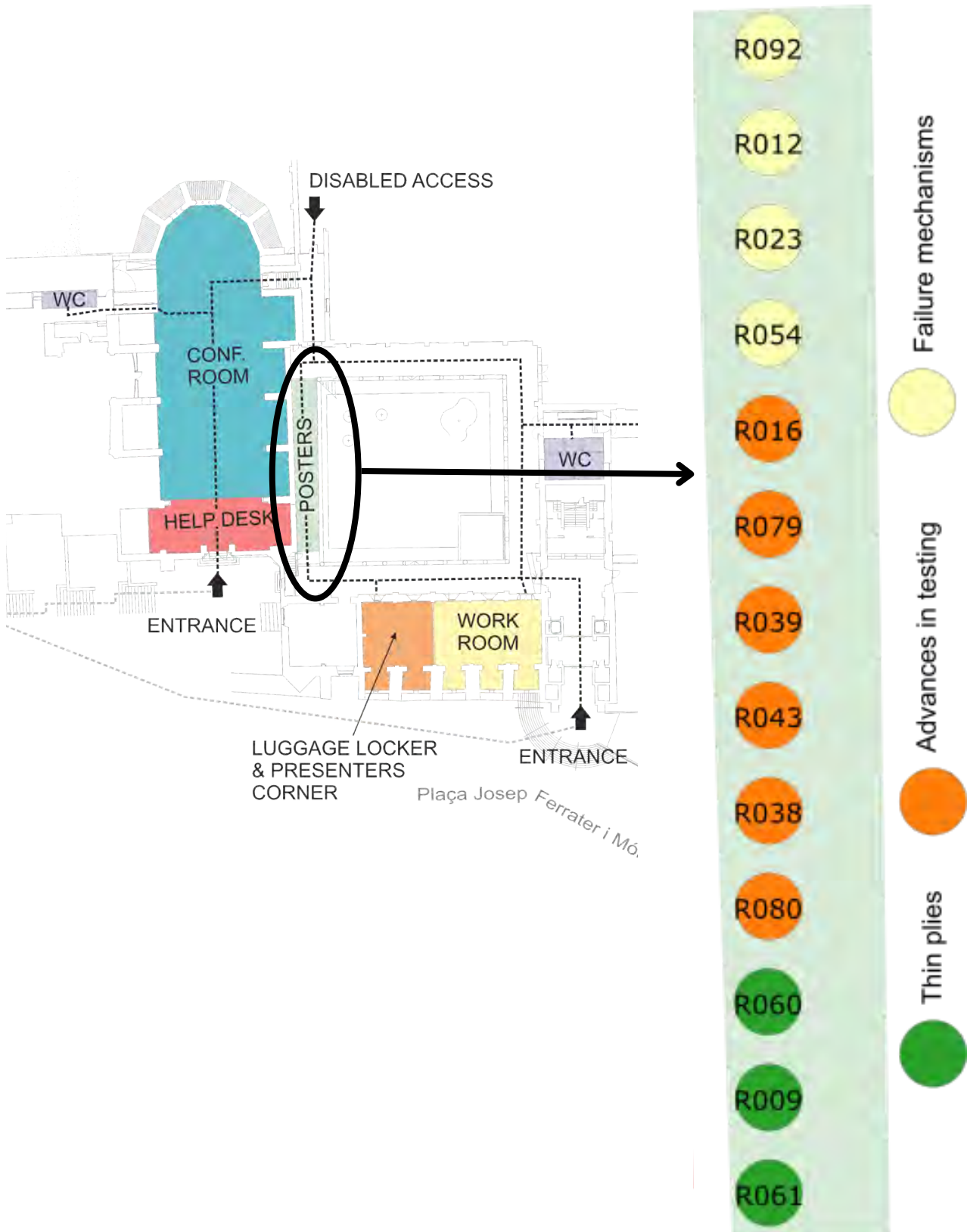
Blackfabric is a **textile manufacturer** of fiber-reinforced thermoplastic composites based in Barcelona, Spain. We offer **innovative sustainable fabrics for composites applications**, Weaving all types of fibers and recyclable thermoplastic matrices.



Blackfabric operates a well-equipped weaving plant that can produce bidirectional fabrics up to 200 cm wide, with an annual capacity of 3 million linear meters. We have special machinery to **weave flat spread tows** up to 20mm wide, and we have a **laboratory sample loom for fabric sampling**. In-house, we have a **bonding plant** and **hot plate press** for thermoplastic lamination and thermoforming. Our **quality control laboratory** and engineering R&D team is dedicated to developing innovative, sustainable solutions.

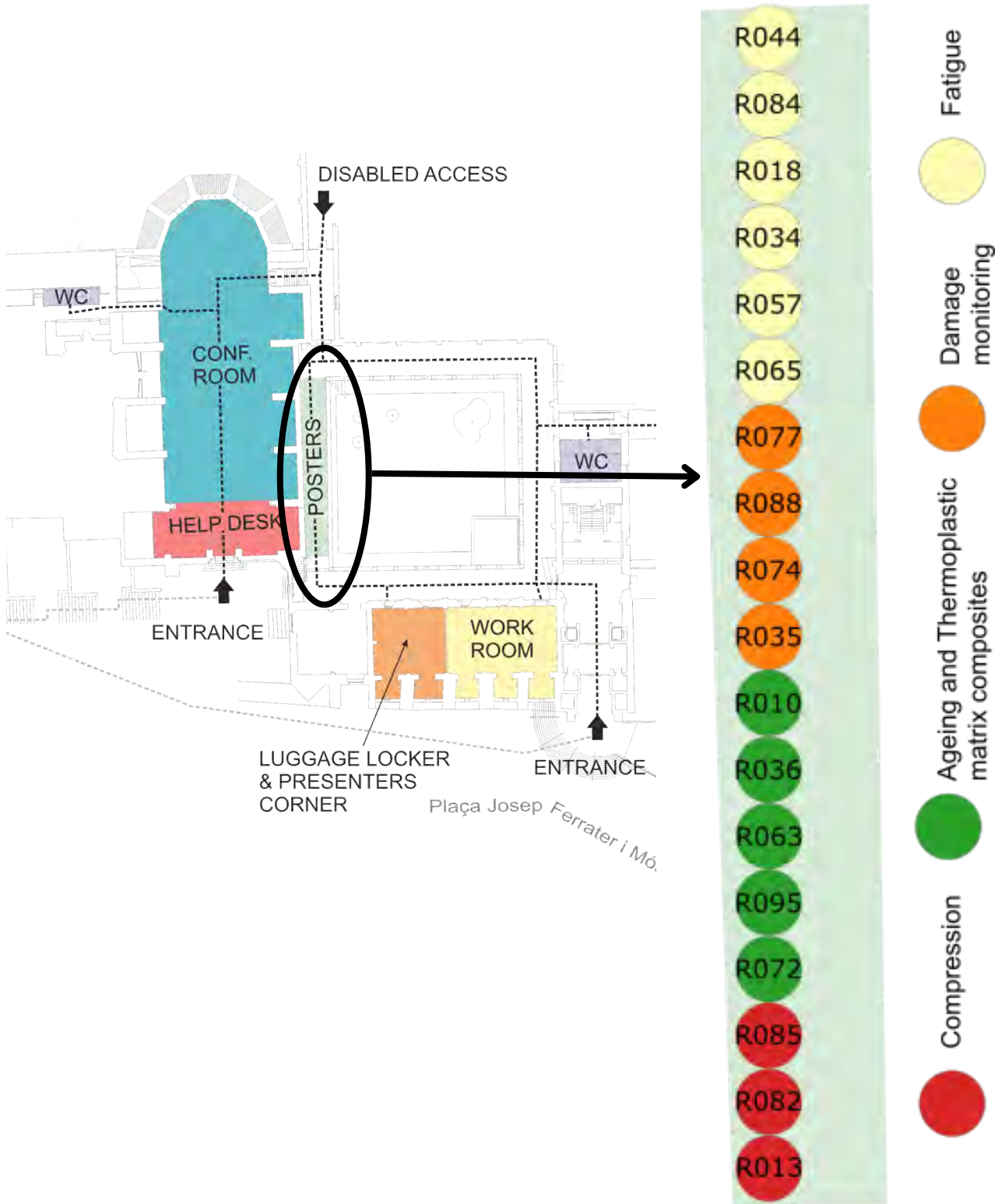
# POSTER SESSIONS

WEDNESDAY, MAY 31ST



# POSTER SESSIONS

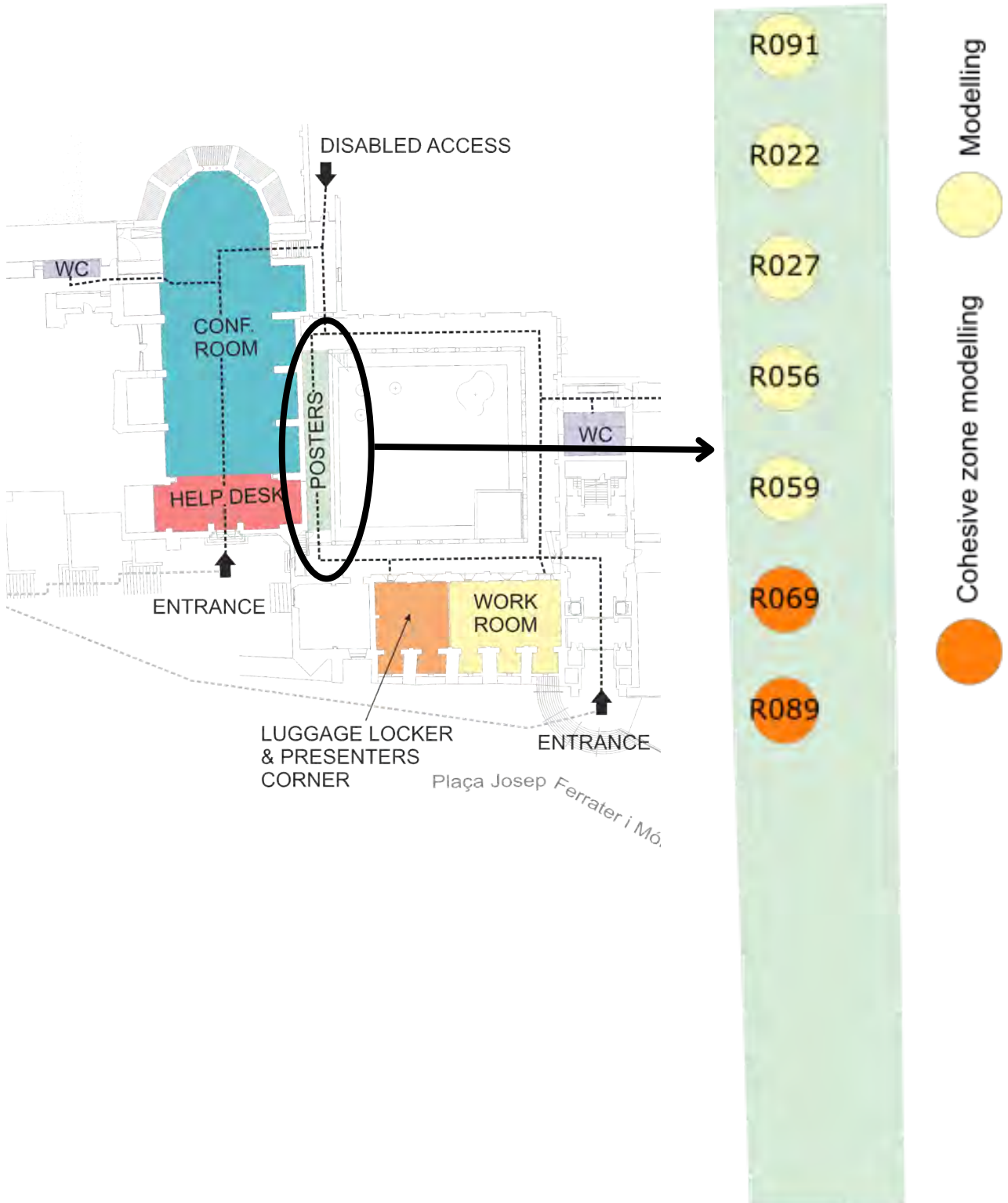
THURSDAY, JUNE 1ST





# POSTER SESSIONS

FRIDAY, JUNE 2ND



## Eurecat, innovating with companies

Eurecat is the leading Technology Centre in Catalonia, your partner to drive business competitiveness through applied research and innovation. Eurecat offers joint development of industrial R&D projects, technology services, technology consulting, training and development of innovative products and services. A multidisciplinary and multinational team of researchers works in more than 200 applied R&D projects addressing the main industrial and social challenges in the Industrial, digital, biotechnology and sustainability areas.

Some examples of R&D activities on the composite materials sector are showed below:

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# SOCIAL EVENTS

## Conference Welcome Reception at the abbey of Sant Pere de Galligants

Wednesday, May 31st

20:30 – 22:30



LOCATION MAP

The abbey of Sant Pere de Galligants is a Benedictine abbey built in the 10th century. It is a jewel of the Romanesque style. Currently, it hosts part of the Archeology Museum of Catalonia. A standing dinner will be served during the reception.

## Conference Dinner

Thursday, June 1st

20:30 – 22:30



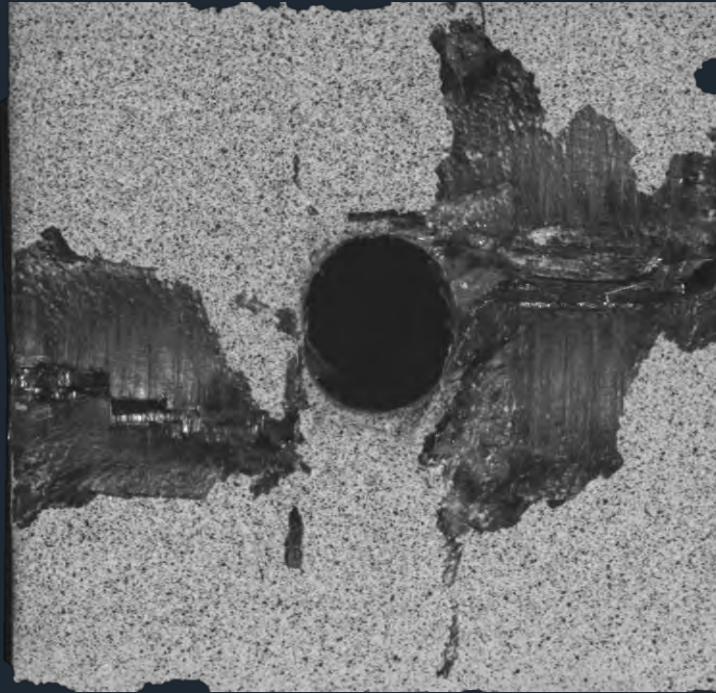
LOCATION MAP



Dinner at El jardí de Calders, a stylish restaurant located in a XVII century countryside manor surrounded by nature and hosting a private Romanesque chapel

Bus departure point: Passeig de la Devesa, between Rotonda del Pont de Pedret and Avinguda de França

Bus departure time: 20:00h



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# KEYNOTE SPEAKERS

## **Yentl Swolfs (KU Leuven)**



Yentl Swolfs obtained his PhD from KU Leuven in January 2015 on the topic "Hybridisation of self-reinforced composites: verifying and modelling a novel hybrid concept" After a 1-year Marie Skłodowska-Curie Fellowship at Imperial College London for 1 year, he returned to KU Leuven. He became a tenure-track research professor in 2019, and his main research interests are micromechanical modelling, in-situ computed tomography, and fibre hybridisation. His contributions were recognised by the 2019 Prize of the Research Council (at KU Leuven) and 2020 ESCM Award.

## **Federico Paris Carballo (University of Seville)**

He received the Industrial Engineering degree from the University of Seville, Seville, Spain, in 1976. He got his PhD degree from the Polytechnical University of Madrid, Spain, in 1979, getting the PhD extraordinary distinction of the University. In 1981 he was, already as Professor, at Structural Engineering Department, School of Industrial Engineering, University of Las Palmas. Since 1982 he has been, as Professor, member of the Continuum Mechanics Department of the School of Engineering at the University of Seville. He was Director of the School of Engineering from 2002 to 2006. He founded the Spin-off TEAMS together with Professor José Cañas, in 2006. He occupies the Airbus Chair at the Engineering School.



## **Janice Barton (University of Bristol)**



Janice Dulieu-Barton is a Professor of Experimental Mechanics in the Bristol Composites Institute at the University of Bristol. She is the Director of the Industrial Doctorate Centre in Composites Manufacture. She received her PhD in 1993 from Manchester University researching the topic now known as 'thermoelastic stress analysis'. She has published around 450 papers with 140 in archival journals. Janice's expertise is in imaging for data rich material characterisations and structural integrity assessments, with a focus on lightweight structural design particularly composite structures. She has won numerous grants that have allowed her to develop novel approaches in experimental mechanics. Most recently she has led an EPSRC funded project 'Structures 2025' which is a key enabler for the EPSRC Programme Grant 'Certification for Design – Reshaping the Testing Pyramid'. Janice leads the experimental work package devoted to developing imaging techniques suitable for large complex substructural components and multi-axial loading. Her presentation will describe how the techniques have developed and are underpinning the pathway to virtual testing by integration with models.



### **Melanie Herman (AIRBUS Operations SAS)**

Mechanical Engineer and post-graduate diploma in Mechanics of Solids. 22 years experience in Structural Analysis in Airbus. Expert in Composite Analysis and Manager of Advanced Failure Analysis in Airbus Airframe R&T. She joined Airbus Helicopters Stress Department in 2001, involved in metallic and composite developments (H160 thermoplastic hub), certification and continued airworthiness on dynamic components (rotor parts) and airframe (EC175 metallic airframe certification, H160 composite tailboom and stabilizer development) as CVE for rotorcraft. A believer of composite reliability and strong potential. She contributes at the introduction of advanced materials in aircraft structures and associated key enablers for certification by analysis.

### **Albert Turon (University of Girona)**

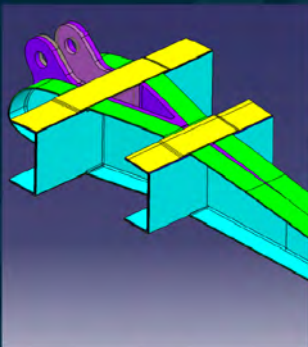
Associate Professor of Mechanics of Continuum Media and Theory of Structures at the University of Girona (Spain) and a senior member of the AMADE research group. He holds a European PhD from the University of Girona (2006), served as a Postdoc Researcher at the University of Porto (Portugal), and as a visiting researcher at NASA Langley Center (USA) and at Aalborg University (Denmark). He is currently a member of the council of European Society for Composite Materials and serves as member of editorial board of Composites Part B. He is author of more than 90 papers published in top-ranked international journals. He is ranked in the “World’s Top 2% Scientists ranking” published by Stanford University, in the “Best Mechanical and Aerospace Engineering Scientists” list from research.com, and has received the ICREA ACADÈMIA award (2022). He is actively participating in technology transfer projects with leading international companies, mainly from the aeronautical sector.



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## WEDNESDAY, MAY 31ST

8:00	8:30	<b>REGISTRATION</b>
8:30	8:45	<b>WELCOME</b>
8:45	9:20	<p><i>Keynote Lecture</i> – Chairman: Frédéric Laurin</p> <p><b>Longitudinal tensile failure models: experimental validation, benchmarking and future directions</b>  <u>Yentl Swolfs</u> (KU Leuven)</p>
9:20	10:40	<p>Session 1: <b>FAILURE MECHANISMS</b>  Chairman: Ole Thomsen</p>
9:20	9:40	<p style="text-align: center;">Oral</p> <p><b>R021 - Determining fracture properties for predicting damage propagation from notches in composite structures</b>  <u>Michael R. Wisnom</u>, Xiaoyang Sun and Xiaodong Xu  University of Bristol, University of the West of England</p>
		<p style="text-align: center;">Video record</p> <p><b>R092 - Influence of embedding matrix on fibre strength and final failure</b>  <u>Mostafa Barzegar</u>, Josep Costa, Dani Trias, Jose Manuel Guerrero and C. Gonzalez  University of Girona, IMDEA Materials Institute</p>
9:40	10:00	<p style="text-align: center;">Oral</p> <p><b>R052 - Microcracking of CFRP composites during cryogenic thermal cycling</b>  <u>Huw Edwards</u>, Daniel Galpin, Marcus Walls-Bruck, Byung Chul Kim and Janice Dulieu-Barton  University of Bristol, National Composites Centre</p>
		<p style="text-align: center;">Video record</p> <p><b>R012 - Investigation of failure mechanisms in L-angle composite laminates</b>  <u>Sindhu Bushpalli Shiva Reddy</u>, Enrique Graciani and Bernardo López-Romano  FIDAMC, University of Seville</p>
10:00	10:20	<p style="text-align: center;">Oral</p> <p><b>R070 - Arresting propagating kinkbands: failure mechanisms under longitudinal compression of carbon-boron fibre hybrids</b>  <u>Torquato Garulli</u>, Tomas Katafiasz, Emile S. Greenhalgh and Silvestre T. Pinho  Imperial College London</p>
		<p style="text-align: center;">Video record</p> <p><b>R023 - Numerical and experimental study of notched composite plates under envelope loadings: envelope validation method</b>  Florent Grotto, Joël Serra, <u>Christophe Bouvet</u> and Bruno Castanié  Institut Clément Ader</p>
10:20	10:40	<p style="text-align: center;">Oral</p> <p><b>R020 - Crack density growth of high temperature cross-ply laminates subjected to elevated temperatures</b>  <u>Vivek Richards Pakkam Gabriel</u>, Patrik Fernberg and Janis Varna  Luleå University of Technology, Riga Technical University</p>
		<p style="text-align: center;">Video record</p> <p><b>R054 - Determination and modelization of mode I interlaminar fracture toughness on 2D woven oxide/oxide composite using double cantilever beam test</b>  <u>Thomas Drouin</u>, F.Guillet, F.Laurin and G.Couegnat  Commissariat à l'Énergie Atomique et aux énergies alternatives (CEA), ONERA, Université de Bordeaux</p>
10:40	11:10	<b>COFFEE BREAK</b>

11:10 13:10		Session 2: <b>ADVANCES IN TESTING</b> Chairman: David Mollenhauer	
11:10 11:30	Oral	<b>R048 - Investigating shear performance of PMCS</b> Mark Flores, Robert Wheeler, Andrew Sharits, Jeremiah Lipp, Jared Shank, Jacob Crossno, Luke Geise, Ivana Hernandez, Evan Pineda Air Force Research Laboratory, NASA	
	Video record	<b>R016 - Measuring the compressive behaviour of glass/carbon fibre hybrid composite with a 4-point flexural test</b> Aree Tongloet, Xun Wu and Michael R. Wisnom University of Bristol	
11:30 11:50	Oral	<b>R093 - Material testing 2.0 for composites</b> Fabrice Pierron University of Southampton, MatchID NV	
	Video record	<b>R079 - Multiple amplitude testing method for detection of local damage evolution in bast fiber-reinforced polymers</b> Ramon Helwing and Frank Walther TU Dortmund University	
11:50 12:10	Oral	<b>R076 - Evaluation of a new experimental device for shear modulus measurement</b> Samuel Berthe, T. Poulet, M. Bilasse, G. Chabrol, P. Liverneaux, S. Lecler, N. Bahlouli Université de Strasbourg	
	Video record	<b>R039 - Detecting and characterising interfacial fracture through the face sheets of sandwich structures using mirror-assisted imaging techniques</b> Hiu Ling Leung, Janice M. Dulieu-Barton and Ole T. Thomsen University of Bristol	
12:10 12:30	Oral	<b>R031 - Challenges in determination of cohesive laws from r-curves of unidirectional composites experiencing delamination damage</b> Ashish K. Bangaru and Bent F. Sørensen Technical University of Denmark	
	Video record	<b>R043 - Testing of composite stiffened panels made by resin infusion</b> Alberto Barroso, Serafín Sánchez-Carmona, María L. Velasco, Antonio Blázquez, José Cañas, Federico París, Benito Ponce, Roberto Cerrato University of Seville, Alestis Aerospace	
12:30 12:50	Oral	<b>R047 - Evaluating the intralaminar tensile fracture behavior of composite materials under high rate loading through a combined experimental and numerical methodology</b> A. Cimadevilla, A. Vaz-Romero, J. Pernas-Sánchez, J. A. Artero-Guerrero, P. Maimí, E. V. González, E. De Blanpre, V. Jacques Universidad Carlos III de Madrid, University of Girona, Dassault Aviation	
	Video record	<b>R038 - Development of tensile specimens with bonded continuous protective layers for the accurate tensile failure strain determination of unidirectional carbon/epoxy composites</b> Gergely Czél Budapest University of Technology and Economics	
12:50 13:10	Oral	<b>R033 - 2013-2023: ten years of experimental, numerical and measurement developments with the vertex multiaxial test bench</b> Bruno Castanié, Jean-Charles Passieux, Jean-Noel Périé, Christophe Bouvet and Joël Serra Institut Clément Ader	
	Video record	<b>R080 - Experimental investigation of the loading rate dependency of the non-linear damageable behaviour of carbon/epoxy laminates</b> Jordan Berton, Fabien Coussa, Julien Berthe, Eric Deletombe and Mathias Brieu ONERA, California State University	

13:10	14:10	<b>LUNCH BREAK</b>	
14:10	14:45	<i>Keynote Lecture</i> – Chairman: Yentl Swolfs	
		<b>Incidence of the mechanisms of damage in the scale effect of composites involving Ultra Thin Plies</b> <u>Federico Paris Carballo</u> (University of Seville)	
14:45	15:45	<b>Session 3: THIN PLIES</b> Chairman: Alberto Barroso	
14:45	15:05	Oral	<b>R040 - Hydrogen diffusion through thin-ply composites</b> <u>Ioannis Katsivalis</u> , Virginia Signorini, Fredrik Ohlsson, Marco Minelli and Leif E. Asp Chalmers University of Technology, University of Bologna, Oxeon AB
		Video record	<b>R060 - Failure analysis of hybrid glass/carbon thin ply laminates subjected to tensile loading</b> <u>Alens Šņepsts</u> and <u>Andrejs Pupurs</u> Riga Technical University
15:05	15:25	Oral	<b>R001- Self-heating analysis of hybrid thin-ply laminates subjected to cyclic mechanical loading</b> <u>Andrejs Pupurs</u> and <u>Alens Šņepsts</u> Riga Technical University
		Video record	<b>R009 - Investigation of thickness effects in bi-axially braided glass fibre laminates using a parametrised RVE model</b> <u>Tim Luplow</u> , Martin Bartelt, Sebastian Heimbs and Peter Horst Technische Universität Braunschweig
15:25	15:45	Oral	<b>R029 - Characterization of a filament wound thin-ply composite for a cryogenic tank for liquid hydrogen</b> <u>Robin Olsson</u> , E. Marklund, M. Merzkirch and D. Ramantani RISE Research Institutes of Sweden
		Video record	<b>R061 - Experimental and numerical investigation on bearing behavior of hybrid thin/thick-ply composite laminates</b> <u>Mohamed Loukil</u> , Mats Bergwall, Sergio Costa, Florence Moreau, Zlatan Kapidzic Linköping University, RISE AB, Oxeon AB, Saab AB
15:45	16:30	<b>POSTER SESSION 1</b>	
16:30	18:30	<b>Session 4: FATIGUE</b> Chairman: Christophe Bouvet	
16:30	16:50	Oral	<b>R014 - Effects of variable amplitude fatigue on delamination and crack growth rate models</b> <u>Simon M. Jensen</u> , Laura Carreras, Brian L.V. Bak, Cedric Lequesne and Esben Lindgaard Aalborg University, University of Girona, Siemens Digital Industries Software
		Video record	<b>R084 - Fatigue failure prediction in GFRP composite laminates: comprehensive fatigue damage model, software implementation in SAMCEF and benchmark tests</b> <u>Laura Carreras</u> , Brian L. V. Bak, Simon M. Jensen, Jens J. Bender, Cedric Lequesne, Hu Xiong and Esben Lindgaard University of Girona, Aalborg University, Siemens Digital Industries Software

16:50	17:10	Oral	<b>R017 - Comparison between the inter- and intra-laminar fatigue crack propagation as obtained from DCB and cross-ply specimens</b> <u>Paolo A. Carraro</u> , Lucio Maragoni and Marino Quaresimin University of Padova
		Video record	<b>R044 - Lay-up effects on the fatigue life of open-hole multidirectional composite laminate specimens subjected to cyclic shear loading</b> <u>Roy C. Bullock</u> , Tobias Laux, Ole T. Thomsen, and Janice M. Dulieu-Barton University of Bristol
17:10	17:30	Oral	<b>R053 - Assessment of mode I fatigue delamination of composites through a rapid testing method</b> <u>Sergi Parareda</u> , Daniel Casellas, Jordi Llobet, Jordi Renart, Josep Costa, Albert Turon EURECAT Centre Tecnològic de Catalunya, University of Girona
		Video record	<b>R018 - Prediction of the elastic properties and fatigue damage evolution in bundle-based composites for wind turbines</b> <u>Federico Lamon</u> , P.A. Carraro, A.K. Bangaru, L. Maragoni, M. Quaresimin University of Padova, Technical University of Denmark
17:30	17:50	Oral	<b>R011 - Investigation of transverse matrix cracking in fatigue for laminated composites</b> <u>Stacy Patti</u> , M. Kaminski, J.-F. Maire, F. Laurin and P. Maimí Université Paris Saclay, University of Girona
		Video record	<b>R034 - Static and fatigue performance of wind turbine blade epoxy adhesives</b> <u>Dharun Vadugappatty Srinivasan</u> and Anastasios P. Vassilopoulos Ecole Polytechnique Fédérale de Lausanne (EPFL)
17:50	18:10	Oral	<b>R068 - A novel benchmark test for composites under complex loading sequences resulting in non-self-similar damage evolution</b> <u>Jordi Renart</u> , Laura Carreras, Iñaki Leciñana, Javier Zurbitu, and Albert Turon University of Girona, IKERLAN Technology Research Centre
		Video record	<b>R057 - Mechanical joining technology between metal and carbon fiber reinforced polymers through punching</b> <u>Núria Latorre</u> , Daniel Casellas and Josep Costa Eurecat Technology Centre of Catalonia, University of Girona, Luleå University of Technology
18:10	18:30	Oral	<b>R083 - Multiple crack initiation in cross-ply laminates under spectrum loadings</b> <u>Marino Quaresimin</u> , Paolo A. Carraro and Mirko Simonetto University of Padova
		Video record	<b>R065 - Numerical modelling and experimental behaviour of adhesive joints under dynamic loading</b> <u>Pablo Villarroel</u> , Emilio V. González, José A. Artero, Adrián Cimadevilla, Elisabeth De Blanpre, Vincent Jacques University of Girona, Universidad Carlos III de Madrid, Dassault Aviation
18:30	20:30	<b>BREAK</b>	
20:30	22:30	<b>WELCOME RECEPTION</b>	

## THURSDAY, JUNE 1ST

8:30	9:10	<p><i>Keynote lecture</i> – Chairman: Federico Paris</p> <p><b>Full Field Data Fusion (FFDF) to characterise subsurface defects in composite structures</b></p> <p><u>Janice Barton</u> (University of Bristol)</p>	
9:10	10:30	<p>Session 5: <b>DAMAGE MONITORING</b></p> <p>Chairman: Peter Davis</p>	
		Oral	<p><b>R030 - Experimental characterization and numerical modeling of damages induced by low-velocity impacts in recent composite materials</b></p> <p><u>Frederic Laurin</u>, S. Chaibi, J. Rannou, J. Berthe, C. Bouvet, and F. Congourdeau ONERA, Université de Toulouse, Dassault Aviation</p>
9:10	9:30	Video record	<p><b>R077 - Identification of damage initiation and progression in open hole composites using acoustic emission and digital image correlation</b></p> <p><u>Neha Chandarana</u>, Rafael Ruiz Iglesias, Oliver Helps, Emmanuel Ramasso, and Philip J. Withers University of Bristol, The University of Manchester, TWI Technology Centre Wales, Université Bourgogne Franche-Comté</p>
		Oral	<p><b>R075 - Measurement of mixed-mode cohesive laws of a UD composite undergoing delamination with large-scale bridging</b></p> <p><u>Ruben Isaac Erives Anchondo</u>, B. F. Sørensen Technical University of Denmark</p>
9:30	9:50	Video record	<p><b>R088 - Damage sequence of impact events on 3d-printed composite laminates with quasi-static indentation test</b></p> <p><u>Alex Fernández</u>, Norbert Blanco and Daniel Trias University of Girona</p>
		Oral	<p><b>R003 - Simulation of damage induced acoustic emission in laminates</b></p> <p><u>Aurélien Doitrand</u>, Zeina Hamam, Nathalie Godin, Pascal Reynaud, Claudio Fusco, Nicolas Carrère MATEIS INSA Lyon, IDRL</p>
9:50	10:10	Video record	<p><b>R074 - Assessment of the qualities of carbon nanotube sensors for structural health monitoring of composites</b></p> <p><u>Moisés Zarzoso</u>, Anastasiia Mikhalchan, Pablo Romero, Ricardo Losada, Juan J. Vilatela and Carlos González IMDEA Materials Institute, Universidad Politécnica de Madrid, AIMEN</p>
		Oral	<p><b>R058 - Hybridisation of carbon and natural fibers for sustainable composites in automotive applications</b></p> <p><u>Marina Corvo Alguacil</u>, Mohamed Loukil, Hana Zrida, Rickard Östlund, Sergejs Tarasovs, Janis Andersons, Roberts Joffe Luleå University of Technology, Linköping University, Gestamp Hardtech, University of Latvia</p>
10:10	10:30	Video record	<p><b>R035 - Influence of voids on thick DCB joint behavior</b></p> <p><u>Jialiang Fan</u>, Anastasios P. Vassilopoulos and Veronique Michaud Ecole Polytechnique Fédérale de Lausanne (EPFL)</p>
10:30	11:00	<p><b>COFFEE BREAK</b></p>	

11:00	13:00	<b>Session 6: AGEING &amp; THERMOPLASTIC MATRIX COMPOSITES</b> Chairman: Anastasios Vassilopoulos	
		Oral	<b>R019 - Testing to evaluate water effects in composites: a critical regard</b> Peter Davies, Alban Robin, Mael Arhant IFREMER Brittany Centre
11:00	11:20	Video record	<b>R010 - Monitoring of water absorption and its effects on mechanical performance of thick GFRP structures by integrated smart sensors</b> Dennis Gibhardt, Christina Buggisch, Maximilian Ahrens and Bodo Fiedler Hamburg University of Technology
		Oral	<b>R081 - Viscoplastic strain development in stress controlled tensile loading: effect of temperature</b> Zainab Al-Maqdasi, Stephanie G. Nunes, Otavio Bianchi, Janis Varna, Liva Pupure, and Roberts Joffe Luleå University of Technology, RISE Research Institute of Sweden, Universidade Federal do Rio Grande do Sul, Riga Technical University
11:20	11:40	Video record	<b>R036 - Mode-I fracture toughness of thin CF/PA6 UD composites identified in a DCB test with stiffening al beams in the presence of debonding</b> Sepehr Simaafrookhteh, Stepan V. Lomov and Jan Ivens KU Leuven Campus, SIM M3 program
		Oral	<b>R037 - Testing and modelling of lightning strike induced damage in CFRP wind turbine blade structures</b> Timothy M. Harrell, Janice M. Dulieu-Barton, Ole T. Thomsen University of Virginia, University of Bristol
11:40	12:00	Video record	<b>R063 - Statistical study of the process parameters to achieve continuous consolidation on thermoplastic composites</b> Daniel Campos, Pere Maimí and Alberto Martín Applus+ Laboratories, University of Girona
		Oral	<b>R051 - Creep behaviour of composite cylinders at sea</b> Mael Arhant, Nicolas Dumergue, Corentin Renaut, Peter Davies IFREMER Brittany Centre
12:00	12:20	Video record	<b>R095 - Quasi-static crushing behaviour of a high-strength carbon fibre-reinforced thermoplastic (CFRTP) in mechanically fastened joints</b> P. J. Silva Campos, Albertino Arteiro, F. Danzi, I. A. Rodrigues Lopes and D. Dalli Universidade do Porto
		Oral	<b>R066 - Compressive crack resistance analysis of unidirectional thermoplastic composites</b> F. Danzi, P. Campos, A. Arteiro, D. Dalli, C. Furtado, J. Chevalier, R. Tavares, F. Lani, P.P. Camanho University of Porto, Solvay
12:20	12:40	Video record	<b>R072 - Experimental building block approach and numerical modelling of thermoplastic composite used for fuselage panels</b> T. Zaragkas, S. Psarras, and V. Kostopoulos University of Patras
		Oral	<b>R045 - Biaxial plain and open-hole strength of thermoplastic composites</b> Gerrit J. de Jong, Herman C. de Frel, Tim Janssen, Wilhelmus J. Vankan, and Bas H.A.H. Tijs Royal Netherlands Aerospace Centre NLR, GKN Aerospace: Fokker
13:00	14:00	<b>LUNCH BREAK</b>	

14:00	14:35		<i>Keynote lecture</i> – Chairman: Janice Barton
			<b>Stochastic structural analysis: application to stiffened panel under compression loading</b> <u>Melanie Herman</u> (AIRBUS Operations SAS)
14:35	15:35		<b>Session 7: COMPRESSION</b> Chairman: Mohamed Sahbi Loukil
		Oral	<b>R004 - Adapted buckling support to investigate the compressive properties of long and thin specimen</b> <u>Benedikt Kötter</u> , <u>Janina Mittelhaus</u> , <u>Johann Körbelin</u> and <u>Bodo Fiedler</u> Hamburg University of Technology, Kyoto University
14:35	14:55	Video record	<b>R085 - Experimental testing and numerical simulation of bearing and filled hole tension carbon specimens under dynamic loading</b> <u>José M. Guerrero</u> , <u>Emilio V. González</u> , <u>Pablo Villarroel</u> , <u>José A. Artero</u> , <u>Adrián Cimadevilla</u> , <u>Elisabeth De Blanpre</u> and <u>Vincent Jacques</u> University of Girona, University Carlos III of Madrid, Dassault Aviation
		Oral	<b>R015 - CAI fatigue testing in CFRP: is the test representing what happens in real structures?</b> <u>Davide Biagini</u> , <u>John-Alan.Pascoe</u> , <u>René C. Alderliesten</u> TU Delft Faculty of Aerospace Engineering
14:55	15:15	Video record	<b>R082 - Influence of pseudo-ductility on the stress concentration factor and nominal strength of notched specimens</b> <u>Anbazhagan Subramani</u> , <u>Pere Maimi</u> and <u>Josep Costa</u> University of Girona
		Oral	<b>R008 - Strain rate and temperature dependence of hybrid composites under compressive loading</b> <u>James Pheysey</u> , <u>Antonio Pellegrino</u> , <u>Francesco De Cola</u> and <u>Francisca Martinez-Hergueta</u> The University of Edinburgh, WAE, University of Oxford
15:15	15:35	Video record	<b>R013 - Obtaining the J-integral and mode mixity of climbing drum peel test by finite element modelling</b> <u>Kristine M. Jespersen</u> and <u>Helmuth L. Toftegaard</u> Technical University of Denmark
15:35	16:30		<b>POSTER SESSION 2</b>
16:30	18:30		<b>Session 8: MODELLING</b> Chairman: Albert Turon
		Oral	<b>R028 - Calibration of a digital twin for structural testing</b> <u>Raffael Bogenfeld</u> German Aerospace Center (DLR) Institute of Lightweight Systems
16:30	16:50	Video record	<b>R091 - Bayesian prediction of the load response of composite structures to streamline certification approaches</b> <u>Tobias Laux</u> , <u>Sinan Xiao</u> , <u>Roy C. Bullock</u> , <u>Janice M. Dulieu-Barton</u> , <u>Karim Anaya-Izquierdo</u> University of Bristol, University of Bath

		<b>R067 - Independent mesh method and RX-FEM modeling of 3d interlock woven composites with open hole</b>
	Oral	Kevin H. Hoos, Eric Zhou, <u>Endel V. Iarve</u> , Carl Popelar, David Riha and David H. Mollenhauer University of Texas, University of Dayton, Southwest Research Institute, U.S. Air Force Research Laboratory
16:50	17:10	<b>R022 - Finite element simulation of the full stance-phase in the design process of a 3d-printed composite foot prosthesis</b>
	Video record	<u>Abdel rahman Al Thahabi</u> , Luca M. Martulli, Giada Luppino, Gennaro Rollo, Milutin Kostovic, Jacopo Romanò, Lorenzo Garavaglia, Andrea Sorrentino, Simone Pittaccio, Paola Saccomandi, Marco Tarabini, Marino Lavorgna, Emanuele Gruppioni and Andrea Bernasconi Politecnico di Milano, Institute of Polymers, Composites and Biomaterials (IPCB), Institute of Condensed Matter Chemistry and Technologies for Energy (ICMATE), Centro Protesi Inail,
		<b>R087 - Progressive failure analysis of filled hole and bearing composite laminate bolted joints</b>
	Oral	<u>Santiago García-Rodríguez</u> , M. Herman, J.-L. Leon-Dufour, M. Kaminski, I.R. Cózar, F. Laurin, A. Turon, C. Fagiano Airbus Operations, Université Paris Saclay, University of Girona
17:10	17:30	<b>R027 - Implementation of 3d nonlinear material model in finite element code</b>
	Video record	<u>Liva Pupure</u> , I. Ruiz Cozar, L. Pakrastins and J. Varna Riga Technical University, University of Girona
		<b>R024 - Accurate characterisation and modelling of the nonlinear bending behaviour of non-crimp fabrics for composite process simulations</b>
	Oral	<u>Peter H. Broberg</u> , Esben Lindgaard, Christian Krogh, Adam J. Thompson, Jonathan P.-H. Belnoue, Stephen R. Hallett and Brian L. V. Bak Aalborg University, University of Bristol
17:30	17:50	<b>R056 - Experimental and numerical analyses of graded interphases</b>
	Video record	<u>Karl Roetsch</u> , Zainab Al-Maqdasi, Andrea B. Martins, Lars Bittrich, Leonardo Pelcastre, Axel Spickenheuer, Janis Andersons, Patrik Fernberg, Roberts Joffe, Markus Stommel, and Christina Scheffler Leibniz-Institut für Polymerforschung Dresden, Luleå University of Technology, University of Latvia, Technical University Dresden
		<b>R042 - A numerical framework for simulating progressive fatigue failure in composite laminates</b>
	Oral	<u>Pieter Hofman</u> , Frans. P. van der Meer and Lambertus J. Sluys Delft University of Technology
		<b>R032 - Validation of a progressive failure model using technological specimens</b>
	Oral	<u>Juan Manuel García</u> , Pascal Paulmier, Cédric Huchette and Ludovic Ballère Université Paris Saclay, ArianeGroup
18:30	20:30	<b>BREAK</b>
20:30	22:30	<b>CONFERENCE DINNER</b>



## FRIDAY, JUNE 2ND

8:30	9:10	<i>Keynote lecture</i> – Chairman: Janis Varna	
		<b>The role of the cohesive law shape and mixed-mode interpolation when modeling delamination failure involving large fracture process zones</b> <u>Albert Turon</u> (University of Girona)	
9:10	10:30	Session 9: <b>COHESIVE ZONE MODELLING</b> Chairman: Esben Lindgaard	
		Oral	<b>R006 - The sequential static fatigue algorithm: a fast approach to predict composites delamination growth under fatigue loadings</b> <u>Luca M. Martulli</u> , Andrea Bernasconi Politecnico di Milano
9:10	9:30	Video record	<b>R069 - Fatigue cohesive zone modelling of a benchmark test for composites under complex loading sequences resulting in non-self-similar damage evolution</b> <u>Iñaki Leciñana</u> , Laura Carreras, Jordi Renart, Albert Turon and Javier Zurbitu University of Girona, IKERLAN Technology Research Centre
9:30	9:50	Oral	<b>R090 - Dual-scale model for delamination of composites with different fiber orientations at interface</b> <u>Mahoor Mehdikhani</u> , Anna De Gol, Anna Matveeva, Delphine Carrella, and Larissa Gorbatiikh KU Leuven, Siemens PLM Software
		Oral	<b>R062 - Mode decoupling in interlaminar fracture toughness tests on bimaterial specimens</b> <u>Faustino Mujika</u> , Panayiotis Tsokanas, Ainhoa Arrese, Lucas F. M. da Silva University of the Basque Country, University of Porto
9:50	10:10	Video record	<b>R089 - Assessment of cohesive law extrapolation procedure of adhesively bonded joints under different environmental conditions.</b> <u>Ainhoa Arrese</u> , M. Isasa, F. Mujika University of the Basque Country
10:10	10:30	Oral	<b>R050 - Numerical approach for stiffener debonding prediction of aircraft composite structures</b> <u>Guy Sola</u> , Fabrice Congourdeau, D. Martini, V. Jacques Dassault Aviation
10:30	11:20	<b>POSTER SESSION 3</b>	
11:20	13:00	Session 10: <b>IMPACT &amp; JOINING</b> Chairman: Torquato Garulli	
11:20	11:35	Oral	<b>R007 - A bio-inspired embedded composite stiffener for improved damage tolerance</b> <u>Adam D. Whitehouse</u> , Yifei Yang, Victor Médeau, Lorenzo Mencattelli, Emile Greenhalgh, and Silvestre Pinho Imperial College London
11:35	11:50	Oral	<b>R046 - On the high-velocity impact response of bio-inspired interleaved hybrid carbon-fibre reinforced polymer composites</b> <u>M.Erfan Kazemi</u> , Victor Médeau, Emile Greenhalgh, Paul Robinson, James Finlayson and Silvestre T Pinho Imperial College London, Rolls-Royce

11:50	12:05	Oral	<p><b>R049 - Damage inception of composite under dynamic loadings</b></p> <p><u>Jesús Pernas-Sánchez</u>, J. M. Rodríguez-Sereno, J. Artero-Guerrero, J. López-Puente. A. Vaz-Romero, F. Naya, D. Varas, A. Cohen, B. Lukic, A. Rack and D. Levi-Hevroni Universidad Carlos III de Madrid, NRCN, The European Synchrotron</p>
12:05	12:20	Oral	<p><b>R026 - Health monitoring of CFRP laminates under fatigue and fatigue after impact load via vibro-acoustic modulation measurements</b></p> <p><u>Erik Willmann</u> and Bodo Fiedler Hamburg University of Technology</p>
12:20	12:35	Oral	<p><b>R064 - Adhesively bonded joint shear test characterization using a modified arcan fixture</b></p> <p><u>David J. Brearley</u>, M'hamed Lakrimi, Janice M. Dulieu-Barton, Ole T. Thomsen University of Bristol, Siemens Healthineers MR Magnet Technology</p>
12:35	12:50	Oral	<p><b>R073 - Design optimization of the step/scarf repair of an aeronautical panel targeting the maximum compressive strength and the minimization of material removal</b></p> <p><u>S. Psarras</u>, M. P. Giannoutsou and V. Kostopoulos University of Patras</p>
12:50	13:15	<b>ANNOUNCEMENT OF AWARDS &amp; CLAUSURE</b>	
13:30	14:30	<b>FAREWELL LUNCH</b>	







**Master's degree, Postgraduate  
and Specialization**

