

Challenging Glass 8

23 – 24 June 2022

Ghent University, Ghent, Belgium

Location: Het Pand, Onderbergen 1, 9000 Gent, Belgium



Organising partners



CONCEPT PROGRAM

VERSION 18 MAY 2022

PROGRAM MAY BE SUBJECT TO CHANGE

Conference Organisers

Prof. Jan Belis	Ghent University	BE
Dr Freek Bos	Eindhoven University of Technology	NL
Prof. Christian Louter	Delft University of Technology	NL

Scientific Committee

Scientific Committee Chairs:

Prof. Jan Belis	Ghent University	BE
Dr Freek Bos	Eindhoven University of Technology	NL
Prof. Christian Louter	Delft University of Technology	NL

Scientific Committee Members:

Prof. Suwen Chen	Tongji University	CN
Prof. Paulo Cruz	University of Minho	PT
Dr Martina Eliasova	Czech Technical University in Prague	CZ
Dr Stephen Morse	Michigan Technological University	US
Prof. Jürgen Neugebauer	University of Applied Sciences, FH Joanneum	AT
Dr Jens Henrik Nielsen	Technical University of Denmark	DK
Prof. Mauro Overend	University of Cambridge	UK
Prof. Jens Schneider	Technische Universität Darmstadt	DE
Dr Frederic Veer	Delft University of Technology	NL

Local Organiser Support

Bart De Waele	Ghent University	BE
Christel Malfait	Ghent University	BE
Shahryar Nategh	Ghent University	BE
Mirko Pejatovic	Ghent University	BE
Marijke Reunes	Ghent University	BE
Sahand Sartipi	Ghent University	BE
Evelien Symoens	Ghent University	BE
Yilin Wang	Ghent University	BE

Keynote Speakers



Stéphanie Le Rhun
Eckersley O'Callaghan
Paris, France



Julian Jones
Imperial College
London, United Kingdom



Markus Feldmann
RWTH Aachen
Aachen, Germany



Robert Capel
Octatube
Delft, The Netherlands



Iris Rombouts
Octatube
Delft, The Netherlands

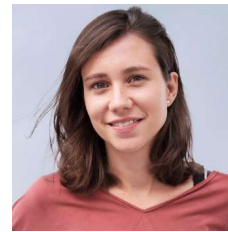
Program Overview Thursday – June 23rd

08:00 – 09:00	Registration & Coffee		
Plenary session	Chairs: Prof. Jan Belis, Dr Freek Bos, Prof. Christian Louter		
09:00 – 09:15	Opening words by Jan Belis, Freek Bos, Christian Louter		
09:15 – 10:00	Keynote presentation: Stéphany Le Rhun , Eckersley O’Callaghan		
10:00 – 10:45	Keynote presentation: Julian Jones , Imperial College London		
10:45 – 11:00	Group photo		
11:00 – 11:40	Coffee break		
Parallel sessions	Room A	Room B	Room C
11:40 – 13:00	PROJECTS & CASE-STUDIES	NUMERICAL MODELLING & EXPERIMENTAL VALIDATION	CERTBOND COST ACTION CA18120
13:00 – 14:20	Lunch		
Parallel sessions	Room A	Room B	Room C
14:20 – 15:40	HYBRID & COMPOSITE GLASS COMPONENTS	STRENGTH & STABILITY	CERTBOND COST ACTION CA18120
15:40 – 16:20	Coffee break		Foyer
Parallel sessions	Room A	Room B	Room C
16:20 – 17:40	ARCHITECTURAL DESIGN & GEOMETRIES	DESIGN PHILOSOPHY & STRUCTURAL SAFETY	JOINTS, FIXINGS & ADHESIVES
19:00 – 22:30	Conference dinner* at Monasterium Poortackere, Oude Houtlei 56, Ghent. <i>* Please note that separate registration for the conference dinner is required.</i>		

Program Overview Friday – June 24th

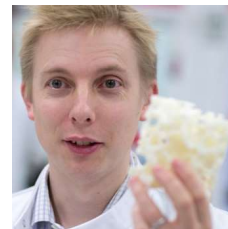
08:30 – 09:00	Registration & Coffee		
Parallel sessions	Room A	Room B	Room C
09:00 – 10:20	INSULATING GLASS UNITS	DESIGN PHILOSOPHY & STRUCTURAL SAFETY	JOINTS, FIXINGS & ADHESIVES
10:20 – 11:00	Coffee break		
Parallel sessions	Room A	Room B	Room C
11:00 – 12:20	GLASS IN FACADES	NUMERICAL MODELLING & EXPERIMENTAL VALIDATION	LAMINATED GLASS & INTERLAYER PROPERTIES
12:20 – 13:40	Lunch		
Parallel sessions	Room A	Room B	Room C
13:40 – 15:00	THERMAL, ACOUSTIC & LIGHTING ASPECTS	STRENGTH & STABILITY	PROJECTS & CASE-STUDIES
15:00 – 15:30	Coffee break		
Plenary session	Prof. Jan Belis, Dr Freek Bos, Prof. Christian Louter		
15:30 – 16:15	Keynote presentation Markus Feldmann , RWTH Aachen		
16:15 – 17:00	Keynote presentation Robert Capel & Iris Rombouts , Octatube		
17:00 – 17:15	Closing words by Jan Belis, Freek Bos, Christian Louter		
17:15 – 18:00	Drinks		
21:00	Social gathering (at own expenses)		

THURSDAY	Room A KEYNOTE PRESENTATIONS Chairs: Belis, Bos & Louter
09:00 – 09:15	Welcoming words Jan Belis, Freek Bos, Christian Louter <i>UGent, TU Eindhoven, TU Delft</i>
09:15 – 10:00	Sustainable approach of (Structural) Glass Stéphany Le Rhun <i>Eckersley O'Callaghan</i>
10:00 – 10:45	Keynote presentation Julian Jones <i>Imperial College London</i>
10:45 – 11:00	Group Photo
11:00 – 11:40	Coffee Break



Stéphanie Le Rhun
 Eckersley O'Callaghan
 Paris, France

Stéphanie joined the London office of Eckersley O'Callaghan in 2014 to work in the Facade Group, before moving to the Paris office in 2017. At Eckersley O'Callaghan, she has been involved in the design of facades for prestigious projects, while contributing to the development of sustainability tools and studies. She has deepened strategies regarding low carbon solutions, circular economy, bio-based materials and resilience. Stéphanie Le Rhun has been appointed Global Sustainability Lead end of 2021. She works closely with structures, facades and glass experts across Eckersley O'Callaghan's 10 offices around the globe to consolidate and build upon the company's pioneering work in sustainable design, and develop R&D projects with fabricators, contractors and other consultants.



Julian Jones
 Imperial College
 London, United Kingdom

Julian Jones is a Professor of Biomaterials. Prior to this he held a Royal Academy of Engineering/ EPSRC Research Fellowship (awarded 2004), having completed his PhD here in the department in 2002. He joined the Department having obtained an MEng in Metallurgy and the Science of Materials from Oxford in 1999. His research interests are in biomaterials for regenerative medicine, particularly Bioglass related materials. His team's work on inorganic/ organic hybrids has produced tough and flexible bioactive scaffolds suitable for tissue engineering applications.

THURSDAY	Room A PROJECTS & CASE-STUDIES <i>Chair: to be announced</i>	Room B NUMERICAL MODELLING & EXPERIMENTAL VALIDATION <i>Chair: to be announced</i>	Room C CERTBOND COST ACTION CA18120 <i>Chair: Dr. Chiara Bedon</i>
11:40 – 12:00	Apple Marina Bay Sands: Utmost Transparency <i>Graham Coult, Alexandros Cannas, Sam Gregson, Lorenzo Santelli</i>	Experimental and Numerical Investigations on the Finite Strain Viscoelasticity of Standard PVB <i>Alexander Pauli, Marcus Illguth, Frank Wellershoff, Geralt Siebert, Michael A. Kraus</i>	CertBond - COST Action CA18120 - Reliable roadmap for certification of bonded primary structures <i>Chiara Bedon, Sofia Teixeira de Freitas</i>
12:00 – 12:20	The Story Behind Sky Pool <i>Graham Coult, Sam Gregson</i>	Microscale Discrete Element Model for Simulating Bridging Behavior of Fractured Glass Laminates Xing-Er Wang, Jian Yang, Shennan Peng, Yige Wang, Xiaonan Hou	Adhesive Solutions for Cast Glass Assemblies: Ground Rules Emerging from Built Case Studies on Adhesive Selection and Experimental Validation <i>Faidra Oikonomopoulou, Telesilla Bristogianni</i>
12:20 – 12:40	The New Slumped Glass Facade at Tiffany's Flagship Store <i>Chenyu Pu, Jason Wang, David Bott, Daniel Vos</i>	Numerical Calculations of Thermally Induced Stresses in Insulating Glass Units <i>Gregor Schwind, Franz Paschke, Jens Schneider</i>	Comparison of Behaviour of Laminated Banister Panels with Embedded Connections <i>Michaela Zdražilová, Zdeněk Sokol, Martina Eliášová</i>
12:40 – 13:00	Planning Phases of Glass Projects <i>Peter Lenk</i>	Joint Research Project (in progress): Draft Standard for Determining the Thermal Stress of Glass and Glass-Glass PV Modules (BIPV) in the Construction Industry <i>Frank Ensslen, Gregor Schwind, et al.</i>	Examination of the Load-Bearing Behavior of a Bonded Edge Seal for Fluid-Filled Insulating Glass Units <i>Alina Joachim, Felix Nicklisch, Alexander Freund, Bernhard Weller</i>
13:00 – 14:20	Lunch	Lunch	Lunch

THURSDAY	Room A HYBRID & COMPOSITE GLASS COMPONENTS <i>Chair: to be announced</i>	Room B STRENGTH & STABILITY <i>Chair: to be announced</i>	Room C CERTBOND COST ACTION CA18120 <i>Chair: to be announced</i>
14:20 – 14:40	Robotic Large-Scale Additive Manufacturing of Thermoplastics for Thin-Glass Composite Elements <i>Daniel Pfarr, Silke Tasche, Christian Louter</i>	Effects of Composition on the Durability and Weathering of Flat Glass <i>Clarissa Justino de Lima, Brandon Aldinger, Peter de Haan, Telesilla Bristogianni, Fred Veer</i>	Influence of Elevated Temperature on the Mechanical Properties of Transparent Adhesive Glass-Glass Joints <i>Markéta Zikmundová, Martina Eliášová</i>
14:40 – 15:00	Application of an Iron-Based Shape Memory Alloy for Post-Tensioning Glass Elements <i>Vlad-Alexandru Silvestru, Zhikang Deng, Julien Michels, Lingzhen Li, Elyas Ghafoori, Andreas Taras</i>	Experimental Investigation into the Effect of Elevated Temperatures on the Fracture Strength of Soda-Lime-Silica Glass <i>Evelien Symoens, Ruben Van Coile, Jan Belis</i>	Integrated Connections for Glass-Plastic-Composite Panels: An Experimental Study under Tensile Loading at +23, +40 and +60 °C and Different Glass Build-ups <i>Julian Hänig, Bernhard Weller</i>
15:00 – 15:20	Curtain of Glass – Textured by Stone <i>Michael Engelmann, Klaus Reuschle, Salvatore Muscatello, Thomas Sperandio</i>	Impact of Cutting Process Parameters on the Mechanical Quality of Processed Glass Edges <i>Paulina Bukieda, Bernhard Weller</i>	Prediction of Moisture Diffusion and Failure in Glass/Steel Adhesive Joints <i>Ioannis Katsivalis, Stefanie Feih</i>
15:20 – 15:40	Design, Engineering and Experimental Testing of Tubular Glass Columns <i>Rozemarijn Veenstra, Chris Noteboom, Faidra Oikonomopoulou, Mauro Overend</i>	Numerical Study on Failure of Laminated Glass Subjected to Low-Velocity Impact <i>Petr Hála, Alena Zemanová, Jan Zeman, Michal Šejnoha</i>	Pre- and Post-Failure Experimental Bending Analysis of Glass Elements Coated by Aged Anti-Shatter Safety Films Silvana Mattei, Luca Cozzarini, Chiara Bedon
15:40 – 16:20	Coffee break	Coffee break	Coffee break

THURSDAY	Room A ARCHITECTURAL DESIGN & GEOMETRIES <i>Chair: to be announced</i>
16:20 – 16:40	<p>Topologically Optimized Cast Glass: A New Design Approach for Loadbearing Monolithic Glass Components of Reduced Annealing Time <i>Wilfried Damen, Faidra Oikonomopoulou, Telesilla Bristogianni, Michela Turrin</i></p>
16:40 – 17:00	<p>The Chronology of Historical Glass Constructions <i>Franziska Rehde, Maria Heinrich, Alexandra Schmölder, Katharina Lohr, Christian Louter</i></p>
17:00 – 17:20	<p>Thin Glass in Architecture - Possible Applications and Challenges <i>Özhan Topcu, Vladimir Marinov</i></p>
17:20 – 17:40	<p>MICA (Monitoring Internal Comfort Application): A new BIM tool processing IEQ data input for building management and energetic optimizations <i>Luca Guidi, Giovanni Inghirami, Gerardo Masiello, Daniele Antonucci, Pasquale Lucia</i></p>
19:00 – 22:30	Conference dinner registration required

Room B DESIGN PHILOSOPHY & STRUCTURAL SAFETY <i>Chair: to be announced</i>	Room C JOINTS, FIXINGS & ADHESIVES <i>Chair: to be announced</i>
<p>Glass Up-Casting: A Novel Recycling Approach for Transforming “as-is” Glass Waste Back to Glass Products <i>Telesilla Bristogianni, Faidra Oikonomopoulou</i></p>	<p>Silicone Structural Glazing Under Blast Loading <i>Valérie Hayez, Jon Kimberlain, Jie Feng, Sigurd Sitte, Mark Mirgon</i></p>
<p>Considerations for the Integration of Glass in Superyacht Structures <i>Danie Wium, Evert Lataire, Jan Belis</i></p>	<p>High-Temperature Behavior of Silicone Sealants <i>Valérie Hayez, Georg Scheutz</i></p>
<p>Pilot Experiments for Multi-Criteria Human Comfort-Driven Structural Glass Design Assessment <i>Chiara Bedon</i></p>	<p>Glass Façade and Structure Movements <i>Raul Corrales</i></p>
<p>Exploratory Study on the Load-Bearing Behaviour of Laminated Glass Beams Exposed to Fire <i>Maximilian Möckel, Katharina Lohr, Christian Louter</i></p>	<p>Performance of Glass to Iron-based Shape Memory Alloy Adhesive Shear Joints with Different Geometry <i>Zhikang Deng, Vlad-Alexandru Silvestru, Julien Michels, Lingzhen Li, Elyas Ghafoori, Andreas Taras</i></p>
Conference dinner registration required	Conference dinner registration required

FRIDAY	Room A INSULATING GLASS UNITS <i>Chair: to be announced</i>	Room B DESIGN PHILOSOPHY & STRUCTURAL SAFETY <i>Chair: to be announced</i>	Room C JOINT, FIXINGS & ADHESIVES <i>Chair: to be announced</i>
09:00 – 09:20	Numerical Analysis of TGU Windows Under Blast – GLASS-SHARD Outlook <i>Chiara Bedon, Martin Larcher, Alessia Bez, Claudio Amadio</i>	The Conjugate Beam Effective Thickness Method <i>Laura Galuppi, Adam J. Nizich, Andrea M. La Greca</i>	An Interlayer Material Study for Interlocking Cast Glass Blocks <i>Maria Dimas, Faidra Oikonomopoulou, Marcel Bilow</i>
09:20 – 09:40	Design and Durability of Cold-Bent Insulating Glass Units <i>Pietro Demontis, Julia Endress, Viviana Nardini, Arnaud Vernier</i>	How to Exploit the Glass Mass for Damping a Building? <i>Michael Engelmann, Wulf Wulff, Thomas Lorenz, Simon Frey, Laurenz Wernicke, Yangwen Zhang, Thomas Schauer, Achim Bleicher</i>	Experimental Investigation of a Transparent Interface Material for Glass Compression Members <i>Joseph Robert Yost, Matthew Cregan, Mohammad Bolhassani, Masoud Akbarzadeh, Yao Lu, Philipp Amir Chhadeh, Jens Schneider</i>
09:40 – 10:00	Investigations on the Cold Bending Behaviour of a Double Glazing Unit with a Rigid Edge-Spacer Frame <i>Tim van Driel, Chris Noteboom, Mauro Overend</i>	Rapid Safety Assessment and Experimental Derivation of Damage Indexes for In-Service Glass Slabs <i>Chiara Bedon, Salvatore Noé</i>	Development and Behavior of a Thin Fitting Connection for Lamination with Structural PVB <i>Thiemo Fildhuth, Pascal Joos, Thomas Wüest, Matthias Haller, Wim Stevels</i>
10:00 – 10:20	The Performance of Vacuum Insulating Glazing Units Subjected to a Soft Body Impact <i>Isabell Schulz, Cenk Kocer, Franz Paschke, Jens Schneider</i>	Potentials and Limits of Simplified Models for Linearly Restrained Glass Balustrades under Static Loads and Impact <i>Emanuele Rizzi, Chiara Bedon, Alessia Bez, Claudio Amadio</i>	Design Base for a Frameless Glass Structure Using Structural PVB Interlayers and Stainless-Steel Fittings <i>Wim Stevels, Thiemo Fildhuth, Thomas Wüest, Matthias Haller, Roman Schieber</i>
10:20 – 11:00	Coffee break	Coffee break	Coffee break

FRIDAY	Room A GLASS IN FACADES <i>Chair: to be announced</i>
11:00 – 11:20	<p>Slim Skins: Towards a New Glazed Façade System <i>Barbara Foolen de Oliveira, Arjen Veenstra, Maria Meizoso Aguilar, Mauro Overend</i></p>
11:20 – 11:40	<p>Validation of a Simple Numerical Tool for Superimposition of Climatic Load and Wind Load in Closed Cavity Facades. Importance of a Coupled PE-Thermal-Mechanical Model <i>Guido Lori et al.</i></p>
11:40 – 12:00	<p>Experimental and Numerical Assessment of Permeability Functions in Closed Cavity Facades <i>Guido Lori et al.</i></p>
12:00 – 12:20	<p>Experimental Validation of a Numerical model for Closed Cavity Façade Glass Structural Calculation under Dynamic Cavity Temperature, Dry Air Flow and Wind Loads Effects <i>Guido Lori et al.</i></p>
12:20 – 13:40	Lunch

Room B NUMERICAL MODELLING & EXPERIMENTAL VALIDATION <i>Chair: to be announced</i>	Room C LAMINATED GLASS & INTERLAYER PROPERTIES <i>Chair: to be announced</i>
<p>The Clamp Bender: A New Testing Equipment for Thin Glass <i>Marco Zaccaria, Timon Peters, Jan Ebert, Nerio Lucca, Jens Schneider, Christian Louter</i></p>	<p>Reducing Carbon Footprint of Laminated Glass Through the use of Structural Interlayers <i>Björn Sandén, Jorge Hidalgo</i></p>
<p>Numerical Study on Post-Fracture Behavior of a Two- Sided Reinforced Laminated Glass Beam-Column Connection Prototype <i>Mirko Pejatovic, Robby Caspeelee, Jan Belis</i></p>	<p>Thermal Rheological and Relaxation Characteristic of Composite Interlayer in Laminated Glass <i>Dongdong Xie, Jian Yang, Xinger Wang, Chenjun Zhao, Xianfang Jiang, Gang Li</i></p>
<p>Evaluation Methods for Surface Compression Stress Measurements with Unknown Principle Stress Directions <i>Kerstin Thiele, Steffen Müller-Braun, Jens Schneider</i></p>	<p>Determination and Evaluation of the Interlaminar Shear Modulus of Polyvinyl Butyral with Fibre Optic Sensors <i>Thorsten Weimar, Christian Hammer</i></p>
<p>Non-Contact 3D Characterization System of Scratch-Induced Surface Damage on Monolithic Glass Panel <i>Zhufeng Pan, Jian Yang, Xing-er Wang, Yige Wang, Gang Li, Xianfang Jiang</i></p>	<p>Determination of the Linear Viscoelastic Material Behaviour of Interlayers with Semi-Crystalline Structures <i>Miriam Schuster</i></p>
Lunch	Lunch

FRIDAY	Room A THERMAL, ACOUSTIC & LIGHTING ASPECTS <i>Chair: to be announced</i>
13:40 – 14:00	<p>Insights into Emissivity Changes During Tempering Processes and Potential for Utilization <i>Jorma Vitkala, Marcus Klein, Daniel Schmidt, Senthil Vinodh</i></p>
14:00 – 14:20	<p>UV Transmission in Laminated Glass: Effects on Plant Growth and Development <i>Esther Meinen, Björn Sandén, Anja Dieleman, Silke Hemming</i></p>
14:20 – 14:40	<p style="text-align: center;">Color Depth <i>Catie Newell, Ryan Craney</i></p>
14:40 – 15:00	<p>Shaping Glass for Acoustic Performance <i>Catie Newell, Zackery Belanger, Wes McGee</i></p>
15:00 – 15:30	Coffee break

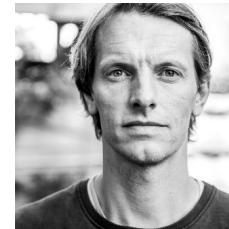
Room B STRENGTH & STABILITY <i>Chair: to be announced</i>	Room C PROJECTS & CASE-STUDIES <i>Chair: to be announced</i>
<p>Hail Resistance of Greenhouse Coverings <i>Jürgen Neugebauer, Georg P. Kneringer</i></p>	<p>High-transparency Clear Glass Windows with Large PV Energy Outputs <i>Dieter Moor, Victor Rosenberg, Mikhail Vasiliev</i></p>
<p>Experimental Strength Characterisation of Thin Chemically Pre-Stressed Glass Based on Laser-Induced Flaws <i>Shahryar Nategh, Marco Zaccaria, Jeroen Missinne, Jan Belis</i></p>	<p style="text-align: center;">to be announced <i>Kenny Martens et al.</i></p>
<p>A Novel Technique for Enhancing Stress Concentration Features in Glass <i>Mithila Achintha</i></p>	<p>Funicular Glass Bridge Prototype: Design Optimization, Fabrication, and Assembly Challenges <i>Yao Lu, Alireza Seyedahmadian, Philipp Amir Chhadeh, Matthew Cregan, Mohammad Bolhassani, Jens Schneider, Joseh Robert Yost, Gareth Brennan.</i></p>
to be announced	<p>The Jardin d’Hiver in Paris, a Structural Glass Case Study <i>Jorge Hidalgo, Matthieu Thésé, Matt King, Victor Racodon</i></p>
Coffee break	Coffee break

FRIDAY	Room A KEYNOTE PRESENTATIONS
15:30 – 16:15	Keynote presentation Markus Feldmann <i>RWTH Aachen</i>
16:15 – 17:00	Keynote presentation Robert Capel & Iris Rombouts <i>Octatube</i>
17:00 – 17:15	Closing words Jan Belis, Freek Bos, Christian Louter <i>UGent, TU Eindhoven, TU Delft</i>
17:15 – 18:00	Drinks
21:00	Social gathering in City Centre (at own expenses)



Markus Feldmann
RWTH Aachen
Aachen, Germany

Markus Feldmann is Professor and Chair at the Institute of Steel and Construction at RWTH Aachen. He is also the chair of the Eurocode CEN/TC 250/SC 11 committee on the Design of Glass Structures.



Robert Capel
Octatube
Delft, The Netherlands

In the role of sales lead, Robert Capel is involved in many early stage design work at Octatube. During his 15 years of professional experience he grew his design & build enthusiasm and enjoys to dissect engineering challenges to build special envelopes and structures.



Iris Rombouts
Octatube
Delft, The Netherlands

Iris Rombouts has 7 years of experience as a structural engineer and projectmanager at Octatube. She's passionate about complex glass and steel structures and always in for new design challenges. Most recent projects she has worked on are the C30 gridshell roof over the Shell monumental courtyard, the Tropical fruit warehouse standing façade with hanging glass fins and the spectacular fully glued façade of PC Hooftstraat.

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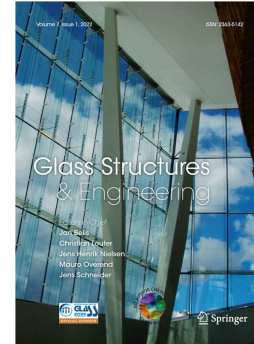


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