CICE 2025

12th International Conference on Fiber-Reinforced Polymer (FRP) Composites in Civil Engineering

July 14-16, 2025
Lisbon, Portugal

FINAL PROGRAMME

International Institute for FRP in Construction
TÉCNICO LISBOA
LABORATÓRIO NACIONAL DE ENGENHARIA CIVIL
Universidade do Minho

CICE
2025

Contents

1. Message from the President of IIFC

It is with great pleasure and enthusiasm that I welcome you to the 12th International Conference on Fibre-Reinforced Polymer (FRP) Composites in Civil Engineering (CICE 2025), held in the vibrant and historic city of Lisbon, Portugal.

As the flagship event of the International Institute for FRP in Construction (IIFC), the CICE conference series continues to serve as the leading global forum for the dissemination of cutting-edge research, innovation, and practical advancements in the use of FRP composites in civil engineering.

Since its inception, CICE has brought together engineers, researchers, academics, and industry professionals from around the world who share a common passion for advancing the science and application of FRP technologies in the built environment.

The theme of CICE 2025 reflects the growing momentum toward more sustainable, resilient, and innovative infrastructure. In a world increasingly defined by the need for durability, efficiency, and environmental responsibility, FRP materials offer transformative potential. Our community plays a critical role in pushing the boundaries of what is possible, from structural strengthening and retrofitting to new construction solutions in both developed and developing regions.

We are particularly grateful to our hosts at the University of Lisbon and the local organizing committee for their commitment and effort in assembling an outstanding technical and social program. Their dedication ensures a conference experience that is both intellectually stimulating and culturally enriching.

This year's conference will feature keynote lectures by internationally renowned experts, technical sessions on emerging topics, engaging panel discussions, and numerous opportunities to connect and collaborate.

I especially encourage the participation of young researchers and students, whose fresh perspectives are vital to the future of our field and of the IIFC.

CICE 2025 is more than just a conference, it is a celebration of the collective progress we have made and a platform for shaping the road ahead. I look forward to the knowledge, dialogue, and inspiration that will emerge from our time together in Lisbon.

On behalf of IIFC, I warmly welcome you to CICE 2025 and thank you for your continued support and contributions to our shared mission.

With best wishes,

Amir Fam

International Institute for FRP in Construction (IIFC)

2. Message from the Chairs of the Conference

We are delighted to welcome you all to the 12th International Conference on Fiber-Reinforced Polymer (FRP) Composites in Civil Engineering — CICE 2025 — the official conference of the International Institute for FRP in Construction (IIFC, www.iifc.org)!

The Portuguese organizing team - from Técnico - University of Lisbon, the National Laboratory for Civil Engineering (LNEC), and the University of Minho (UMinho) - has worked relentlessly since 2023 to craft a comprehensive and engaging programme, ensuring that CICE 2025 upholds the tradition of excellence established by the CICE series. The conference will be held from July 14 to 16, at the Técnico campus in Lisbon, a city that offers far more than a beautiful backdrop. Lisbon enchants with its rich history, assures with its safety, and delights with its mild climate and exceptional gastronomy, making it the perfect host city for an unforgettable conference experience.

CICE 2025 will serve as a premier platform for the global FRP research community and industry professionals to share significant advancements, address current challenges, and explore emerging opportunities in the field.

The conference programme features a rich and diverse array of technical components, including: (i) keynote lectures by reputed speakers, including the recipients of the IIFC Medal and the IIFC Distinguished Young Researcher Award – a true highlight of the conference, offering transformative insights and inspiration; (ii) regular technical parallel sessions, showcasing the most recent research, development and field applications of FRP composites in civil engineering; (iii) special parallel sessions dedicated to emerging and specialized topics, designed to complement and enrich the regular programme; (iv) presentations from shortlisted candidates for the IIFC Best PhD Thesis Award, recognizing excellence in doctoral research; (v) the Student Benchmark Competition, focused on predicting the structural behaviour of reinforced concrete beams strengthened with NSM-CFRP laminates; and (vi) the technical visits to the laboratories of Técnico and LNEC.

At the end of the first day (July 14), we are delighted to invite you to the CICE 2025 Welcome Reception, hosted at the Técnico Innovation Centre. Join us for a relaxed evening of music, cocktails and conversation – a perfect opportunity for delegates to connect in a vibrant and informal setting. On the evening of the second day (July 15), we welcome you to the CICE 2025 Conference Dinner at the stunning SUD Lisboa Hall.

The event begins with a welcome cocktail in a breathtaking setting overlooking the Tagus River and the iconic 25th of April Bridge, followed by a memorable dinner experience. Highlights of the evening include a live performance of Fado, Portugal's most iconic musical tradition, the IIFC Awards Ceremony and a closing musical moment to cap off an unforgettable evening of celebration and networking.

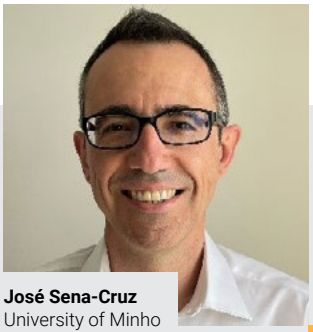
Finally, we would like to express our deepest gratitude to all contributing authors, keynote speakers, and attendees for their valuable contributions to the technical programme. Our sincere thanks also go to the members of the Organizing and Scientific Committees for their meticulous work, to our sponsors for their generous support, and to the Conference Secretariat for their dedicated teamwork.

We wish you a wonderful stay in Lisbon and hope that CICE 2025 exceeds your expectations — advancing your research, inspiring new ideas, fostering your cooperation with colleagues with mutual interests, meeting and making new friends.

We encourage you to stay engaged during the three days, participate actively and make the most of everything CICE 2025 has to offer!

João Ramôa Correia
Técnico, University of Lisbon

Susana Cabral-Fonseca
LNEC



José Sena-Cruz
University of Minho

3. Committees

Organizing Committee

João Ramôa Correia, Técnico, University of Lisbon, Co-chair
Susana Cabral-Fonseca, LNEC, Co-chair
José Sena-Cruz, University of Minho, Co-chair
Ana Sofia Louro, LNEC
Helena Cruz, LNEC
Inês C. Rosa, Técnico, University of Lisbon
João Custódio, LNEC
João P. Firmo, Técnico, University of Lisbon
Joaquim Barros, University of Minho
José Gonilha, Técnico, University of Lisbon
Luís Correia, University of Minho
Mário Garrido, Técnico, University of Lisbon
Nuno Silvestre, Técnico, University of Lisbon

Secretariat

Alexandra Baixo, Técnico, University of Lisbon
Elaine Gregório, Técnico, University of Lisbon

International Scientific Committee

Ahmed K. El-Sayed, King Saud University, Saudi Arabia
Alper Ilki, Istanbul Technical University, Turkey
Amir Fam, Queen's University, Canada
Amirhosein Mohammadi, University of Minho, Portugal
Ana Sofia Louro, National Laboratory for Civil Engineering, Portugal
Anastasios Vassilopoulos, EPFL, Switzerland
André Martins, University of Lisbon, Portugal
Antonio Nanni, University of Miami, USA
Ayman Okeil, Louisiana State University, USA
Bahman Ghiassi, University of Birmingham, UK
Brahim Benmokrane, Université de Sherbrooke, Canada
Carlo Pellegrino, University of Padua, Italy
Carlos Chastre, University Nova de Lisboa, Portugal
Chao Wu, Imperial College, UK
Charles E. Bakis, Pennsylvania State University, USA
Christian Carloni, Case Western Reserve University, USA
Cristina Barris, University of Girona, Spain
Daniel Cardoso, Pontifical Catholic University of RJ, Brazil
Dilum Fernando, University of Edinburgh, UK
Dionysios Bournas, EC Joint Research Centre, Italy
Ehab El-Salakawy, University of Manitoba, Canada
Eleni Toumpanaki, University of Bristol, UK
Elyas Ghafoori, Leibniz University of Hannover, Germany
Emmanuel Ferrier, Université Lyon I, France
Enzo Martinelli, University of Salerno, Italy
Eva Oller, Polytechnic University of Catalonia, Spain
Fabio Matta, University of South Carolina, Columbia, USA
Fernando Branco, University of Lisbon, Portugal
Francesco Ascione, University of Salerno, Italy
Gian Piero Lignola, University of Naples Federico II, Italy
Giovanni Terrasi, EMPA, Switzerland
Guang-Ming Chen, South China Univ. of Technology, China
Gui-Jun Xian, Harbin Institute of Technology, China
Helena Cruz, National Laboratory for Civil Engineering, Portugal
Hugo Biscaia, University Nova de Lisboa, Portugal
Inês Rosa, University of Lisbon, Portugal
Isamu Yoshitake, Yamaguchi University, Japan
Issam E. Harik, University of Kentucky, USA
Jacob W. Schmidt, Aalborg University, Denmark
Jan Bielak, Aachen University, Germany
Jan Knippers, University of Stuttgart, Germany
Jean François Caron, École des Ponts ParisTech, France
Jian-Fei Chen, Southern University of Science and Technology, China
Jian-Guo Dai, City University of Hong Kong, China
Jimmy Kim, University of Colorado, Denver, USA
Jin-Guang Teng, Hong Kong Polytechnic University, China
João Custódio, National Laboratory for Civil Engineering, Portugal
João Firmo, University of Lisbon, Portugal
João R. Correia, University of Lisbon, Portugal
Joaquim A.O. Barros, University of Minho, Portugal
John Myers, Missouri Univ. of Science and Technology, USA
José Gonilha, University of Lisbon, Portugal
José Sena-Cruz, University of Minho, Portugal
Jun-Jie Zeng, University of South Australia, Australia
Jovan Tatar, University of Delaware, USA
Karim Benzarti, Université Gustave Eiffel, France,
Kent A. Harries, University of Pittsburgh, USA
Lesley Sneed, University of Illinois at Chicago, USA
Khaled Sennah, Toronto Metropolitan University, Canada
Lijuan Cheng, University of California, Davis, USA
Luciano Ombres, University of Calabria, Italy
Luigi Ascione, University of Salerno, Italy
Luís Correia, University of Minho, Portugal
Luke Bisby, University of Edinburgh, UK
Marco Di Ludovico, University of Naples Federico II, Italy
Mariaenrica Frigione, University of Salento, Italy
Mário Garrido, University of Lisbon, Portugal
Mark F. Green, Queen's University, Canada
Marko Pavlovic, Technical University of Delft, Netherlands
Marta Baena, University of Girona, Spain
Matteo Breveglieri, EMPA, Switzerland
Martin Noël, University of Ottawa, Canada
Masoud Motavalli, EMPA, Switzerland
Maurizio Guadagnini, University of Sheffield
Muhammad Hadi, University of Wollongong, Australia
Nuno Silvestre, University of Lisbon, Portugal
Oded Rabinovitch, Technion-Israel Institute of Technology, Israel
Pedram Sadeghian, Dalhousie University, Canada
Pier Giovanni Benzo, University of Minho, Portugal
Pietro Mazzuca, University of Calabria, Italy
Peng Feng, Tsinghua University, China
Raafat El-Hacha, University of Calgary, Canada
Rebecca Gravina, University of Queensland, Australia
Renata Kotynia, Lodz University of Technology, Poland
Riadh Al-Mahaidi, Swinburne University of Technology, Australia
Rigoberto Burgueño, Stony Brook University, USA
Rudolf Seracino, North Carolina State University, USA
Russell Gentry, Georgia Institute of Technology, USA
Salvador Dias, University of Minho, Portugal
Scott T. Smith, University of Adelaide, Australia
Shamim A. Sheikh, University of Toronto, Canada
Shi-Shun Zhang, Huazhong Univ. of Science and Technology, China
Sotirios Grammatikos, NTNU, Norway
Stijn Matthys, University of Gent, Belgium
Susana Cabral-Fonseca, National Laboratory for Civil Engineering, Portugal
Tafsir Tafsirojjaman, The University of Adelaide, Australia
Tamer El Maaddawy, United Arab Emirates University, UAE
Tao Yu, Hong Kong Polytechnic University, China
Thanasis Triantafillou, University of Patras, Greece
Thiru Aravinthan, The University of Southern Queensland, Australia
Thomas Keller, École Polytechnique Fédérale de Lausanne, Switzerland
Tim Stratford, The University of Edinburgh, UK
Toby Mottram, University of Warwick, UK
Togay Ozbakkaloglu, Texas State University, USA
Tomasz Siwowski, Rzeszow University of Technology, Poland
Tommaso D'Antino, Polytechnic University of Milan, Italy
Vicki Brown, Widener University, USA
Wouter de Corte, Universiteit Gent, Belgium
Xiao-Ling Zhao, The Hong Kong Polytechnic Univ., China
Yan Zhuge, University of South Australia, Australia
Yu Bai, Monash University, Australia
Yu Qian-Qian, Tongji University, China
Yu-Fei Wu, Shenzhen University, China
Zhishen Wu, Ibaraki University & Southeast University, Japan

4. About IIFC

The **International Institute for FRP in Construction** – **IIFC** – (www.iifc.org) is the only international professional organisation dedicated to the use of fibre-reinforced composite materials (FRP) in civil infrastructures. Established in March 2003, the IIFC aims to advance the understanding and application of FRP composites in the civil infrastructures, in the service of the engineering profession and society.

The IIFC has the following main objectives:

- Provide a focal point for international sharing of knowledge and experience.
- Promote collaboration to maximize the benefit of the international research and development effort.
- Foster international harmonization of design and application standards.
- Further the acceptance of FRP composites by the engineering community and beyond as a major construction material.
- Advocate further innovations, particularly through the interfacing of FRP composites with other technologies such as intelligent sensing.

With membership representing academia and industry from about 40 countries on six continents, IIFC offers its members unprecedented access to the state-of-the-art and advanced research endeavours at the cutting edge of the use of FRP in infrastructure through conferences, symposia, curricular development and online resources.

Among other initiatives, the IIFC promotes the following main initiates:

- Hosting two official conferences in alternating years, the International Conference on FRP Composites in Civil Engineering (CICE) and the International Symposium on Fiber-Reinforced Polymers for Reinforced Concrete Structures (FRPRCS).
- IIFC Webinars aiming at disseminating the state-of-the-art and advances in the research both from the academia and from the industry.
- IIFC Newsletter summarizing the most recent innovations in the academia and the industry, IIFC initiatives, interviews to experts, case studies, among other news.
- Promoting several competitions, such us the Photo Competition, IIFC Best PhD Thesis Award, Best Paper Awards, or Distinguished Young Researcher Award.
- Promoting the opportunity to focus on specific emerging topics or other topics that deserve deeper attention through the IIFC Working Groups.

The IIFC membership fees are for a 2-year period, as follows: Fellows: US$ 100; Members: US$ 100; Student members: US$ 25; Patron members: US$ 500. However, except for patrons, a common means of membership payment is via attendance of CICE conferences, which covers the 2-year period.

If you are not yet a member of IIFC, join us today!

International Institute for FRP in Construction

CICE 2025

5. About Lisbon

Lisbon, the capital and the largest city of Portugal, is located on the western edge of Europe, along the Atlantic coast. The city is situated on the northern bank of the Tagus River estuary, where the river meets the Atlantic Ocean. Lisbon has an area of 84 km^2 and a population of approximately 600,000 inhabitants. The metropolitan area has a population of 2.1 million within an area of 2750 km^2.

Brief history

Lisbon is one of the oldest cities in the world! Archaeological discoveries in Lisbon prove that the Neanderthals arrived in the Iberian Peninsula around 35,000 years ago. According to the legend, Lisbon was founded by the Greek traveller hero Ulysses. Lisbon was called Olissipo ("enchanted port").

Lisbon's early history saw it as a battleground for control among the Phoenicians, Greeks, and Carthaginians; however, it was the Romans who started their two-century reign in 205 BC. During the Roman period, Lisbon became one of the most important cities of the Roman Lusitania and was renamed Felicitas Julia.

With the decline of the Roman Imperie in the 5th century, Lisbon faced waves of invasions from Visigoths and this marked a period of relative obscurity in its history.

In the 8th century, Lisbon was conquered by the Moors and renamed 'Al-Ushbuna' until 1147, when it was reclaimed by Christian forces led by Afonso Henriques, the first King of Portugal. Lisbon then regained its old name and became the capital of the country in 1252.

During the epic Age of Discovery, from the 15th to the 17th centuries, the Enchanted Port proudly served as the primary launch point for Portuguese discovery expeditions. It was from this city that intrepid navigators set sail across the globe. They uncovered new territories in South America and Africa and established a sea route to India. These achievements elevated Portugal to a leading position among European powers, with Lisbon emerging as the continent's most thriving trade hub.

Yet, this golden era suddenly ended in 1755, when one of the most catastrophic earthquakes in Europe history destroyed more than half of the city. The destruction was followed by raging fires and a catastrophic tsunami, which marked the end of the Enchanted Port's dominance over the seas. Despite the devastation, Lisbon rose from the ruins under the leadership of the Marquês de Pombal, who rebuilt it with broader streets and a forward-looking design fit for a modern world.

In the 19th century, Lisbon was captured by Napoleon Bonaparte, resulting in the burgling, theft, and destruction of many of its treasures and buildings. However, after the monarch's return to the capital, the city was reborn, expanding northwards, with industrial growth driving its development.

In the early 20th century, the Portuguese monarchy was overthrown following the assassination of King Carlos I in Lisbon in 1908, and two years later, the First Portuguese Republic was established in Lisbon.

The collapse of the monarchy provoked internal conflicts and economic challenges, which ultimately led to a military coup in 1926. In 1933, a dictatorial regime was established that lasted for decades, interrupted by a peaceful military revolution in Lisbon on 25th April 1974 – known as the Carnation Revolution, which paved the way for the establishment of the current democratic regime.

With the transition to democracy and Portugal's entry into the European Economic Community in 1986, Lisbon experienced rapid development through significant investments in infrastructure, public services, and tourism. This period marked the city's transformation into a dynamic and modern European capital.

Lisbon today

In recent years, Lisbon has experienced a substantial cultural and economic renaissance. The city's rich history, iconic architecture and vibrant cultural life have contributed to its emergence as a major global tourist destination, attracting millions of visitors annually.

The architectural heritage of Lisbon, particularly evident in areas such as Alfama, Baixa, and Bairro Alto, exhibits a distinctive amalgamation of Moorish, medieval, and Pombaline styles. This unique environment has fostered a thriving art and design scene, making the city a hub for creatives and cultural innovation. Concurrent with this development, Lisbon has witnessed significant urban development projects, most notably the transformation of its eastern waterfront following the 1998 World Expo.

Lisbon is also a foodie's paradise, offering a variety of traditional Portuguese cuisine that reflects the country's diverse regional flavours and deep maritime heritage. From emblematic 'bacalhau' dishes and freshly grilled sardines to hearty stews and delicate pastries, such as the famous 'pastel de nata', the city's cuisine is both authentic and modern. Local markets, neighbourhood taverns, and award-winning restaurants offer a cuisine rooted in tradition but open to contemporary reinterpretations.

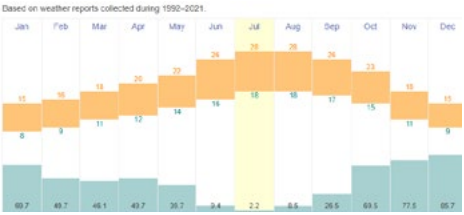
In the contemporary era, Lisbon serves as a paradigm of resilience and adaptability. The city has been successful in achieving a balance between its historic identity and modern ambitions. This has resulted in the city becoming a compelling place to live, work and visit. The city is distinguished by its historical legacy, dynamic cultural expression, and commitment to innovative, forward-looking development.

Climate

Lisbon has a Mediterranean climate, characterized by:

- Hot, dry summers: Temperatures often range from 25°C to 35°C (77°F to 95°F) in July and August, with lots of sunshine and little rain.
- Mild, rainy winters: December and January see cooler temperatures, typically between 8°C and 15°C (46°F to 59°F), with most of the annual rainfall occurring during this season.
- Spring and autumn: These are pleasant and mild, with temperatures between 15°C and 25°C (59°F to 77°F) and less rainfall than winter.

Overall, Lisbon enjoys more than 300 sunny days per year, making it one of Europe's sunniest capitals.



6. Traveling to Lisbon

Lisbon Airport (www.lisbonairport.pt), officially named Humberto Delgado Airport (IATA: LIS), is Portugal's main international gateway, situated just 7 km northeast of Lisbon's historic centre. The airport serves over 35 million passengers annually and is currently used by 62 airlines, connecting the city to 147 destinations worldwide, between Europe, South America, Africa, and North America, making it one of Europe's busiest airports.

The easiest and most efficient way to reach the conference venue — Instituto Superior Técnico, University of Lisbon — from Lisbon Airport is by using the Lisbon Metro (www.metrolisboa.pt).

Take the Red Line (Linha Vermelha) from 'Aeroporto' station to 'Alameda' station. The journey includes:

- 9 stops on the metro (approx. 15 minutes)
- A 10-minute walk from 'Alameda' station to the Department of Civil Engineering, Architecture and Environment of the University of Lisbon

Metro Fare: €1.85 for a single journey + plus €0.50 for a navegante® occasional card (reusable electronic card).

You can use either a navegante® card (personalized or occasional) loaded with valid tickets, or a contactless bank card for payment. The navegante® card is also valid on other public transport, including buses.

7. Map of the City and Points of Interest

View on Google Maps

Monuments and historical landmarks

1. Belém Tower
2. Jerónimos Monastery
3. Monument to the Discoveries
4. Saint George's Castle
5. National Pantheon
6. Pier of the Columns
7. Lisbon Cathedral
8. Augusta Street Arch
9. Rossio Station
10. Glória Funicular
11. Basilica of Estrela

Museums

1. National Tile Museum
2. Museum of Art, Architecture and Technology (MAAT)
3. National Coach Museum
4. Belém Cultural Centre (CCB)
5. National Museum of Archaeology
6. Nacional Museum of Contemporary Art (MNAC)
7. Gulbenkian Modern Art Centre
8. Carmo Archaeological Museum

Historical gardens

1. Botanical Garden of Lisbon
2. Empire Square Garden
3. Tropical Botanical Garden
4. Gardens of the Calouste Gulbenkian Foundation
5. Eduardo VII Park
6. Lisbon Greenhouse
7. Estrela Garden

Conference venue

- Instituto Superior Técnico

Historic neighborhoods and more places of interest

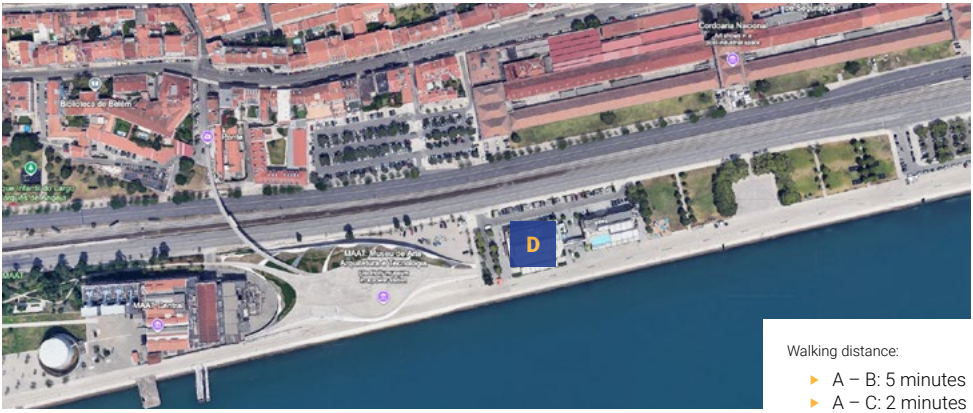
1. Rossio Square
2. Figueira Square
3. Commerce/Palace Square
4. Chiado
5. Bairro Alto
6. Alfama
7. Liberdade Avenue
8. LxFactory
9. Lisbon Oceanarium

Viewpoints and riverfront

1. São Pedro de Alcântara Viewpoint
2. Santa Luzia Viewpoint
3. Portas do Sol Viewpoint
4. Senhora do Monte Viewpoint
5. Graça Viewpoint
6. Santa Justa Lift
7. Ribeira das Naus Avenue
8. Pilar 7 - 25 de Abril Bridge Experience
9. Park of the Nations

8. Host Venue

The CICE 2025 will be held mainly in the Conference Centre of Técnico, University of Lisbon (A). Some moments will take place in different places, namely (i) the morning of 14/7, and Welcome Reception, in Técnico Innovation Center (B), (ii) the lunches, in Hotel Holiday Inn Lisboa (C), and (iii) the banquet, in SUD Lisboa Hall (D).



Walking distance:

- A – B: 5 minutes
- A – C: 2 minutes

A
Técnico, University of Lisbon
Av. Rovisco Pais
049-001 Lisboa
GPS: 38°44'14"N 9°08'23"W
GoogleMaps

July 13 - Afternoon
July 14 - Afternoon
July 15 - Morning, Afternoon
July 16 - Morning, Afternoon

B
Técnico Innovation Center (TIC)
Av. Duque de Ávila, 417
1000-135 Lisboa
GPS: 38°44'07"N 9°08'33"W
GoogleMaps

July 14 – Morning
Welcome Reception

C
Hotel Holiday Inn Lisboa
Av. de António José de Almeida,
28A, 1000-044 Lisboa
GPS: 38°44'17"N 9°08'28"W
GoogleMaps

Lunches (July 14 to July 16)

D
SUD Lisboa Hall
Pavilhão Poente
Av. Brasília, 1300-598 Lisboa
GPS: 38°41'47"N 9°11'31"W
GoogleMaps

Conference Dinner (July 15)

9. Conference Format

The CICE 2025 will cover all aspects of research, development and application of FRP composites in civil engineering, with particular emphasis on some of the most relevant and emerging challenges, including FRP materials, FRP reinforced structures, retrofitting techniques, hybrid and smart structures, durability aspects, fire and impact resistance, sustainability, recycling, FRP composites for wind energy, design codes, case studies, among others.

The CICE 2025 includes Keynote Sessions, regular Technical Sessions and Special Parallel Sessions, Lectures from the recipients of the IIFC Medal and IIFC Young Researcher Award, presentations from the shortlisted candidates of the IIFC Best Thesis Award, the Student Benchmark Competition Session and Technical Visits.

Keynote Sessions will be given by renowned experts of different themes of the Symposium and will address the most innovative findings of their ongoing work. Each keynote will deliver a lecture with a duration of 30 minutes, followed by a discussion of 10 minutes.

Parallel Sessions will consist of sets of presentations and discussion of research, development and application studies of FRP composites in civil engineering. **Special Sessions** will supplement the regular conference program, providing the opportunity to focus on specific emerging topics within the conference's scope. Each contribution to these sessions will consist of a full paper with up to eight pages and a presentation of 10 minutes, followed by a discussion of up to 5 minutes.

The **IIFC Medal** is the Institute's highest honour and is awarded to an IIFC member who has made distinguished contributions to the field of FRP composites for construction through research or practical applications, or both. During CICE 2025, the awardee of the IIFC Medal will deliver a 30 minutes lecture, followed by a 10 minutes discussion.

The **IIFC Young Researcher Award**, no older than 40 years of age at the CICE 2025 realization, is distinguished from their peers through outstanding research contributions in the field of FRP composites for construction. During CICE 2025, the awardee of the IIFC Young Researcher Award will deliver a 30 minutes lecture, followed by a 10 minutes discussion.

The presentations for the **IIFC Best PhD Thesis Award** feature the top five shortlisted candidates selected through a competitive application process. During the session, each candidate will have 10 minutes to summarise their research. This will be followed by a short period for questions from the audience and answers by the candidates.

A blind **Student Benchmark Competition** has been organised within the scope of CICE 2025. The objective of the benchmark is to verify the performance of numerical approaches or analytical formulations in the prediction of the response of RC beams flexurally strengthened with CFRP laminates applied according to the NSM technique, including the SLS and ULS verifications. During the CICE 2025 there will be a session dedicated to this competition.

As part of the conference, two **Technical Visits** will provide a unique opportunity to visit experimental facilities at the National Laboratory for Civil Engineering (LNEC) and at the Department of Civil Engineering, Architecture and Environment of Técnico, University of Lisbon.

Guidelines for Presenting Authors

UPLOADING OF PRESENTATIONS

- Speakers will not be allowed to use their own laptops, tablets or other devices for the presentations.
- Speakers will not be allowed to upload the Presentations by using the computers installed in the auditoriums/ rooms. Presentations must be submitted in advance by e-mail (cice@cice2025.org) or uploaded at the Slide Desk. Acceptable presentation file formats: MS PowerPoint (ppt or pptx) or Adobe Acrobat (pdf).
  - **Submission by e-mail**: Speakers are encouraged to submit their presentations in advance by e-mail at cice@cice2025.org. The e-mail message should include (i) ID of full paper (as defined in Conftool platform), (ii) day and (iii) time of the session, (iv) title of presentation and (v) name of the speaker. In addition, speakers are advised to save a copy of the presentation on a USB memory pen and bring it to the conference.
  - **Uploading at the Slide Desk**: Onsite uploading will be made available during the conference. Presentations saved on a USB memory pen can be brought to the Slide Desk to be uploaded by the conference staff.
- Presentations must be uploaded in the Slide Desk on the half day before the start of the corresponding session.
- Regardless of the uploading procedure, speakers are required to carefully check their presentation at the Slide Desk before the session begins. Staff will assist speakers to preview their presentation to ensure a correct display.

BEFORE YOUR SESSION TAKES PLACE

- Visit the conference venue. Check the auditorium/room where your session is scheduled to and get familiarized yourself with the space and A/V equipment.
- Meet the Session Chairs at the session room at least 10 minutes prior to the start of the session. Provide the Session Chairs with any last-minute information change regarding your name, title, affiliation and how you would like to be introduced.
- The Session Chairs will inform you about the time of your presentation. The total time allocated for your presentation is 15 minutes: 10 minutes presentation followed by 5 minutes for questions and discussion.

DURING YOUR SESSION

- Please deliver your presentation strictly within the allotted time, leaving time for questions and discussion.
- As your presentation time nears the end, you will be informed by the Session Chairs of the time left. Session Chairs are instructed to stop any presentation that runs over the allocated time.
- At the end of the presentations, the Session Chairs will invite for further discussion from the audience.

10. Programme - General info

<table>
<tr><th>Time</th><th>July-13</th><th>July-14</th><th>July-15</th><th>July-16</th></tr>
<tr><td>08:00 - 08:30</td><td rowspan="11"></td><td rowspan="2">Registration</td><td>Registration</td><td>Registration</td></tr>
<tr><td>08:30 - 09:00</td><td rowspan="3">Technical Sessions TS3</td><td rowspan="3">Technical Sessions TS7</td></tr>
<tr><td>09:00 - 09:30</td><td>Opening Ceremony</td></tr>
<tr><td>09:30 - 10:15</td><td>Keynote Lecture KL1</td></tr>
<tr><td>10:15 - 10:45</td><td>Coffee-break</td><td>Coffee-break</td><td>Coffee-break</td></tr>
<tr><td>10:45 - 11:30</td><td>Keynote Lecture KL2</td><td>Keynote Lecture KL3</td><td>Keynote Lecture KL5</td></tr>
<tr><td>11:30 - 12:30</td><td>IIFC General Meeting</td><td>Technical Sessions TS4</td><td>Keynote Lecture KL6</td></tr>
<tr><td>12:30 - 14:00</td><td>Lunch</td><td>Lunch</td><td>Lunch</td></tr>
<tr><td>14:00 - 14:45</td><td rowspan="4">Technical Sessions TS1</td><td>Keynote Lecture KL4</td><td rowspan="2">Technical Sessions TS8</td></tr>
<tr><td>14:45 - 15:00</td><td rowspan="3">Technical Sessions TS5</td></tr>
<tr><td>15:00 - 15:20</td><td>Student's Competition</td></tr>
<tr><td>15:20 - 16:00</td><td>Closing Ceremony</td></tr>
<tr><td>16:00 - 16:30</td><td rowspan="4">Registration</td><td>Coffee-break</td><td>Coffee-break</td><td>Farewell coffee-break</td></tr>
<tr><td>16:30 - 17:30</td><td rowspan="2">Technical Sessions TS2</td><td rowspan="2">Technical Sessions TS6</td><td rowspan="2">IIFC ExCom + Advisory Committee Meeting</td><td rowspan="6"></td></tr>
<tr><td>17:30 - 18:00</td></tr>
<tr><td>18:00 - 18:30</td><td rowspan="2">IIFC Council Meeting</td><td colspan="2">Free time</td></tr>
<tr><td>18:30 - 19:00</td><td rowspan="3"></td><td colspan="2">Bus shuttle to restaurant</td></tr>
<tr><td>19:00 - 21:00</td><td>Welcome Reception</td><td colspan="2" rowspan="2">Conference Dinner and Awards Ceremony</td></tr>
<tr><td>21:00 - 00:00</td><td></td></tr>
</table>

11. Topics and Special Sessions

This CICE 2025 intends to be an influential event, bringing together experts, policymakers, industry leaders, researchers and practitioners to explore innovative solutions that can promote sustainable development for the built environment using FRP composites. In this context, the following topics are covered in CICE 2025:

- All-FRP structures
- Bio-based composites
- Bond behavior
- Case studies
- Composites for wind energy
- Concrete structures with FRP reinforcement
- Concrete-filled FRP tubular members
- Confinement
- Design codes and guidelines
- Durability
- Fire, impact and blast loading
- FRP materials and products
- Hybrid structures combining FRP with other materials
- Inspection, monitoring and quality assurance
- Sandwich structures
- Seismic retrofit of existing structures
- Strengthening of concrete, steel, masonry and timber structures
- Sustainability and recycling
- Textile-reinforced mortar/concrete
- Thermoplastic-based composites

Special Sessions are organized to supplement the regular conference program, offering a platform to explore specific emerging topics within the scope of CICE 2025, namely the following ones:

- **SS01 – Internal hybrid (FRP+Steel) reinforcement for concrete elements: Challenges and future perspectives**
  Organizers: Maria Antonietta Aiello, Luciano Ombres, Pietro Mazzuca
- **SS02 – New approaches, unexplored issues, and future challenges on bond-dominated problems**
  Organizers: Tommaso D'Antino, Francesco Focacci, Christian Carloni
- **SS03 – Inorganic composites for structural retrofitting**
  Organizers: Marta del Zoppo, Georgia Thermou, Marco Di Ludovico
- **SS04 – FRP reinforced concrete: On a global path from niche to mainstream**
  Organizers: Jan Bielak, Tamer El Maaddawy, Ehab El-Salakawy, Fabio Matta, Tao Yu
- **SS05 – Modern integration of FRP composites in heritage conservation: Engineering solutions and preservation ethics**
  Organizers: Alessio Cascardi, Salvatore Verre, Marianovella Leone
- **SS06 – Challenges and opportunities for end-of-life fibre reinforced polymers in civil engineering (promoted by Task Group TG2 of IIFC)**
  Organizers: Cristina Barris, Giovanni Terrasi, Chao Wu
- **SS07 – Hybrid FRP composites: Recent advancements and future applications in construction**
  Organizers: Luís Correia, Filipe Ribeiro, José Sena-Cruz
- **SS08 – Paradis Bridge: Challenges and successes in the design and realisation of a 42 m full composite foot and bicycle bridge for Bergen, Norway**
  Organizers: Liesbeth Tromp, Håkon Tryti Nilssen, Alf-Egil Jensen, Jon Inge BrattikÅs, Oystein Mehl Eide
- **SS09 – Advancements in reliability-based design for FRP composites**
  Organizers: Amirhossein Mohammadi, Sujith Mangalathu
- **SS10 – Composites for fatigue strengthening and lifetime extension of existing structures**
  Organizers: Angelo Savio Calabrese, Elyas Ghafoori, QianQian Yu
- **SS11 – Thermoplastic bars for internal reinforcement of concrete structures: Challenges and new developments**
  Organizers: Inês C. Rosa, João P. Firmo, Tommaso D'Antino
- **SS12 – Durability, lifetime, and life cycle assessment of sustainable composites**
  Organizers: Mário Garrido, Andrejs Krauklis
- **SS13 – Emerging challenges and innovations in sustainable composite materials (promoted by Task Group TG1 of IIFC)**
  Organizers: Francesca Roscini, Jovan Tatar

12. Keynote Speakers

Performance-based seismic retrofit of reinforced concrete bridges with FRP jackets

July 14, 09:30 - 10:15

Lesley H. Sneed
University of Illinois Chicago, United States

SHORT BIO

Dr. Lesley Sneed is a Professor in the Department of Civil, Materials, and Environmental Engineering at the University of Illinois Chicago (UIC). Her research interests include the shear and torsional behaviour of concrete structures, repair and strengthening of structures, and evaluation of existing structures, and she has co-authored more than 100 peer-reviewed publications in these areas. Dr. Sneed is a registered professional engineer in two states, a registered structural engineer in one state, and has over seven years of industry experience in structural design and rehabilitation. She is a Fellow of the American Concrete Institute (ACI), and she is a voting member of several technical committees related to building codes and standards development including ACI 318, Structural Concrete Building Code Committee. She recently served as Chair of ACI 549, Thin Cementitious Products and Ferrocement, which develops technical documents related to fabric reinforced cementitious matrix (FRCM) composite. She has also held several editorial positions and currently serves as Associate Editor of the ASCE Journal of Composites for Construction. Dr. Sneed has been named on Stanford University's World's Top 2% Scientists for Single Year Impact since 2020.

Shear strengthening of RC structures with NSM CFRP composites: Challenges and opportunities

July 14, 10:45 - 11:30

Joaquim Barros
University of Minho, Portugal

SHORT BIO

Joaquim A. O. Barros is Full Professor of the Department of Civil Engineering of Minho University, Director of the PhD in Civil Engineering, header of the Structural Composites Group, Fellow of ACI, active member of several ACI, fib and RILEM Technical Committees. He is the convener of the Convener of the fib WP 2.4.1-Modelling of Fibre Reinforced Concrete Structures. He was a council member of the International Institute for FRP in Construction (IIFC). His research interests include structural strengthening, composite materials, fiber reinforced concrete and the development of materials constitutive models, and their implementation in software based on the finite element method. He his author of more than 900 publications (>250 in ISI journals), co-founder of FEMIX FEM-based computer program and inventor of several national and international patents. He participates(ed) in 45 research projects (24 as coordinator). Supervisor of 14 Pos-Doc (concluded), 57 PhD (44 concluded) and 40 MSc (concluded). Chairman of 10 international and 4 national conferences, and 7 Seminars/Workshops. He participates(ed) in 44 research projects (24 as coordinator). World's Top 2% Scientist since 2020 ("Stanford Ranking").

FRP composite/steel hybrid structures for offshore renewable energy

July 15, 10:45 - 11:30

Marko Pavlovic
Delft University of Technology (TUDelft), Netherlands

SHORT BIO
Dr. Marko Pavlovic is Associate Professor of Steel and Composite Structures, working at Delft University of Technology since 2016 on resolving challenges of renewable energy support structures and infrastructure. He leads fibre-reinforced polymer (FRP) composite structures research group at Engineering Structures department focusing on development of experiments and numerical modeling from scale of the material to the scale of full-scale structures. His aim is to bring innovative solutions and develop methods to predict behavior of bonded and bolted joints and hybrid multi-material structures under influence of static, fatigue loading and the environment. He participates in the European CEN250/WG4 and Dutch NEN standardization groups on creating design guidance for Fiber-polymer composite structures. Dr. Pavlovic is active in education of a new generation of "composites ready" structural engineers through teaching and coordination in bachelor and master programs and professional education courses at Faculty of Civil Engineering and Geosciences in Delft. As inventor of wrapped composite joints he contributes to implementation of the technology through Dutch start-up company Tree Composites b.v. developing the design and manufacturing of composite joints for offshore renewables..

Studies on the behaviour and design theories of concrete structures reinforced or prestressed with FRP rebars

July 15, 14:00 - 14:45

Weichen Xue
Tongji University, Shanghai, China

SHORT BIO
Xue Weichen is Professor at the College of Civil Engineering of Tongji University and Distinguished Professor of Changjiang Scholars of the Ministry of Education. In the past 30 years, he has focused his research on FRP reinforced concrete (RC) structures, precast concrete structures, and prestressed concrete structures. His significant contributions to the field have been recognized with the 1st prize of the National Science and Technology Progress Award (Chinese national top honour). In the field of FRP-RC structures, Professor Xue has made substantial advancements in calculation theories and design methods for both prestressed and non-prestressed FRP-RC members and structures subjected to various loads, including compression, flexure, shear, torsion, as well as seismic and fatigue loading. His contributions include leadership and involvement in developing design codes and specifications of FRP-RC/PC structures in China. Professor Xue also serves as the vice director and secretary general of the Civil Engineering Composite Materials Branch of the China Composite Materials Society, of which he is one of the founders. He has also held editorial positions for over 30 Chinese national, provincial and associational technical codes and standards. With more than 200 SCI/EI indexed journal papers to his name, including 16 technical papers in the ACI Structural Journal, Professor Xue has been listed in Stanford's Top 2% Scientists for Lifetime Impact in 2024.

Composites in Structural Engineering and Architecture

July 16, 10:45 - 11:30

Thomas Keller
Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland

SHORT BIO
Prof. Thomas Keller obtained a Civil Engineering Degree from the Swiss Federal Institute of Technology (ETH) Zurich in 1983. Subsequently, he worked at the architecture and engineering office of Santiago Calatrava. Back at ETH in 1990, he received his doctoral degree in 1992. In 1996, Prof. Keller was appointed as part-time Assistant Professor at the Department of Architecture of ETH, in 1998 as part-time Associate Professor, and in 2007 as Full Professor of Structural Engineering at the Swiss Federal Institute of Technology (EPFL), Lausanne, where he is now Honorary Professor. In 2000, Prof. Keller created the Composite Construction Laboratory (CCLab) at EPFL. He was a founding member of the International Institute for FRP in Construction (IIFC), and a member of the Project Team to establish the European Technical Specification "Design of fibre-reinforced composite structures", CEN/TS 19101, published in 2022. As a practical engineer, Prof. Keller designed one of the first composite pedestrian bridges in Europe (Pontresina Bridge, 1997) and he was responsible for the structural design of the five-storey Eyecatcher Building (Basel, 1998). Prof. Keller also contributed to the design of the free-form multifunctional composite sandwich roof of the Novartis Campus Entrance Building (Basel, 2006) and the hybrid Avançon (vehicular) Bridge with an adhesively bonded composite-balsa sandwich deck (Bex, 2012).

Reimagining Structural Resilience through FRP tendons and FRP bolts

July 16, 11:30 - 12:15

Thong Pham
University of South Australia, Australia

SHORT BIO
Dr. Thong Pham is an Associate Professor and Enterprise Fellow in Structural Engineering at the University of South Australia, leading research on resilient infrastructure and advanced construction materials. Internationally recognised for his pioneering work on fibre-reinforced polymer (FRP) structures and impact engineering, Dr. Pham proposed the first comprehensive impact force model for vehicle-barrier collisions and introduced meta-materials with dual resonators to mitigate stress wave propagation, that has resulted in multiple Clarivate Highly Cited Papers. His innovations in FRP tendons for segmental beams and FRP bolts for beam-column joints have contributed to new approaches in resilient structural systems and design methodologies. Dr Pham has received more than a dozen research awards, including the Best Paper Award from the Japan Society of Civil Engineers and the Concrete Institute of Australia's Excellence Award. He published over 170 peer-reviewed journal articles, with > 9,800 citations and H-index of 53, and authored >10 most-cited papers in high-profile journals, e.g., Engineering Structures, International Journal of Impact Engineering, and International Journal of Mechanical Sciences. He supervised several award-winning PhD students, co-led ARC-funded projects, and serves as Technical Editor of Concrete in Australia. He ranks among the top 2% of global researchers and 107th worldwide in Civil Engineering (Elsevier/Stanford 2024).

13. Student Benchmark Competition

The CICE 2025 Organizing Committee invited student teams to participate in the Student Benchmark Competition, an exciting event that complements the regular conference program.

This competition challenges students to predict, based on numerical simulations or analytical formulations, the behaviour of reinforced concrete beams strengthened with NSM-CFRP laminates under serviceability (SLS) and ultimate limit states (ULS). Key aspects are described as follows.

Team's Composition:

Teams include at least one PhD student in a Civil Engineering program and a tutor registered for CICE 2025.

Important Dates:

- 15 March 2025: Submission of the Registration Form
- 16 March 2025: Release information about the material properties
- 15 June 2025: Submission of the report
- 23 June 2025: Experimental testing at the University of Minho
- 16 July 2025: Winners announced during the closing ceremony of CICE 2025

Awards:

750 EUR and a two-year IIFC membership for the best performing teams in the FEM and analytical categories, with honourable mentions for outstanding proposals.

Evaluation Criteria:

Submissions assessed based on prediction accuracy and report quality.

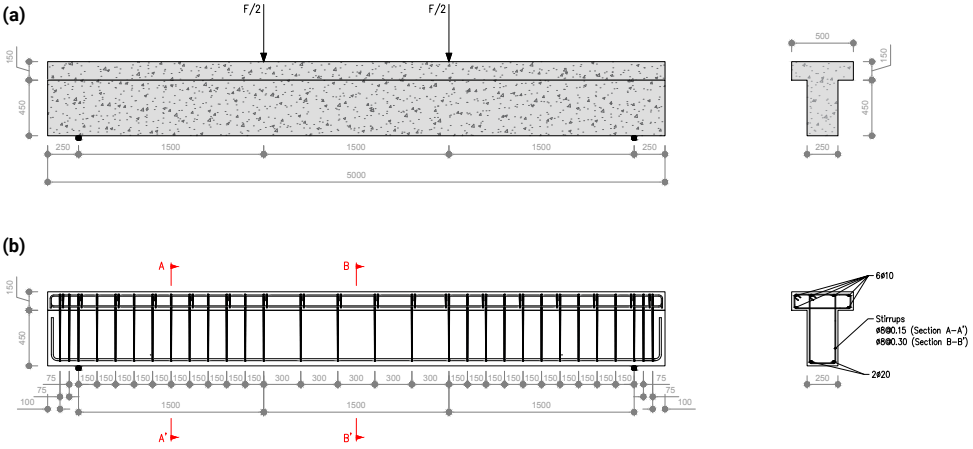
Jury:

- Joaquim Barros, University of Minho, Portugal
- Emmanuel Ferrier, Université Lyon I, France
- Kent Harries, University of Pittsburgh, USA
- Scott T. Smith, University of Adelaide, Australia

Participation Teams:

Name of the Team	Acronym	Institution	Country
Beyond Limits	B-LMT	Northumbria University	UK
Blind Insightful Engineers	BIE	University of Coimbra	Portugal
Composite Materials in Construction – Politecnico di Milano	MC2	Politecnico di Milano	Italy
HTWK Leipzig	HTWK	HTWK Leipzig	Germany
Mysterious Eastern Power	MEP	Changsha University of Science & Technology	China
NC STATE UNIVERSITY	NCSU	North Carolina State University	USA
Padova – FRP on RC elements	P-FoRCe	University of Padua	Italy
Smart NSM Simulators	SNS	University of Minho	Portugal
StrenghtMinds	StrMinds	Universidade Federal de São Carlos	Brazil
Tsinghua University Team 1	THU T1	Tsinghua University	China
Tsinghua University Team 2	THU T2	Tsinghua University	China
PolyUer	PolyUer	The Hong Kong Polytechnic University	China
MA-CICE2025-UMinho	MA-UMinho	University of Minho	Portugal

Ongoing casting of the RC beams for the competition



(a) Lateral view and cross section;

(b) Longitudinal and transversal steel reinforcements;

(c) Flexural strengthening with 3 NSM CFRP laminates (dimensions in mm).

14. Highlight Events

MONDAY, JULY 14

- **09:00 > TIC > Opening Ceremony**
  All CICE 2025 participants are welcome.
- **09:30 > TIC > Keynote Lecture KL1**
  Performance-based seismic retrofit of reinforced concrete bridges with FRP jackets. Lesley H. Sneed
- **10:45 > TIC > Keynote Lecture KL2**
  Shear strengthening of RC structures with NSM CFRP composites: Challenges and opportunities. Joaquim Barros
- **11:30 > TIC > IIFC General Meeting**
  All CICE 2025 participants are welcome to participate in the IIFC General Meeting.
- **18:00 > Auditorium > IIFC Council Meeting**
  This is a closed meeting restricted to IIFC Council Members.
- **19:00 > TIC > Welcome Reception**
  All CICE 2025 participants are welcome to this social event.

TUESDAY, JULY 15

- **09:00 > Room 01.1 > IIFC Best Thesis Award Presentations**
  All CICE 2025 participants are welcome to attend this award competition.
- **10:45 > Auditorium > Keynote Lecture KL3**
  FRP composite/steel hybrid structures for offshore renewable energy. Marko Pavlovic
- **14:00 > Main Auditorium > Keynote Lecture KL4**
  Studies on the behaviour and design theories of concrete structures reinforced or prestressed with FRP rebars. Weichen Xue
- **16:30 > Room 4.41 > IIFC ExCom Meeting**
  This is a closed meeting restricted to IIFC ExCom Members.
- **19:00 > SUD Lisboa Hall > Conference Dinner and Awards Programme**
  All CICE 2025 participants are welcome to participate in this social event.

WEDNESDAY, JULY 16

- **10:45 > Auditorium > Keynote Lecture KL5**
  Composites in Structural Engineering and Architecture. Thomas Keller
- **11:30 > Auditorium > Keynote Lecture KL6**
  Reimagining Structural Resilience through FRP tendons and FRP bolts. Thong Pham
- **15:00 > Auditorium > Student Benchmark Competition**
  All CICE 2025 participants are welcome to attend this competition.
- **15:20 > Auditorium > Closing Ceremony**
  All CICE 2025 participants are welcome to attend the Closing Ceremony of CICE 2025.

15. Registration

Those interested in participating in the CICE 2025 conference must register on the following platform: https://www.congressospco.abreu.pt/CICE2025-41192.aspx

The registration fee includes:

- Access to all conference sessions
- Presentation/publication up to two full papers per delegate or student
- Lunches and coffee-breaks
- One admission to the welcome reception
- One admission to the conference banquet
- Publication of full papers in the CICE2025 proceedings
- 2-year IIFC membership fee

Note: delegates/students unable to attend may request a refund before 30 April 2025. A 100 EUR fee to cover administration costs will be charged. After this date, no refund will be made.

Type of Registration	Early bird registration (up to April 30 2025)	Registration (after April 30, 2025)
Regular delegate	750 EUR	850 EUR
Student	450 EUR	500 EUR
Accompanying person (welcome reception + conference banquet)	200 EUR	200 EUR

16. Publications

Proceedings

In the context of CICE 2025, the publications take the following forms:

- **eBook of Abstracts** available for the conference (Pre-conference).
- **eBook of Proceedings published by Springer** (Post-conference). Free access to the eBook of Proceedings will be available for 4 weeks to all authors and conference participants, allowing free navigation in the e-contents and permanent download of the PDFs of the papers. The papers will be indexed in Scopus and Ei-Compendex.
- **eBook of Proceedings edited by the Organizing Committee**, as a collection of the authors' final versions of the papers, which will be available on the IIFC website (for IIFC members only, and after a one-year embargo).

Springer

Special Issues

Special issues will be organized with selected papers presented in the conference. The following journals have accepted to organize such special issues, in which selected papers will be subjected to a normal peer-review process:

- Journal of Composites for Construction
- Construction and Building Materials
- Thin-Walled Structures

17. App Conference4me

To ensure you have easy access to all the information related to CICE 2025, we recommend using the Conference4me mobile App. It provides schedules, updates, and event details at your fingertips.

How to get started:

- Download the App
  Get it on Google Play
  Download on the App Store
  Or scan this QR code:

- Open the App and if necessary Search for "CICE2025"
  Once installed, launch the App and search for CICE2025 to access the conference details.

18. Certificate

Certificates of attendance will be sent to all participants, by email, after the Event.

19. Wi-Fi Access

Free Wi-Fi is available to all participants:

- **eduroam users:** If you have eduroam credentials, you can connect for free using your existing login.
- **other participants:** Please use guest credentials:
  Network: tecnico-guest
  Username: CICE2025
  Password: wxV7nF

20. Food Service

Coffee breaks will be served at the **Técnico Innovation Center** (TIC) space (morning of July 14) and hall of the **Civil Engineering Building of Técnico** (afternoon of July 14 and remaining days of the conference). Lunch will always be served at the **Holiday Inn Lisbon Hotel**.

Participants should mention any dietary restrictions to ensure appropriate arrangements are made.

The lunch tickets are included in your badge holder.

21. Social Programme

Welcome Reception @ Técnico Innovation Center

We are delighted to invite you to the unforgettable **CICE 2025 Welcome Reception at the Técnico Innovation Center**, taking place on the evening of Monday, July 14. Throughout this evening, you will enjoy a series of memorable experiences:

1. **Welcome Reception**: Join us in a splendid venue where natural beauty meets historic architecture, creating an inviting and inspiring atmosphere.
2. **Cocktail Buffet**: The reception will feature a cocktail buffet with a variety of canapés. This will be an excellent opportunity for networking and to kick off the conference activities.
3. **Musical Moment**: Enjoy a vibrant musical interlude by the talented Dixie Gang, adding a lively and festive touch to the evening.

The **Técnico Innovation Centre** is a dynamic hub for innovation, learning, and collaboration. Established by the Instituto Superior Técnico (IST), part of the University of Lisbon, the centre is housed in the historic Arco do Cego tram station, which has been transformed into a state-of-the-art facility. In addition to study areas, Técnico Innovation Centre offers collaborative workspaces, an exhibition zone, and a multipurpose area capable of hosting events with more than 1000 participants.

The Dixie Gang is a renowned Portuguese jazz ensemble formed in 1991 at the Ritz Club, a notable cabaret in Lisbon. Inspired by the traditional New Orleans jazz style, also known as Dixieland, the group has been a prominent figure in Portugal's jazz scene for over three decades. They have performed extensively both domestically and internationally, including appearances in Macau, Slovakia, Spain, France, and Italy.

The band's lineup has remained largely consistent since its inception, featuring:

- João Viana – Trumpet
- Claus Nymark – Trombone
- Paulo Gaspar – Clarinet
- Gil Gonçalves – Tuba
- David Rodrigues – Piano
- Silas Oliveira – Banjo
- Rui Alves – Drums

Their performances are characterized by a lively and engaging atmosphere, often described as a journey back to the early 20th century Mississippi jazz scene. They have collaborated with various artists, including jazz musicians like Paula Oliveira and Alan Thomas, and even the legendary Max Roach. Additionally, they have worked with Portuguese pop artists such as Jorge Palma.

The Dixie Gang has released three albums:

- Jazz Me Blues (1999)
- Pimenta da Terra (2005)
- Um Quarto do Século (2017)

Their enduring presence and dedication to traditional jazz have solidified their status as a cornerstone of Portugal's jazz heritage.

Event Details

Venue: Técnico Innovation Center
Google Maps
Date: Monday, July 14
Time: 19:00 – 21:00
Access: All CICE 2025 participants are welcome — the invitation is included in your badge holder.

Conference Dinner @ SUD Lisboa Hall

We are excited to invite you to a distinguished evening at the **CICE 2025 Conference Dinner**, to be held on Tuesday, **July 15**, at the remarkable **SUD Lisboa Hall**. The programme includes:

1. **Welcome Cocktail**: Begin the evening with a cocktail reception in a breathtaking setting overlooking the Tagus River and the iconic 25th of April Bridge. Enjoy the sunset and continue networking in a relaxed and elegant atmosphere.
2. **Conference Dinner**: Indulge in a specially curated menu featuring traditional Portuguese cuisine, highlighting the rich culinary heritage of Portugal.
3. **Musical Performance**: Be moved by a live performance of Fado, Portugal's most iconic musical genre, known for its deeply emotional and expressive style. Recognised by UNESCO since 2011 as Intangible Cultural Heritage of Humanity, Fado will be performed by the renowned singer Diamantina.
4. **Awards Ceremony**: Rejoice excellence in the field with the announcement of the IIFC Medal, IIFC Distinguished Young Researcher Award, IIFC Fellows, IIFC President's Award, IIFC Best PhD Thesis Award, IIFC Award for Outstanding FRP Field Applications, and Photo Competition Winners.
5. **Closing Musical Moment & Networking**: Conclude the evening with ambient music, offering the perfect backdrop for continued socialising and networking in a vibrant and inspiring environment.

SUD Lisboa Hall

Settled along Lisbon's scenic waterfront in the historic Belém district, SUD Lisboa Hall (sudlisboa.com) stands as a premier venue for hosting distinguished events. With panoramic views of the Tagus River and the iconic 25 of April Bridge, adjacent to cultural landmarks like the MAAT (Museum of Art, Architecture and Technology) and the Jerónimos Monastery, this multifaceted space seamlessly blends modern elegance with the city's rich maritime heritage.

Fado with Diamantina

Fado is a traditional genre of Portuguese music characterised by its **deeply emotional and melancholic tone**. The word fado itself comes from the Latin *fatum*, meaning "fate" and the music often deals with themes of longing, loss, love, and the sea, reflecting the Portuguese concept of saudade, a unique feeling of nostalgic yearning.

Typically, Fado is sung by a soloist, with an expressive, mournful delivery. It is usually accompanied by the Portuguese guitar (a 12-string pear-shaped lute) and a classical guitar (viola). There are two main styles of Fado: (i) Lisbon Fado, the most popular style, and (ii) Coimbra Fado, traditionally sung by male university students, with a more academic and refined tone.

Along her career as a teacher of Mathematics and Nature Sciences, **Diamantina** has always been involved in music. For the last 20 years, she has made fado her true home. In addition to the numerous private events and concerts, where she regularly performs, she often sings in some of the typical fado houses of the "fadista neighborhoods" of Lisbon, where she was a guest at the 'Clube do Fado' restaurant in Alfama for 2 years. Her latest album 'Contributo' is a tribute to the great masters of Fado, to whom she gives a feminine look without forgetting the matrix of those who made them famous.

Event Details

Venue: SUD Lisboa Hall
GoogleMaps
Date: Tuesday, July 15
Time: 19:00 – 23:30
Bus Service: Transfer at 18:30 from Técnico to SUD Lisboa Hall. Return transfers at 23:30 from SUD Lisboa Hall to Técnico.
Access: All CICE 2025 participants are welcome — the invitation is included in your badge holder.

22. Technical Visits

Two technical visits are organized to the experimental laboratories of the National Laboratory for Civil Engineering (LNEC), and to the Department of Civil Engineering, Architecture and Environment of Técnico – University of Lisbon. Participants will be asked to register for these visits (a form will be provided).

Visit to Laboratories of LNEC

Location: Av. do Brasil, 101 — Lisboa
Date: Wednesday, July 16
Time: 09:00 — 10:00
Audience: All participants
Access: Open to all CICE 2025 participants. No transportation service will be provided. Participants are kindly asked to arrange their own transportation.

LABORATÓRIO NACIONAL DE ENGENHARIA CIVIL

Visit to Laboratories of Técnico

Location: Técnico Campus - Lisbon
Date: Wednesday, July 16
Time: 11:30 – 12:30
Audience: All participants
Access: Open to all CICE 2025 participants.

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DEPARTAMENTO DE ENGENHARIA CIVIL, ARQUITETURA E AMBIENTE
TÉCNICO LISBOA

23. Sponsorships

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Our mission is to supply excellent products while generating measurable value for all stakeholders and fostering continuous development within a culture of excellence and sustainability. We strive to be the benchmark supplier of manufactured products, offering cutting-edge solutions that deliver outstanding value for money and quality.

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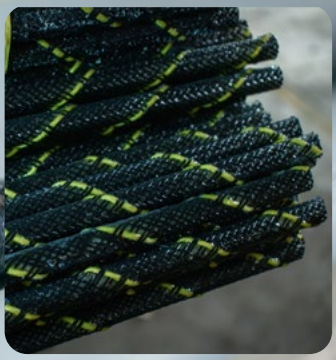
- Lightweight
- Corrosion Resistant
- Higher Durability
- Less Energy
- Optimized Transportation
- Thinner Concrete
- Electromagnetic Compatilbility
- Price Stability



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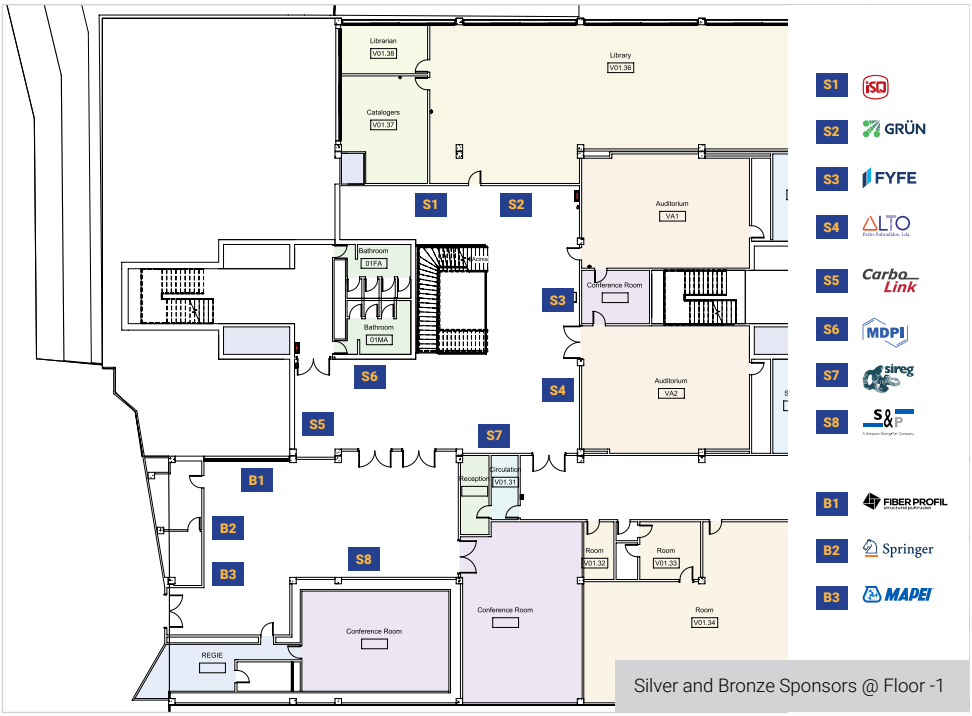

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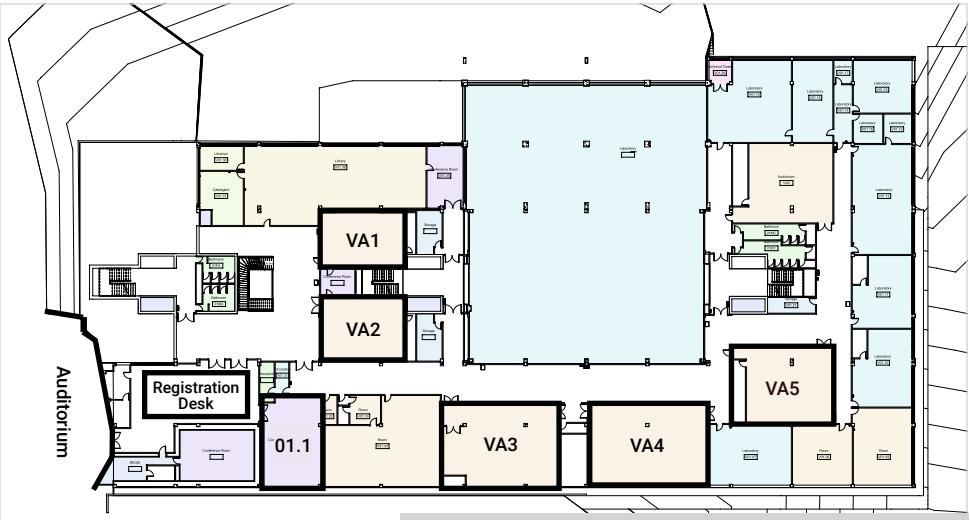
24. Technical Programme Information

Floor -2

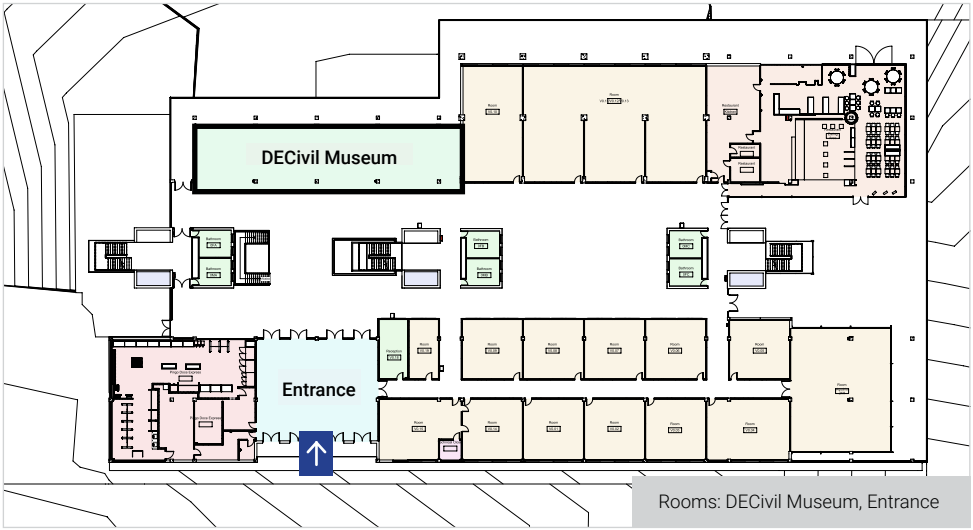
Rooms: slide desk

Floor -1



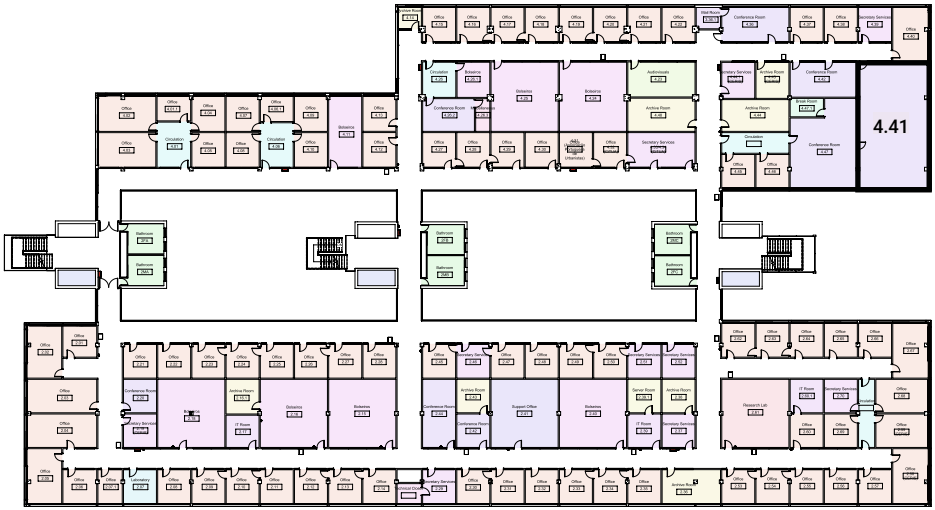
Rooms: Auditorium, 01.1, VA1, VA2, VA3, VA4, VA5

Floor 0



Rooms: DECivil Museum, Entrance

Floor 2



Room: 4.41

25. Technical Sessions

KEYNOTE LECTURES

Keynote Lecture **KL1** | Day-1, July-14 • 09:30 – 10:15 | TIC | Chair: Scott Smith
Lesley H. Sneed
University of Illinois Chicago, United States of America
Lecture: *Performance-based seismic retrofit of reinforced concrete bridges with FRP jackets*

Keynote Lecture **KL2** | Day-1, July-14 • 10:45 – 11:30 | TIC | Chair: Jian-Fei Chen
Joaquim Barros
University of Minho, Portugal
Lecture: *Shear strengthening of RC structures with NSM CFRP composites: Challenges and opportunities*

Keynote Lecture **KL3** | Day-2, July-15 • 10:45 – 11:30 | Auditorium | Chair: Emmanuel Ferrier
Marko Pavlovic
Delft University of Technology (TUDelft), The Netherlands
Lecture: *FRP composite/steel hybrid structures for offshore renewable energy*

Keynote Lecture **KL4** | Day-2, July-15 • 14:00 – 14:45 | Auditorium | Chair: Amir Fam
Weichen Xue
Tongji University, Shanghai, China
Lecture: *Studies on the behaviour and design theories of concrete structures reinforced or prestressed with FRP rebars*

Keynote Lecture **KL5** | Day-3, July-16 • 10:45 – 11:30 | Auditorium | Chair: Kent Harries
Thomas Keller
Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland
Lecture: *Composites in structural engineering and architecture*

Keynote Lecture **KL6** | Day-3, July-16 • 11:30 – 12:15 | Auditorium | Chair: Tao Yu
Thong Pham
University of South Australia, Australia
Lecture: *Reimagining structural resilience through FRP tendons and FRP bolts*

TOPICS

- All-FRP structures
- Bio-based composites
- Bond behavior
- Case studies
- Composites for wind energy
- Concrete structures with FRP reinforcement
- Concrete-filled FRP tubular members
- Confinement
- Design codes and guidelines
- Durability
- Fire, impact and blast loading
- FRP materials and products
- Hybrid structures combining FRP with other materials
- Inspection, monitoring and quality assurance
- Sandwich structures
- Seismic retrofit of existing structures
- Strengthening of concrete, steel, masonry and timber structures
- Sustainability and recycling
- Textile-reinforced mortar/concrete
- Thermoplastic-based composites

SPECIAL SESSIONS

- **SS01 – Internal hybrid (FRP+Steel) reinforcement for concrete elements: Challenges and future perspectives**
  Organizers: Maria Antonietta Aiello, Luciano Ombres, Pietro Mazzuca
- **SS02 – New approaches, unexplored issues, and future challenges on bond-dominated problems**
  Organizers: Tommaso D'Antino, Francesco Focacci, Christian Carloni
- **SS03 – Inorganic composites for structural retrofitting**
  Organizers: Marta del Zoppo, Georgia Thermou, Marco Di Ludovico
- **SS04 – FRP reinforced concrete: On a global path from niche to mainstream**
  Organizers: Jan Bielak, Tamer El Maaddawy, Ehab El-Salakawy, Fabio Matta, Tao Yu
- **SS05 – Modern integration of FRP composites in heritage conservation: Engineering solutions and preservation ethics**
  Organizers: Alessio Cascardi, Salvatore Verre, Marianovella Leone
- **SS06 – Challenges and opportunities for end-of-life fibre reinforced polymers in civil engineering (promoted by Task Group TG2 of IIFC)**
  Organizers: Cristina Barris, Giovanni Terrasi, Chao Wu
- **SS07 – Hybrid FRP composites: Recent advancements and future applications in construction**
  Organizers: Luís Correia, Filipe Ribeiro, José Sena-Cruz
- **SS08 – Paradis Bridge: Challenges and successes in the design and realisation of a 42 m full composite foot and bicycle bridge for Bergen, Norway**
  Organizers: Liesbeth Tromp, Håkon Tryti Nilssen, Alf-Egil Jensen, Jon Inge BrattikÅs, Oystein Mehl Eide
- **SS09 – Advancements in reliability-based design for FRP composites**
  Organizers: Amirhossein Mohammadi, Sujith Mangalathu
- **SS10 – Composites for fatigue strengthening and lifetime extension of existing structures**
  Organizers: Angelo Savio Calabrese, Elyas Ghafoori, QianQian Yu
- **SS11 – Thermoplastic bars for internal reinforcement of concrete structures: Challenges and new developments**
  Organizers: Inês C. Rosa, João P. Firmo, Tommaso D'Antino
- **SS12 – Durability, lifetime, and life cycle assessment of sustainable composites**
  Organizers: Mário Garrido, Andrejs Krauklis
- **SS13 – Emerging challenges and innovations in sustainable composite materials (promoted by Task Group TG1 of IIFC)**
  Organizers: Francesca Roscini, Jovan Tatar

Day	Time	Technical Session	Auditorium	VA1	VA2	VA3	VA4	VA5	01.1	DECivil Museum
Day-1 July-14	14:00 - 16:00	TS1	Concrete structures with FRP reinforcement (I)	Special Session SS02 (I)	Durability (I)	Strengthening of concrete, steel, masonry and timber structures (I)	FRP materials and products (I)	Bond behavior (I)	All-FRP structures (I)	Hybrid structures combining FRP with other materials (I)
	16:30 - 18:00	TS2	Concrete structures with FRP reinforcement (II)	Special Session SS02 (II)	Durability (II)	Strengthening of concrete, steel, masonry and timber structures (II)	FRP materials and products (II)	Bond behavior (II)	All-FRP structures (II)	Special Session SS11
Day-2 July-15	08:30 - 10:15	TS3	Concrete structures with FRP reinforcement (III)	Confinement (I)	Design codes and guidelines (I)	Strengthening of concrete, steel, masonry and timber structures (III)	FRP materials and products (III)	Sandwich structures (I)	IFC Best Thesis Award Presentations	Hybrid structures combining FRP with other materials (II)
	11:30 - 12:30	TS4	Concrete structures with FRP reinforcement (IV)	Inspection, monitoring and quality assurance (I)	Durability (III)	Special Session SS06 (I)	FRP materials and products (IV) / Bio-based composites	Special Session SS03 (I)	All-FRP structures (III)	Seismic retrofit of existing structures (I)
	14:45 - 16:00	TS5	Concrete structures with FRP reinforcement (V)	Special Session SS03 (II)	Special Session SS05	Strengthening of concrete, steel, masonry and timber structures (IV)	Textile-reinforced mortar/concrete (I)	Sandwich structures (II)	Special Session SS13	Seismic retrofit of existing structures (II)
	16:30 - 18:00	TS6	Concrete structures with FRP reinforcement (VI)	Special Session SS02 (III)	Special Session SS04	Special Session SS06 (II)	Textile-reinforced mortar/concrete (II)	Bond behavior (III)	Special Session SS08	Sustainability and recycling
Day-3 July-16	08:30 - 10:15	TS7	Concrete structures with FRP reinforcement (VII) / Concrete-filled FRP tubular members	Confinement (II)	Design codes and guidelines (II)	Strengthening of concrete, steel, masonry and timber structures (V)	Textile-reinforced mortar/concrete (III)	Special Session SS01 (I)	Thermoplastic-based composites	Case studies / Durability (IV)
	14:00 - 15:00	TS8	Special Session SS12	Inspection, monitoring and quality assurance (II)	Composites for wind energy	Fire, impact and blast loading	Special Session SS07	Special Session SS01 (II)	Special Session SS09	Special Session SS10

DAY-1, July-14 | 14:00 – 16:00 | Technical Sessions TS1

Session: Concrete structures with FRP reinforcement (I) **Room:** Auditorium **Chairs:** Jan BIELAK, João CUSTÓDIO	
14:00 – 14:15	1108. **Prefabricated bridge spans made of concrete reinforced with FRP composites** ŻACH, Juliusz; *WAWRZASZEK, Mariusz; STUDZIŃSKI, Paweł*
14:15 – 14:30	1298. **Effect of shear reinforcement ratio on the shear capacity of BFRP reinforced concrete beams** *KRASSOWSKA, Julita; KOSIOR-KAZBERUK, Marta*
14:30 – 14:45	1124. **Behavior of slender GFRP-RC circular columns bent in single and double curvature under eccentric load** *KHAMIS, Ahmed M.; SELMY, Yasser M.; EL-SALAKAWY, Ehab F.*
14:45 – 15:00	1132. **Predicting shear capacity of FRP reinforced concrete beams** *JAHANZAIB, Jahanzaib; SHEIKH, Shamim A.*
15:00 – 15:15	1147. **Flexural behavior of indeterminate concrete structures reinforced with embedded FRP bars** *MRKVOVÁ, Kateřina; VAŠÁTKO, David; GIRGLE, František; ŠTĚPÁNEK, Petr*
15:15 – 15:30	1161. **Flexural behaviour of concrete beams prestressed with CFRP bars** WIATER, Agnieszka; ŻACH, Juliusz; STUDZIŃSKI, Paweł; SIWOWSKI, Tomasz
15:30 – 15:45	1168. **Material efficient CFRP-reinforced concrete floor slabs** *ENGEL, Sven; BIELAK, Jan; CLASSEN, Martin*
15:45 – 16:00	1169. **Reinforcing of additively manufactured concrete structures by dynamic fibre winding: A decision-supporting framework** *ROTHE, Tom; GANTNER, Stefan; THIELE, Philip; SALEHI AMIRI, Fatemeh; HACK, Norman; HÜHNE, Christian*

DAY-1, July-14 | 14:00 – 16:00 | Technical Sessions TS1

Session: SS02. New approaches, unexplored issues, and future challenges on bond-dominated problems (I) **Room:** VA1 **Chairs:** Tommaso D'ANTINO, Francesco FOCACCI, Christian CARLONI	
14:00 – 14:15	1278. **Interfacial debonding detection using radar-based non-destructive testing methods** *CELIK, Selim; THERMOU, Georgia; VUKOVIC, Ana; CORREIA, Ricardo*
14:15 – 14:30	1346. **Modelling of the tensile behaviour of FRP externally bonded reinforced concrete elements** *BARRIS, Cristina; CERONI, Francesca; PALMADA, Lluc; CODINA, Alba; TORRES, Lluis*
14:30 – 14:45	1356. **Experimental and numerical investigation of the fatigue behavior of CFRP reinforced concrete elements under varying load frequency** *BERTOLLI, Veronica; BOCCIARELLI, Massimiliano; COLOMBI, Pierluigi; D'ANTINO, Tommaso*
14:45 – 15:00	1445. **Meso-scale simulation of bond behavior in SRP-concrete interfaces for single-lap shear and three-point bending tests** *WANG, Yilin; VOREL, Jan; CARLONI, Christian; WAN-WENDNER, Roman*
15:00 – 15:15	1406. **Role of matrix in bond tests of FRCM systems. Experimental and numerical investigations** *MISSERI, Giulia; GRAZZINI, Rebecca; CASINI, Chiara; ROVERO, Luisa*
15:15 – 15:30	1408. **Bond behavior of yarn and textile pull-out tests in FRCM systems** *GRAZZINI, Rebecca; MISSERI, Giulia; CASINI, Chiara; ROVERO, Luisa*
15:30 – 15:45	1428. **Implications of inorganic yarn impregnation in the bond behaviour of textile-reinforced mineral-bonded composites: An overview** *SIGNORINI, Cesare; MECHTCHERINE, Viktor*

DAY-1, July-14 | 14:00 – 16:00 | Technical Sessions TS1

Session: Durability (I) **Room:** VA2 **Chairs:** Sylvain CHATAIGNER, Eleni TOUMPANAKI	
14:00 – 14:15	1120. **Durability of geopolymer concrete-encased BFRP bars exposed to varied conditioning temperatures and durations** *CHKHACHIROU, Mouaz; EL-HASSAN, Hilal; EL-MAADDAWY, Tamer*
14:15 – 14:30	1126. **The long-term effects of slow post-curing reactions on CFRP bridge tendons** *BOLOUX, Alexandra; BISBY, Luke; DEWITTE, Charlotte; SCHMID, Cyrill; TERRASI, Giovanni*
14:30 – 14:45	1130. **Hygrothermal effects on FRP & vinyl ester: Saline exposure** *BIQAI, Asaad; TOUMPANAKI, Eleni; CARO, Manjola; HAMERTON, Ian*
14:45 – 15:00	1156. **Creep monitoring of adhesively bonded joints using acoustic emission** *CABEL, Julie; CHATAIGNER, Sylvain; CREAC'HCADEC, Romain; GAILLET, Laurent*
15:00 – 15:15	1294. **Long-term performance of RC slabs strengthened with CFRP strips under sustained loads and different hygrothermal conditions** *DUSHIMIMANA, Aloys; SENA-CRUZ, José; CORREIA, Luís; PEREIRA, João Miguel; CABRAL-FONSECA, Susana; ADEEL JAWED, Sayed*
15:15 – 15:30	1295. **Durability of CFRP-concrete bond after six years of exposure to laboratory and outdoor environments** *DUSHIMIMANA, Aloys; ADEEL JAWED, Sayed; SENA-CRUZ, José; CORREIA, Luís; PEREIRA, João Miguel; CABRAL-FONSECA, Susana*
15:30 – 15:45	1305. **Impact of hygrothermal aging and sustained load on the bond performance between EB-CFRP plates and concrete** *LE ROY, Corentin; AUBAGNAC, Christophe; QUIERTANT, Marc; BENZARTI, Karim*
15:45 – 16:00	1321. **Hybrid-composite shore protection system to mitigate effects of climate change** *HABIBI, Tara; MAGHSOUDI ZAND, Shahin; KELLER, Thomas*

DAY-1, July-14 | 14:00 – 16:00 | Technical Sessions TS1

Session: Strengthening of concrete, steel, masonry and timber structures (I) **Room:** VA3 **Chairs:** Rudolf SERACINO, Muhammad Arslan YAQUB	
14:00 – 14:15	1320. **Innovative solution to prevent debonding of CFRP shear reinforcement on concrete I-girders** *YAQUB, Muhammad Arslan; CZADERSKI, Christoph; MATTHYS, Stijn*
14:15 – 14:30	1105. **NSM-CFCC strengthening for tunnel lining concrete including ceiling voids** *YOSHITAKE, Isamu; MORIMOTO, Shingo; UENO, Shinji; YAMADA, Yuji*
14:30 – 14:45	1153. **Experimental investigation of splicing configuration for NSM FRP strips** *PEIRIS, Abheetha; HAM, Alex*
14:45 – 15:00	1175. **Behavior of FRP repaired prestressed concrete bridge beams after 2 years in service** *GANN, J. Kendon; LUCIER, Gregory W.; SERACINO, Rudolf*
15:00 – 15:15	1183. **Selected research results on the anchorage of PBO mesh in RC slabs strengthened with FRCM composite** *GRZYMSKI, Filip; TRAPKO, Tomasz; MUSIAŁ, Michał*
15:15 – 15:30	1292. **Flexural strengthening of reinforced concrete cantilever balconies with new ETS-NSM CFRP bar** *ZIAEINIA, Ali; CORREIA, Luís; BARROS, Joaquim; DIAS, Salvador; DOURADO, Filipe*
15:30 – 15:45	1237. **Experimental study on RC beams strengthened with CFRP rod panels (CRP070) with different finger joints** *AHMED, Hussein; JAWDHARI, Akram*

DAY-1, July-14 | 14:00 – 16:00 | Technical Sessions TS1

Session: FRP materials and products (I) **Room:** VA4 **Chairs:** Jean-François CARON, Tafsir TAFSIROJJAMAN	
14:00 – 14:15	1122. **Behaviour of GFRP rebars with various fibre volume fraction** *ALAJARMEH, Omar; MANALO, Allan*
14:15 – 14:30	1139. **Effect of elevated temperature on tensile properties and pullout behavior of mineral impregnated glass fiber reinforcements** *LIEBSCHER, Marco; SCHEEL, Julius; ZHAO, Jitong; KÖBERLE, Thomas; MECHTCHERINE, Viktor*
14:30 – 14:45	1142. **Mechanical investigation of FRP-regolith-resin-based composite (FRRC) for lunar construction** *HOSSAIN, Mohammad A.; SMITH, Scott T.; TAFSIROJJAMAN, Tafsir*
14:45 – 15:00	1154. **Digital fabrication methods for carbon reinforced shell-like concrete structures** *NEEF, Tobias; WEN, YueZheng; FRIESE, Danny; CHERIF, Chokri; MECHTCHERINE, Viktor*
15:00 – 15:15	1163. **Using 3D printing for a new cementitious composite** *CARON, Jean-François; DUCOULOMBIER, Nicolas; DEMONT, Léo; DE BONO, Victor; MESNIL, Romain*
15:15 – 15:30	1165. **Mineral impregnated carbon fiber (MCF) reinforcements based on magnesium oxychloride cement (MOC)** *SCHEEL, Julius; LIEBSCHER, Marco; KÖBERLE, Thomas*
15:30 – 15:45	1184. **Compressive response of GFRP bars at high strain rates** *ELNASSAR, Zeinah; GHAZAL ASWAD, Nour; ALKHADER, Maen; ABED, Farid*
15:45 – 16:00	1195. **Smart joule heater based on mineral-impregnated carbon-fiber reinforcements for efficient curing and repairing of concrete construction** *ZHAO, Jitong; LIEBSCHER, Marco; SHANG, Yuchen; FAN, Borong; IVANIUK, Egor; MECHTCHERINE, Viktor*

DAY-1, July-14 | 14:00 – 16:00 | Technical Sessions TS1

Session: Bond behavior (I) **Room:** VA5 **Chairs:** Maurizio GUADAGNINI, Martin NOEL	
14:00 – 14:15	1106. **Dynamic bond behaviour of concrete to FRP interface used for EBR** *FERRIER, Emmanuel; MICHEL, Laurent*
14:15 – 14:30	1110. **Effect of defects on CFRP-concrete bond performance** *SKALLI, Mohammed; NOEL, Martin*
14:30 – 14:45	1127. **Assessment of CFRP-concrete bond interface from the deconstructed Champlain Bridge-a comparison of single and mixed mode behaviour** *FOWAI, Issa; NOËL, Martin; MARTÍN-PÉREZ, Beatriz; SANCHEZ, Leandro*
14:45 – 15:00	1170. **Bond behaviour of helically wrapped GFRP reinforcement bars: Experimental investigation and bond-slip model considerations** *WENDLER, Tobias; DE SOUSA, Christoph; GRZESIAK, Szymon; KAISER, Maximilian; PAHN, Matthias*
15:00 – 15:15	1177. **The role of FRP spike anchors in enhancing the strength of FRP fabrics** *ALI, Hothaifa A.; DEL VECCHIO, Ciro; DI LUDOVICO, Marco; PROTA, Andrea*
15:15 – 15:30	1206. **Influence of surface conditions on the bond-slip response of GFRP rebars in reinforced concrete** *PACHECO DE ALMEIDA, João; HOULT, Ryan; ZOLLER, Alexander*
15:30 – 15:45	1212. **Long-term prestress transfer analysis of sand-coated CFRP tendons in direct bond with concrete using integrated optical fibres** *OTT, Valentin; WYRZYKOWSKI, Mateusz; LURA, Pietro; TERRASI, Giovanni P.*
15:45 – 16:00	1238. **Bond behaviour of CFRP rod panels with steel substrate** *JAAZ, Hussein Abad Gazi; AHMED, Hussein; JAWDHARI, Akram; PEIRIS, Abheetha*

DAY-1, July-14 | 14:00 – 16:00 | Technical Sessions TS1

Session: All-FRP structures (I) **Room:** 01.1 **Chairs:** José GONILHA, Nuno SILVESTRE	
14:00 – 14:15	1116. **Structural behavior of PGFRP beams subjected to one-flange concentrated load** *LIU, TianQiao; ZHEN, Shilong; WANG, Ruibao*
14:15 – 14:30	1181. **Development of a fully composite modular footbridge: Structural analysis and load tests results** *VAŠÁTKO, David; MRKVOVÁ, Kateřina; GIRGLE, František; ŠTĚPÁNEK, Petr*
14:30 – 14:45	1197. **Two novel connections for beam-column joints of pultruded profiles using UHPC block and welded steel sleeve** *TANG, Jun-Tian; FENG, Peng*
14:45 – 15:00	1226. **A comprehensive study on simplified form net-tension strength formulas for the design of multi-row bolted connections in pultruded fiber reinforced polymer structures** *SAMSOR, Abdul Mahboob; ZAFARI, Behrouz*
15:00 – 15:15	1245. **Weak-axis exterior beam-to-column joint in GFRP I-shaped profiles: strength and stiffness estimation by experimental and analytical methods** *MATHEW, Ajith; GONILHA, José; NADIR, Yashida*
15:15 – 15:30	1265. **Seismic behaviour of GFRP interior beam-to-column direct connections under monotonic and reverse cyclic loading** *MATHEW, Ajith; NADIR, Yashida; GONILHA, José; RAJ, Anuja*
15:30 – 15:45	1274. **Local buckling of pultruded GFRP beams: experiments and simulations** *GONILHA, José; LIANG, Mengdie; De PRETER, Michel; LAZZARI, João Alfredo; CORREIA, João Ramôa; SILVESTRE, Nuno*
15:45 – 16:00	1275. **Reaction wall tests on large scale pultruded GFRP frames with metallic connections** *GONILHA, José; CORREIA, João Ramôa; BUTTAZZI, Manuela; CIANI, Francesco; MOLINA, Javier; PELOSO, Simone*

DAY-1, July-14 | 14:00 – 16:00 | Technical Sessions TS1

Session: Hybrid structures combining FRP with other materials (I) **Room:** DECivil Museum **Chairs:** J. Toby MOTTRAM, Bruno JURKIEWIEZ	
14:00 – 14:15	1111. **An innovative hybrid connection for FRP frame structures: The role of column length** *ASCIONE, Francesco; LEONARDI, Alessandro; D'ANIELLO, Mario*
14:15 – 14:30	1137. **Experimental and failure analysis of hybrid GFRP-concrete girders with bolted shear connection** *JURKIEWIEZ, Bruno; GONILHA, José*
14:30 – 14:45	1138. **Bending behaviour of GFRP profiles reinforced by timber elements** *JURKIEWIEZ, Bruno; GRAZIDE, Cécile; DARWICH, Hassan*
14:45 – 15:00	1143. **Thermal response of a hybrid steel-fibre-polymer composite connection with resin injected bolts** *MOTTRAM, J. Toby*
15:00 – 15:15	1158. **Mode I interlaminar fracture toughness of hybrid FRP-timber joints connected by epoxy and polyurethane** *HUANG, Silu; WEI, Yang; YAN, Libo*
15:15 – 15:30	1180. **Development of synthetic fiber-reinforced concrete (FRC) bridge barrier with stainless steel mesh at the traffic side** *FADAEE, Morteza; SENNAH, Khaled*
15:30 – 15:45	1200. **Effect of temperature on the mechanical behavior of wrapped composite joints** *MOREIRA AROUCHE, Marcio; KOETSIER, Mathieu; PAVLOVIC, Marko*
15:45 – 16:00	1231. **Infinity Pavilion: Design and construction of segment-assembling GFRP elastic weaving gridshell** *HU, Jingyuan; BAI, Jin; HUANG, Weixin; CHEN, Yinuo*

DAY-1, July-14 | 16:30 – 18:00 | Technical Sessions TS2

Session: Concrete structures with FRP reinforcement (II) **Room:** Auditorium **Chairs:** Khaled SENNAH, Douglas G TOMLINSON	
16:30 – 16:45	1173. **Utilizing fibre reinforced concrete to enhance service performance of GFRP-reinforced concrete** *ALGUHI, Helmi; TOMLINSON, Douglas G*
16:45 – 17:00	1179. **Capacity *versus* demand in deteriorated bridge barrier replacement using GFRP bars** *DIAB, Ahmed; SENNAH, Khaled; ROSTAMI, Michael*
17:00 – 17:15	1191. **Structural optimisation of concrete shells reinforced with FRP bars** *LEONARDI, Alessandro; ALRAIE, Ali; ASCIONE, Francesco; SPADEA, Saverio*
17:15 – 17:30	1219. **An experimental investigation of glass FRP reinforced concrete deep beams** *BRODBECK, Taylor; PROESTOS, Giorgio T.; SERACINO, Rudolf*
17:30 – 17:45	1109. Tensile performance of GFRP reinforcing bars instrumented with distributed strain sensors for use in concrete structures: a feasibility study *JAVANKHOSHRAFTAR, Mina; BARAKAT, Osama; NOËL, Martin; BUTLER, Liam*
17:45 – 18:00	1222. **Effect of opening location on slab-column edge connections reinforced with GFRP headed-end bars** *ABDELWAHED, Ibrahim; EL-SALAKAWY, Ehab F.*

DAY-1, July-14 | 16:30 – 18:00 | Technical Sessions TS2

Session: SS02. New approaches, unexplored issues, and future challenges on bond-dominated problems (II) **Room:** VA1 **Chairs:** Tommaso D'ANTINO, Francesco FOCACCI, Christian CARLONI	
16:30 – 16:45	1462. **Bond strength of various configurations of CFRP laminates in UHPC at elevated temperature** *SHEFERAW, Dawit Deres; GREEN, Mark*
16:45 – 17:00	1467. **Role of the bar-concrete interfacial properties on the load response of GFRP-reinforced notched beams** *FOCACCI, Francesco; D'ANTINO, Tommaso; COMODINI, Fabrizio; CARLONI, Christian*
17:00 – 17:15	1469. **Experimental and analytical study of the bond behavior of CFRP-concrete joints with snap-back control** *BERTOLLI, Veronica; BISCAIA, Hugo C.; D'ANTINO, Tommaso*
17:15 – 17:30	1477. **An analytical model for the bond behavior of FRP-NSM systems applied to concrete elements** *CERONI, Francesca; BENEDETTI, Andrea; ASCIONE, Luigi*
17:30 – 17:45	1493. **Analytical and experimental study of FRCM composites with lap-spliced textiles** *CALABRESE, Angelo Savio; BERTOLLI, Veronica; D'ANTINO, Tommaso; FOCACCI, Francesco; CARLONI, Christian*
17:45 – 18:00	1494. **Quasi-static and fatigue performance of adhesively bonded pultruded GFRP joints** ÖZYURT, Orkun; *CALABRESE, Angelo S.; VASSILOPOULOS, Anastasios P.*

DAY-1, July-14 | 16:30 – 18:00 | Technical Sessions TS2

Session: Durability (II) **Room:** VA2 **Chairs:** Emmanuel FERRIER, Jovan TATAR	
16:30 – 16:45	1128. **Durability of fiber anchors used with externally bonded FRP strengthening systems** *ISHFAQ, Muhammad; DOSHI, Sagar; MILEV, Sandra; THAPA, Siddhartha; RIGGI, Brianna; TATAR, Jovan*
16:45 – 17:00	1373. **Assessment of residual compressive strength of GFRP rebar after alkali exposure** *GHOSH, Debapriyo; PRAKASH, S. Suriya*
17:00 – 17:15	1384. **Stress-transfer durability of galvanized steel reinforced grout** *MERIGGI, Pietro; FARES, Sara; DE SANTIS, Stefano; DE FELICE, Gianmarco*
17:15 – 17:30	1463. **Durability of FRP-to-concrete bonded joints subjected to accelerated aging in laboratory and to field natural aging** *FERRIER, Emmanuel; GAGNON, Arnaud; LE ROY, Corentin; ROTH, Jeremy; AUBAGNAC, Christophe*
17:30 – 17:45	1465. **Long-term durability assessment of GFRP bars in marine exposed concrete elements** *RAHMAN, Muhammad Kalimur; AL-ZAHRANI, Mesfer M.; AHMAD, Shamsad; SHAMEEM, Mohammed; ALI, Mohammed Rizwan; FASIL, Mohammed; AL-MEHTHEL, Mohammed*
17:45 – 18:00	1514. **Impact of test configurations and field defects on debonding mechanisms in deteriorated CFRP-concrete interfaces from the decommissioned Champlain Bridge** *FOWAI, Issa; NOËL, Martin; ESMAILI, Mohammad; MARTÍN-PÉREZ, Beatriz; SANCHEZ, Leandro*

DAY-1, July-14 | 16:30 – 18:00 | Technical Sessions TS2

Session: Strengthening of concrete, steel, masonry and timber structures (II) **Room:** VA3 **Chairs:** Marta DEL ZOPPO, Luís CORREIA	
16:30 – 16:45	1325. **Ductile CFRP strengthening of prestressed RC beams** *CHRISTENSEN, Christian Overgaard; GOLTERMANN, Per; SCHMIDT, Jacob Wittrup*
16:45 – 17:00	1501. **Assessment of FRCM shear reinforcement technique on masonry panels by means of a wide collection of data** *LIGNOLA, Gian Piero; PROTA, Andrea*
17:00 – 17:15	1349. **Rapid-setting PBO-TRC repair system for offshore applications under moderate temperature** *COSTA, Júlia; PEREZ, José Victor; SILVA, Flávio; CARDOSO, Daniel; SANTOS, Natália Victoria*
17:15 – 17:30	1350. **Ductile unbonded CFRP strengthening of RC slabs** *SCHMIDT, Jacob Wittrup; CHRISTENSEN, Christian Overgaard*
17:30 – 17:45	1372. **Experimental evaluation of shear strengthening techniques for RC beams using FRP and UHPC** *MORTHALA, Rahul Reddy; BALLA, Taraka Malleswara Rao; SHANMUGAM, Suriya Prakash*
17:45 – 18:00	1378. **Effect of slenderness on hybrid FRP strengthened RC column under axial load-bending moment interaction** *BALLA, Taraka Malleswara Rao; SHANMUGAM, Suriya Prakash*

DAY-1, July-14 | 16:30 – 18:00 | Technical Sessions TS2

Session: FRP materials and products (II) **Room:** VA4 **Chairs:** Thomas KELLER, Thong PHAM	
16:30 – 16:45	1236. **Synergistic action of short and continuous fibres in mineral-bonded hybrid composites** *SIGNORINI, Cesare; BRACKLOW, Franz; AHMED, Ameer Hamza; LIEBSCHER, Marco; MECHTCHERINE, Viktor*
16:45 – 17:00	1417. **High-pressure hydrogen decompression in amorphous polyethylene: A molecular perspective** *DING, Guozhen; TIGHE, Christopher; TAM, Lik-ho; WU, Chao*
17:00 – 17:15	1485. **Innovative pipe leakage repair using epoxy aramid fiber plugs and hybrid plates: A non-welding solution for oil, gas, and water pipelines** *KHANDWE, Milind Mukund; KHANDWE, Kapil Milind*
17:15 – 17:30	1489. **Waterline pile cap footings for bridges using large diameter GFRP reinforcing – material characterization** *MAIRONE, Mattia; HEYDARPOUR, Khashayar; PALACIOS, Juan Manuel; RUIZ EMPARANZA, Alvaro; DE CASO, Francisco; MASERA, Davide; CORRADO, Mauro; NOLAN, Steven; NANNI, Antonio*
17:30 – 17:45	1499. **Design of waterline pile cap footings for bridges using large diameter GFRP reinforcing bars** *MAIRONE, Mattia; HEYDARPOUR, Khashayar; RUIZ EMPARANZA, Alvaro; DE CASO, Francisco; MASERA, Davide; CORRADO, Mauro; NOLAN, Steven; NANNI, Antonio*
17:45 – 18:00	2612. **Investigation of the tension stiffening of synthetic fibres reinforced concrete ties with glass fibre-reinforced polymer: an experimental study** *AL MARAHLA, Razan Haedar; SHEHZAD, Muhammad; ALMARAHLLEH, Nour*

DAY-1, July-14 | 16:30 – 18:00 | Technical Sessions TS2

Session: Bond behavior (II) **Room:** VA5 **Chairs:** Marta BAENA, Mohammadali REZAZADEH	
16:30 – 16:45	1362. **Enhanced prediction of bond strength of FRP-to-grooved concrete using synthetic data-driven deep learning** *WANG, Zhao; WENG, Yuqin; WAN, Baolin*
16:45 – 17:00	1371. **Numerical parametric analysis of CFRP-to-steel bonded joints response with linear and non-linear adhesive under monotonic and cyclic loading conditions** *PAPA, Tommaso; BOCCIARELLI, Massimiliano; COLOMBI, Pierluigi*
17:00 – 17:15	1377. **Bond performance evaluation of NSM FRP systems using epoxy and cement-based adhesives for strengthening concrete exposed to elevated temperatures** *AKBARPOOR, Sareh; REZAZADEH, Mohammadali; GHIASSI, Bahman*
17:15 – 17:30	1387. **Experimental evaluation of the bond behavior of anchored FRCM-reinforced curved masonry pillars** *PINGARO, Natalia; FAGONE, Mario; ROTUNNO, Tommaso; MILANI, Gabriele*
17:30 – 17:45	1412. **Experimental study on bond performance of spike-anchored externally bonded CFRP precured laminate-to-concrete joint** *PRASAD, Manish; BARRIS, Cristina; AGHABAGLOO, Mehdi; PERERA, Recardo; BAENA, Marta*
17:45 – 18:00	1419. **Bond stress-slip relationship of CFRP strands embedded in massive concrete** *ANZAI, Arata; SASAKI, Kenji; SHIKI, Sota; ISHIKAWA, Hiroshi; USHIJIMA, Ken-ichi; ENOMOTO, Tsuyoshi*

DAY-1, July-14 | 16:30 – 18:00 | Technical Sessions TS2

Session: All-FRP structures (II) **Room:** 01.1 **Chairs:** Nuno SILVESTRE, André Dias MARTINS	
16:30 – 16:45	1318. **Bearing failure of single-bolt GFRP double-lap connections: experimental study and assessment of resistance formulae** *SERUTI, Carlos A.; NOBRE, João Pereira; MARTINS, André Dias; GONILHA, José; CORREIA, João Ramôa; SILVESTRE, Nuno*
16:45 – 17:00	1319. **Single-bolt pultruded double-lap connections subjected to off-axis loading: Experimental study and assessment of resistance formulae** *SERUTI, Carlos A.; Da SILVA, Tiago R.; MARTINS, André D.; GONILHA, José; CORREIA, João R.; SILVESTRE, Nuno*
17:00 – 17:15	1322. **Towards the direct strength method for the design of pultruded GFRP columns under global buckling** *LAZZARI, João Alfredo de; SCHAFER, Benjamin W.; CORREIA, João R.; SILVESTRE, Nuno*
17:15 – 17:30	1323. **Experimental and computational investigation of local buckling of pultruded GFRP wide-flange columns** *LAZZARI, João Alfredo de; CORREIA, João Ramôa; SILVESTRE, Nuno*
17:30 – 17:45	1327. **Transverse fracture behavior of pultruded GFRP materials in tension and compression at elevated temperature** *YE, Yu-Yi; GONILHA, José; SILVESTRE, Nuno; CORREIA, João R.*
17:45 – 18:00	1331. **Tensile behavior of a ductile double-lap joint of GFRP-AL alloy connected using the swage-locking pin** *LIN, Hongwei; GONG, Erkang; YANG, Lihui*

DAY-1, July-14 | 16:30 – 18:00 | Technical Sessions TS2

Session: SS11. Thermoplastic bars for internal reinforcement of concrete structures: challenges and new developments **Room:** DECivil Museum **Chairs:** Inês C. ROSA, João P. FIRMO, Tommaso D'ANTINO	
16:30 – 16:45	497. **The future of construction - new bendable composite rebars** *ZOLLER Alexander*
16:45 – 17:00	1171. **Experimental investigation on the bond behaviour between thermoplastic GFRP rebars and concrete** *FODDA, Maha; CHATAIGNER, Sylvain; BATTAIS, Ludwig; CHAPELEAU, Xavier; QUIERTANT, Marc; ROLLAND, Arnaud; BENZARTI, Karim*
17:00 – 17:15	1484. **Performance of TP FRP rebars under extreme temperatures** *ČAIROVIĆ, Đorđe; ZLÁMAL, Martin; GIRGLE, František; ŠTĚPÁNEK, Petr; OLLER, Eva; BALCONI, Gabriele; ZOLLER, Alexander; ANDRÉ, Sandrine*
17:15 – 17:30	1487. **Durable and recyclable concrete structures reinforced with thermoplastic GFRP rebars** *NOGALES, Alejandro; JURGOS, Matej; ORTIZ, Galo; TOSIC, Nikola; MURCIA-DELSO, Juan; BALCONI, Gabriele; CAIROVIC, Dorde; GIRGLE, Frantisek; STEPANEK, Petr; OLLER, Eva*
17:30 – 17:45	1559. **Mechanical and bond behaviour of thermoplastic GFRP bars at elevated temperatures and after heat exposure** *ROSA, Inês C.; CORREIA, João R.; FIRMO, João P.; CLAUS, Baziel; COOPMAN, Emma; TAECKE, Mathis*
17:45 – 18:00	1164. **Fire behaviour of concrete slab strips reinforced with thermoplastic GFRP bars** *ROSA C., Inês; PIRES, Rafael; P. FIRMO, João; CORREIA, R. João*

DAY-2, July-15 | 08:30 – 10:15 | Technical Sessions TS3

Session: Concrete structures with FRP reinforcement (III) **Room:** Auditorium **Chairs:** Eva OLLER, Hayder A. RASHEED	
08:30 – 08:45	1239. **Improved nonlinear analysis of GFRP RC deep beams using matrix methods** *ALQARNI, Ali Hassan; RASHEED, Hayder A.*
08:45 – 09:00	1266. **Tension behaviour of ultra high-performance concrete reinforced with GFRP bars** *VARGAS, Daniel; WOODS, Joshua Edward; GENIKOMSOU, Aikaterina*
09:00 – 09:15	1270. **Testing methods for chemical prestressing and adaptation to GFRP rods** *MIKUTAITE, Vita; DONCHEV, Ted; PETKOVA, Diana; BESCHER, Eric; PANIAGUA, Julio*
09:15 – 09:30	1271. **Experimental assessment of carbon and glass FRP bent bar tensile rupture capacity** *ACUNA, Paul; BRODBECK, Taylor; SERACINO, Rudolf*
09:30 – 09:45	1221. **Experimental program on the bending and shear response a two-span continuous bridge of beams prestressed with CFCC tendons** *RAMIREZ, Alexis; OLLER, Eva; MARÍ, Antonio*
09:45 – 10:00	1300. **Numerical analysis of GFRP-reinforced concrete beams without stirrups containing steel fibers subjected to shear** *BAHNIUK, Gabriela Mazureki Campos; RUIZ-PINILLA, Joaquín Guillermo; PIERALISI, Ricardo; MACHADO, Roberto Dalledone*
10:00 – 10:15	1316. **Application of GFRP bars in shotcrete** *STURM, Richard; FAM, Amir*

DAY-2, July-15 | 08:30 – 10:15 | Technical Sessions TS3

Session: Confinement (I) **Room:** VA1 **Chairs:** Daniel CARDOSO, Juan MURCIA-DELSO	
08:30 – 08:45	1366. **Finite element analysis of FRP-confined concrete cylinders** *SALAMEH, Nisreen; EL-HACHA, Raafat*
08:45 – 09:00	1198. **Strength prediction of concrete confined through textile reinforced cementitious composites** *TOSKA, Klajdi; FALESCHINI, Flora*
09:00 – 09:15	1201. **Hight temperature effect on concrete confined through textile reinforced mortar** *TOSKA, Klajdi; BEAUCOUR, Anne-Lise; FALESCHINI, Flora; NOUMOWE, Albert; PELLEGRINO, Carlo*
09:15 – 09:30	1225. **Eccentrically compressed concrete cylinders confined with PBO-FRCM** *PAZDAN, Maciej, Robert; TRAPKO, Tomasz; MUSIAŁ, Michał, Piotr*
09:30 – 09:45	1255. **Effectiveness of the steel FRCM composites in confining of stone columns** *OMBRES, Luciano; MICIELI, Alfredo; MAZZUCA, Pietro; RIZZUTO, Pietro; AGNETTI, Stefano; BUCCIERI, Andrea*
09:45 – 10:00	1348. **Influence of the transverse reinforcement confinement on the ductility and structural performance of GFRP reinforced concrete beams** *OLIVEIRA, Luiz Octávio; CARDOSO, Daniel; SOUZA, Regina Helena; MAGALHÃES, Margareth*
10:00 – 10:15	1118. **Effect of different passive FRP confinement arrangements on stress-strain behavior of axially-loaded fire-damaged concrete elements** *PEREIRA, João P. C.; SHAYANFAR, Javad; BARROS, Joaquim A. O.*

DAY-2, July-15 | 08:30 – 10:15 | Technical Sessions TS3

Session: Design codes and guidelines (I) **Room:** VA2 **Chairs:** Francesca CERONI, André WEBER	
08:30 – 08:45	1121. **A novel model for predicting shear resistance enhancement in RC beams shear strengthened with NSM CFRP** *MOHAMMADI, Amirhossein; BARROS, Joaquim A.O.; SENA-CRUZ, José*
08:45 – 09:00	1144. **Partial factors and environmental conversion factors of various externally bonded FRP systems: Code requirements vs. experimental results** *FRANCO, Annalisa; BONATI, Antonio; CERONI, Francesca; OCCHIUZZI, Antonio*
09:00 – 09:15	1148. **New German guideline "Concrete components with non-metallic reinforcement"** *BIELAK, Jan; IGNATIADIS, Anett; CLASSEN, Martin*
09:15 – 09:30	1166. **Live load and dead load in testing and design** *WEBER, André*
09:30 – 09:45	1276. **International qualification approaches and experimental assessment of embedded FRP reinforcement of concrete structures** *FRANCO, Annalisa; DI LUDOVICO, Marco; RIZZANO, Gianvittorio; PISANO, Gabriele; BONATI, Antonio*
09:45 – 10:00	1277. **Partial factors for FRP rebars in reinforced concrete structures** *FRANCO, Annalisa; CERONI, Francesca; BONATI, Antonio; OCCHIUZZI, Antonio*
10:00 – 10:15	1333. **Codes & guidelines comparison for the design of concrete beams reinforced with GFRP** *BARRIS, Cristina; CERONI, Francesca; OLLER, Eva; DI LUDOVICO, Marco*

DAY-2, July-15 | 08:30 – 10:15 | Technical Sessions TS3

Session: Strengthening of concrete, steel, masonry and timber structures (III) **Room:** VA3 **Chairs:** Gláucia Maria DALFRÉ, Tamer EL-MAADDAWY	
08:30 – 08:45	1107. **A sustainable composite-based solution for rehabilitation of RC beams with corroded stirrups** *ELMEZAYEN, Youssef; EL-HASSAN, Hilal; EL-MAADDAWY, Tamer*
08:45 – 09:00	1390. **Enhancing flexural capacity of aged underground reinforced concrete vaults with externally bonded carbon fiber-reinforced polymer systems** *AWASSA, Oumaima; EL-HACHA, Raaf*at
09:00 – 09:15	1409. **Experimental assessment of pre-cracked RC beams strengthened with passive and prestressed CFRP laminates** *DALFRÉ, Gláucia Maria; PEREIRA, Marcelo Fernandes; FERREIRA, Marcelo de Araújo*
09:15 – 09:30	1427. **Fatigue behavior of EBR CFRP-to-concrete bonded joints** *AGHABAGLOO, Mehdi; BAENA, Marta; SENA-CRUZ, José; CARRERAS, Laura*
09:30 – 09:45	1468. **Fatigue behavior of glass FRP bars for reinforced concrete members** *D'ANTINO, Tommaso; BERTOLLI, Veronica; PISANI, Marco Andrea*
09:45 – 10:00	1473. **Study of simplified shear capacity prediction equations for steel beams strengthened using composite stiffeners** *OKEIL, Ayman; BABAIZADEH, Hamed*
10:00 – 10:15	1526. **Performance of externally bonded CFRP repairs for damaged bridge prestressed concrete girders** *ABDELMALEK, Haitham; ASHUN, Francis; ELGAWADY, Mohamed*

DAY-2, July-15 | 08:30 – 10:15 | Technical Sessions TS3

Session: FRP materials and products (III) **Room:** VA4 **Chairs:** Ana Sofia LOURO, Dilum FERNANDO	
08:30 – 08:45	1523. **Epoxy resin adhesive modified with titanium dioxide for construction strengthening** *KRZYWINSKI, Kamil; SADOWSKI, Łukasz*
08:45 – 09:00	1525. **Analysis of diffusion mechanisms in adhesively bonded composite reinforcements for steel structures** *MEDINA, Matheus; GIRARD, Marion; LEPRETRE, Emilie; CHATAIGNER, Sylvain*
09:00 – 09:15	1543. **FRP bars for reinforced concrete: Main challenges of technical assessment** *LOURO, Ana Sofia; CABRAL-FONSECA, Susana; FIRMO, João Pedro; FILIPE, João*
09:15 – 09:30	1557. **Glass fibre meshes for reinforcement of wall covering systems: Applications, requirements, technical evaluation** *VEIGA, Rosário; MARQUES, Ana; MALANHO, Sofia*
09:30 – 09:45	1570. **Behaviour of curved thin-shell composite columns under axial compression loads** *LEFF, Daniel; TELFORD, Ross; SRIHARAN, Jasotharan; MUDIYANSELAGE, Darshana Rathnayaka; QUINN, James A; MCCARTHY, Edward D; FERNANDO, Dilum*
09:45 – 10:00	2599. **Influence of weave architectures on low-velocity impact response of three-dimensional woven fabric-reinforced composites** *CHOWDHURY, Soumya; DUBEY, Dushyant; GÖTTERT, Jost; BEHERA, Bijoya Kumar*
10:00 – 10:15	2601. **Multiscale finite element simulation study of hybrid fiber pultruded-braided FRP bars** *LIU, Yue; LIU, Bin; TAFSIROJJAMAN, Tafsir*

DAY-2, July-15 | 08:30 – 10:15 | Technical Sessions TS3

Session: Sandwich structures (I) **Room:** VA5 **Chairs:** Mário GARRIDO, João P. FIRMO	
08:30 – 08:45	1244. **Parametric study on the flexural behaviour of structural insulated panels with UHPC-CFRP hybrid face sheets and CFRP shear connectors** *GRAVINA, Rebecca; RATHNASIRI, Saharsha; MAHDI, Shahin*
08:45 – 09:00	1391. **Evaluation of glass fiber-reinforced polymer shear connectors in ultra high-performance concrete sandwich wall panels** *AWASSA, Oumaima; EL-HACHA, Raafat; PERRY, Vic*
09:00 – 09:15	1248. **Compression creep behaviour at elevated temperature of polyethylene terephthalate foam used in sandwich panels** *CASTILHO, Eloísa; FIRMO, João P.; GARRIDO, Mário; CORREIA, João R.; Sá, Mário F.*
09:15 – 09:30	1288. **Synthetic thermal load numerical modelling approach for evaluating temperature variations in hybrid FRP sandwich panels under extreme service conditions** *ABREU FILHO, Marco; M. PEREIRA, João; SENA-CRUZ, José; AZENHA, Miguel*
09:30 – 09:45	1230. **Flexural response of glass-GFRP composite sandwich façade panels** *RANAWEERA, Dinith; ZAFARI, Behrouz; OVEREND, Mauro; PEIRIS, Dashan*
09:45 – 10:00	1385. **Structural behaviour of GFRP-AAC sandwich panels reinforced with polymer pins** *ARAMBURU, Arthur; ALRAIE, Ali; DELUCIS, Rafael; AMICO, Sandro; SPADEA, Saverio*

DAY-2, July-15 | 09:00 – 10:15 | Technical Sessions TS3

Session: IIFC Best Thesis Award Presentations **Room:** 01.1 **Chairs:** Qian-Qian YU, Rebecca GRAVINA, Raafat EL-HACHA	
09:00 – 09:15	**Mineral impregnated carbon-fiber reinforcements based on geopolymer** *ZHAO, Jitong; TU Dresden, Germany*
09:15 – 09:30	**Experimental and numerical investigations of a full-scale steel and GFRP reinforced concrete bridge deck under pulsating and rolling load fatigue** *GAO, Chingxi; Queen's University, Canada*
09:30 – 09:45	**Structural response of fiber-polymer composite bending-active elastica members under short- and long-term loading conditions** *HABIBI, Tara; EPFL, Switzerland*
09:45 – 10:00	**Monotonic, cyclic and seismic behaviour of pultruded structure: from connections to full scale frames** *MARTINS, David; University of Lisbon, Portugal*
10:00 – 10:15	**Structural glass flexural strengthening with CFRP composites and Fe-SMA based on passive, active and hybrid techniques** *ROCHA, Jorge; University of Minho, Portugal*

DAY-2, July-15 | 08:30 – 10:15 | Technical Sessions TS3

Session: Hybrid structures combining FRP with other materials (II) **Room:** DECivil Museum **Chairs:** José GONILHA, João CUSTÓDIO	
08:30 – 08:45	1289. **Experimental analysis on the impact of a concrete top layer and its colour on the *temperature* distribution within hybrid FRP sandwich panels under serviceability conditions** *ABREU FILHO, Marco; M. PEREIRA, João; SENA-CRUZ, José; AZENHA, Miguel*
08:45 – 09:00	1303. **Improving the effectiveness of hybrid shear walls** *EL KASHIK, Zainab; DONCHEV, Ted; PETKOVA, Diana; POUTOS, Konstantinos; RIZZUTO, Joe*
09:00 – 09:15	1357. **Freezing and thawing durability of FRCM systems based on sustainable mortars: A preliminary study** *ASCIONE, Francesco; BENCARDINO, Francesco; CANDAMANO, Sebastiano; CREA, Fortunato; DELLA VECCHIA, Maria Milena; MAZZUCA, Pietro; NAPOLI, Annalisa; OMBRES, Luciano; REALFONZO, Roberto*
09:15 – 09:30	1536. **Material design optimization of restraint layer for rigidizable inflatable lunar habitats** *WANG, Qinyu; FENG, Peng; JANSEN, Kaspar*
09:30 – 09:45	1548. **Experimental study on axial compressive behavior of high-strength concrete-filled CFRP-aluminum composite tube stub columns** *WANG, Lan; ZHANG, Wei; YE, Yong; WU, Xiangliang*
09:45 – 10:00	2613. **Shear connection between perforated pultruded FRP profile and steel-confined concrete** *GAO, Zeyu; YU, Tao*
10:00 – 10:15	1394. **Degradation of mechanical properties of FRP composites under hygrothermal exposure: predictive modelling using machine learning tools** *HASAN, Tarikul; PEREIRA, Pedro; MATOS, José P.; CORREIA, João R.; GARRIDO, Mário; CABRAL-FONSECA, Susana*

DAY-2, July-15 | 11:30 – 12:30 | Technical Sessions TS4

Session: Concrete structures with FRP reinforcement (IV) **Room:** Auditorium **Chairs:** Saverio SPADEA, Francesco ASCIONE	
11:30 – 11:45	1328. **Design of FRP reinforcement for concrete shell structures** *ALRAIE, Ali; LEONARDI, Alessandro; ASCIONE, Francesco; MATSAGAR, Vasant; SPADEA, Saverio*
11:45 – 12:00	1335. **Structural behavior of concrete beams using CFRP strands instead of steel rebars** *SASAKI, Kenji; INOUE, Nobuhiro; ANZAI, Arata; ISIKAWA, Hiroshi; USHIJIMA, Ken-ichi; ENOMOTO, Tsuyoshi*
12:00 – 12:15	1337. **Comparative study of the bending behaviour between steel or GFRP and cement or AAM-based concrete** *EL-HALLAK, Mona; VRIJDAGHS, Rutger; MOLKENS, Tom*
12:15 – 12:30	1369. **Seismic behaviour of concrete members reinforced with glass fibre-reinforced polymer (GFRP) bars: State of the art review** *ZAWAM, Mohamed; SAADE, Julien; BADER, Eid; NANNI, Antonio; SALAZAR, Oscar; CHALHOUB, Michel Soto*

DAY-2, July-15 | 11:30 – 12:30 | Technical Sessions TS4

Session: Inspection, monitoring and quality assurance (I) **Room:** VA1 **Chairs:** Joaquim BARROS, Szymon GRZESIAK	
11:30 – 11:45	1114. **Analysis of the crack behaviour of a GFRP reinforced concrete beam using computed tomography** *GRZESIAK, Szymon; DE SOUSA, Christoph; PAHN, Matthias; GRZYB, Krzysztof*
11:45 – 12:00	1194. **Evaluation of the first polish FRP composite bridge after eight years of service** *KULPA, Maciej; RAJCHEL, Mateusz; SIWOWSKI, Tomasz Wojciech*
12:00 – 12:15	1360. **Evaluation of convective heating and cooling approaches with infrared thermography to assess the bond between externally applied fiber reinforced polymers and concrete** *PLATT, Shawn L.; GOODWIN, David G.; MCCALLUM, Chase*
12:15 – 12:30	1401. **Damage detection in FRP-strengthened RC beams via autoencoder latent space** *PERERA, Ricardo; MONTES, Javier; BARRIS, Cristina; BAENA, Marta*

DAY-2, July-15 | 11:30 – 12:30 | Technical Sessions TS4

Session: Durability (III) **Room:** VA2 **Chairs:** Emilie LEPRETRE, Enzo MARTINELLI	
11:30 – 11:45	1151. **Evaluation of a new adhesively bonded sample configuration adapted for ELS test and creep frame setups** *FAWAZ, Arij; LEPRETRE, Emilie; CHAPELEAU, Xavier; CHATAIGNER, Sylvain*
11:45 – 12:00	1334. **Pull out tests on real-sea-water-immersed CFRP bars with different surface shapes** *GAO, Jing; LIU, Yvwei; TERRASI, Giovanni*
12:00 – 12:15	1374. **Hygrothermal ageing of a GFRP composite developed with a partially bio-based unsaturated polyester resin** *SHAHID, Md Abu Toyob; GARRIDO, Mário; CORREIA, João R.*
12:15 – 12:30	1448. **Long term properties of prestressed GFRP bars after 42 years of maintenance** *LAPSHINOV, Andrey E.; KORNEV, Oleg A.; KAKUSHA, Vladimir A.; SHVETSOVA, Victoria A.*

DAY-2, July-15 | 11:30 – 12:30 | Technical Sessions TS4

Session: SS06. Challenges and opportunities for end-of-life fibre reinforced polymers in Civil Engineering (I) **Room:** VA3 **Chairs:** Cristina BARRIS, Giovanni TERRASI, Chao WU	
11:30 – 11:45	1140. **Re-use of 25 years old CFRP pultrusions in novel post-tensioning cables for bridge strengthening** *TERRASI, Giovanni Pietro; AFFOLTER, Christian; STUTZ, Alex; SCHWEGLER, Gregor; WINISTÖRFER, Andreas*
11:45 – 12:00	1145. **Reuse of end-of-life CFRP EBR strips as prestressing reinforcement for concrete railway sleepers** *TRIANTAFYLLIDIS, Zafiris; OTT, Valentin; QAYYUM, Usama; WYRZYKOWSKI, Mateusz; TERRASI, Giovanni*
12:00 – 12:15	1397. **Structural analysis and testing of a pedestrian bridge constructed from a single wind turbine blade girder** *GENTRY, Russell; ACKALL, Gabriel; BANK, Lawrence C.*
12:15 – 12:30	1413. **On the reuse of aeronautical CFRP material to strengthen concrete beams** *CODINA, Alba; FERNÁNDEZ, Alex; BLANCO, Norbert; COSTA, Josep; BARRIS, Cristina*

DAY-2, July-15 | 11:30 – 12:30 | Technical Sessions TS4

Session: FRP materials and products (IV) / Bio-based composites **Room:** VA4 **Chairs:** Ana SOFIA LOURO, Jaime GONZALEZ-LIBREROS	
11:30 – 11:45	2615. **From square to decagonal: Effects on the axial compressive behaviour of directly wound GFRP tie-confined RC columns** *WANG, Yifei; YU, Tao*
11:45 – 12:00	1345. **Textiles on new modular façade panels** *COSTA, Luani*
12:00 – 12:15	1354. **Sustainable materials for the rehabilitation of masonry structures using jute fibre composites** *SANTINON, Davide; ZAMPIERI, Paolo; PELLEGRINO, Carlo; GONZALEZ-LIBREROS, Jaime; SAS, Gabriel*
12:15 – 12:30	1510. **Experimental study of hemp fabric fiber in reinforced mortar mechanical behavior** *IVANOVA, Ivelina; ASSIH, Jules; DIAGANA, Cheikhna; TITEUX-PETH, Isabelle*

DAY-2, July-15 | 11:30 – 12:30 | Technical Sessions TS4

Session: SS03. Inorganic composites for structural retrofitting (I) **Room:** VA5 **Chairs:** Marta DEL ZOPPO, Georgia THERMOU, Marco DI LUDOVICO	
11:30 – 11:45	1113. **Self-healing potential of textile-reinforced mortars** *TROCHOUTSOU, Niki; ELIGIO, Isabella; FERRARA, Liberato*
11:45 – 12:00	1256. **Residual mechanical properties of inorganic composites after high-temperature exposure** *MAZZUCA, Pietro; MICIELI, Alfredo; OMBRES, Luciano; BUCCIERI, Andrea*
12:00 – 12:15	1279. **Investigation of concrete columns confined using sustainable high-tensile-strength SHCC jacketing** *KARAGHOOL, Osamah; THERMOU, Georgia; YU, Jing*
12:15 – 12:30	1415. **Alkali resistance of glass FRCM** *MORETTI, Giovanni; FARES, Sara; DE FELICE, Gianmarco; DE SANTIS, Stefano*

DAY-2, July-15 | 11:30 – 12:30 | Technical Sessions TS4

Session: All-FRP structures (III) **Room:** 01.1 **Chairs:** Lulu LIU, Salvatore RUSSO	
11:30 – 11:45	1199. **Fatigue and hygroscopic performance of injected bolted connectors in GFRP sandwich web core panels** *CHRISTOFORIDOU, Angeliki; BASKAR, Abishek; PAVLOVIC, Marko*
11:45 – 12:00	1509. **Phase-field fracture modeling of short fiber-reinforced polymeric adhesives** *DEAN, Aamir; HEMATIPOUR, Maryam; KUMAR, Pavan K.A.V.; ROLFES, Raimund*
12:00 – 12:15	1521. **Static and creep behavior of fiber-polymer composite joints with 100% joint efficiency** *LIU, Lulu; SUN, Yun; KELLER, Thomas*
12:15 – 12:30	2610. **Seismic performance of FRP structures seismic performance, modal analysis, spectral acceleration over, equivalent structures, all FRP, multi-story building** *TALLEDO, Diego; TONDI, Michele; RUSSO, Salvatore*

DAY-2, July-15 | 11:30 – 12:30 | Technical Sessions TS4

Session: Seismic retrofit of existing structures (I) **Room:** DECivil Museum **Chairs:** Hayder A. RASHEED, Scott Fine ARNOLD	
11:30 – 11:45	1131. **Retrofit of slab-to-wall connections to improve shear transfer across cold joints using externally bonded FRP** *ARNOLD, Scott Fine; DEO, Aashish; MASHAL, Mustafa*
11:45 – 12:00	1150. **Comparison of the behaviour of retrofitted substandard concrete beam-column joints using NSM, EB and hybrid EBNSM methods under cyclic load** *ESKI, Omer Yavuz; MOFIDI, Amir; WILKINSON, Sean; VINOGRADOV, Vladimir*
12:00 – 12:15	1240. **Cyclic response of RC beams strengthened and anchored using CFRP with and without steel fuse** *ALSHAMRANI, Salman A.; RASHEED, Hayder A.; ALQARNI, Ali H.*
12:15 – 12:30	1262. **Seismic confinement of brick masonry structure with CFRP** *QAZI, Samiullah; MUHAMMAD, Saboor; KPLWAK, Khyber; AHMAD, Imad*

DAY-2, July-15 | 14:45 – 16:00 | Technical Sessions TS5

Session: Concrete structures with FRP reinforcement (V) **Room:** Auditorium **Chairs:** Francesca FERRETTI, Ayman OKEIL	
14:45 – 15:00	1410. **Slabs-on-ground reinforced with non-metallic FRP reinforcements - experimental and numerical investigations** *RAHMAN, Muhammad Kalimur; FASIL, Mohammed; AL-ZAHRANI, Mesfer M.; AL-OSTA, Mohammed A.; AL-ABDULJABBAR, Sami*
15:00 – 15:15	1420. **Shear behavior of prestressed concrete girders using GFRP as shear reinforcement** *MOUSTAFA, Mohamed; MECHAALA, Abdelmounaim; BELARBI, Abdeldjelil; OKEIL, Ayman*
15:15 – 15:30	1422. **Development of empirical capacity prediction model for punching shear capacity of GFRP bar-reinforced slabs and numerical parametric investigations** *FASIL, Mohammed; RAHMAN, Muhammad Kalimur; AL-ZAHRANI, Mesfer M.; AL-OSTA, Mohammed A.; ALKHALIFAH, Hassan*
15:30 – 15:45	1449. **GFRP-reinforced prestressed bridge structures: A historical overview** *LAPSHINOV, Andrey E.*
15:45 – 16:00	1458. **Calibration of deflection control equations for FRP-reinforced concrete elements** *BARONI, Tommaso; FERRETTI, Francesca; BILOTTA, Antonio; MAZZOTTI, Claudio*

DAY-2, July-15 | 14:45 – 16:00 | Technical Sessions TS5

Session: SS03. Inorganic composites for structural retrofitting (II) **Room:** VA1 **Chairs:** Marta DEL ZOPPO, Georgia THERMOU, Marco DI LUDOVICO	
14:45 – 15:00	1260. **Comparative analysis of machine learning algorithms for predicting shear strength in FRCM strengthened RC beams** *LIU, Xiangsheng; FIGUEREDO, Grazziela; GORDON, George; THERMOU, Georgia*
15:00 – 15:15	1460. **Shear strengthening of RC members with U-wrapped PBO FRCM** *BERTOLLI, Veronica; D'ANTINO, Tommaso*
15:15 – 15:30	1339. **Using fibre reinforced cement composites for upgrading RC structures** *DEL ZOPPO, Marta; DI LUDOVICO, Marco*
15:30 – 15:45	1515. **Crack formation process in natural textile reinforced mortars in tension: Experimental evidence and simplified numerical simulation** *MARTINELLI, Enzo; PAOLILLO, Bruno; PEPE, Marco*
15:45 – 16:00	2597. **Material characterization of composite reinforced mortars for the retrofit of masonry walls** *PONTE, Madalena; GARCIA- RAMONDA, Larisa; LANESE, Igor; O'REILLY, Gerard J.; RIZZO PARISI, Elisa; GRAZIOTTI, Francesco; PELÀ, Luca; PENNA, Andrea; MAGENES, Guido; BENTO, Rita; GUERRINI, Gabriele*

DAY-2, July-15 | 14:45 – 16:00 | Technical Sessions TS5

Session: SS05. Modern Integration of FRP composites in heritage conservation: Engineering solutions and preservation ethics **Room:** VA2 **Chairs:** Alessio CASCARDI, Salvatore VERRE, Marianovella LEONE	
14:45 – 15:00	1263. **Enhancing seismic performance of an historic masonry bell-tower using active and passive FRP-systems** *AIELLO, Maria Antonietta; CAIULO, Cristina; PALLARA, Stefano; CASCARDI, Alessio*
15:00 – 15:15	1416. **Bond performance of FRCM and FRP composite materials on hollow concrete blocks** *ALECCI, Valerio; AYALA, Gustavo; FERNANDEZ, Luis; DE STEFANO, Mario; GALASSI, Stefano; STIPO, Gianfranco*
15:15 – 15:30	1435. **Flexural SRG-strengthening of beam: a numerical study on the matrix-to-fabric interface performance** *VERRE, Salvatore; COMODINI, Fabrizio; PANICO, Riccardo; CASCARDI, Alessio; FOCACCI, Francesco*
15:30 – 15:45	1450. **Tackling composite challenges: Fabric reinforced cementitious mortars in masonry retrofitting for both soil settlement and earthquake resistance** *VAIANO, Generoso; OLIVIERI, Carlo; COCKING, Sam; VERRE, Salvatore; CASCARDI, Alessio; FABBROCINO, Francesco*
15:45 – 16:00	1527. **A new design-oriented formula for masonry shear wall strengthened with composite reinforced mortar** *CALO', Silvia; CASCARDI, Alessio; AIELLO, Maria Antonietta*

DAY-2, July-15 | 14:45 – 16:00 | Technical Sessions TS5

Session: Strengthening of concrete, steel, masonry and timber structures (IV) **Room:** VA3 **Chairs:** Wei ZHANG, Javad SHAYANFAR	
14:45 – 15:00	1538. **Innovative analytical solution for prestressed concrete flexural members with harped strands strengthened externally with FRP** *KRAMER, Kimberly; RASHEED, Hayder A.*
15:00 – 15:15	1545. **Experimental and numerical studies on flexural performance of composite beams under cyclic loading** *ZHANG, Wei; LIN, Benqing; LIN, Jinwei*
15:15 – 15:30	1546. **Temperature-dependent debonding behavior of adhesively bonded CFRP-UHPC interface** *LIN, Jinwei; ZHANG, Wei*
15:30 – 15:45	1547. **Assessment of diagonal macrocrack-induced debonding mechanisms in FRP-strengthened RC beams** *HUANG, Yiqun; ZHANG, Wei*
15:45 – 16:00	1549. **Experimental and numerical study on the torsional behavior of rectangular hollow reinforced concrete columns strengthened by CFRP** *LIN, Benqing; ZHANG, Wei*

DAY-2, July-15 | 14:45 – 16:00 | Technical Sessions TS5

Session: Textile-reinforced mortar/concrete (I) **Room:** VA4 **Chairs:** Bahman GHIASSI, João P. FIRMO	
14:45 – 15:00	1146. **Influence of hybrid short fibres on the mechanical performance of textile reinforced concrete composites** *ALMA'AITAH, Mohammad; GHIASSI, Bahman; MOBASHER, Barzin; KANAVARIS, Fragkoulis*
15:00 – 15:15	1157. **Prestressed textile-reinforced concrete: a route to sustainable development in construction** *HUTAIBAT, Mohammed; GHIASSI, Bahman*
15:15 – 15:30	1174. **Mechanical performance of mineral-impregnated TRC** *LI, Tao; GHIASSI, Bahman; FERNANDO, Gerard F.*
15:30 – 15:45	1211. **Structural upgrade through column confinement with TRC using PBO-textile** *POLIENKO, Wladislaw; HOLSCHEMACHER, Klaus*
15:45 – 16:00	1213. **The effect of reinforcement layers on the flexural performance of textile reinforced concrete (TRC)** *ALAHMADI, Ahmed; GHIASSI, Bahman*

DAY-2, July-15 | 14:45 – 16:00 | Technical Sessions TS5

Session: Sandwich structures (II) **Room:** VA5 **Chairs:** An CHEN, Luigi ASCIONE	
14:45 – 15:00	1490. **Design and testing of a structural GFRP sandwich panel for canopy roofs** *CORRADO, Mauro; FERRARESE, Andrea; ACQUESTA, Danilo; SCATTINA, Alessandro; STRINO, Andrea; DE VITA, Giovanniluca; ITALIANO, Maurizio*
15:00 – 15:15	1532. **CFRP curved grid connector for concrete sandwich shell: Analytical model and application** *CHEN, An; SHI, Zhifei; SHI, Jiaxu; YOSSEF, Mostafa*
15:15 – 15:30	1533. **Experimental study and finite element analysis of GFRP reinforced concrete solid and sandwich segments** *SUN, Jing; CHENG, Zhibao; TANG, Haifeng; LI, Zhi*
15:30 – 15:45	1581. **3D-printed gyroid core sandwich composites** *STEPINAC, Lucija; JOSIP, Galić; VASSILOPOULOS, Anastasios*
15:45 – 16:00	2579. **Analysis of composite sandwich pipes under lateral compression for sewage rehabilitation** *CHELOT, Devanand; UPADHYAYA, Priyank*

DAY-2, July-15 | 14:45 – 16:00 | Technical Sessions TS5

Session: SS13. Emerging challenges and innovations in sustainable composite materials **Room:** 01.1 **Chairs:** Francesca ROSCINI, Jovan TATAR	
14:45 – 15:00	1341. **Development of additively manufactured continuous vegetable yarn biocomposites for large-scale structural applications** *SANTOS, Natalia Victoria; BANEA, Mariana Doina; MINETOLA, Paolo; CARDOSO, Daniel Carlos Taissum*
15:00 – 15:15	1380. **Characterization of NTRM systems for the structural strengthening of masonry cross vaults** *MONACO, Alessia; GANDELLI, Emanuele; FACCONI, Luca; BALDASSARI, Mattia*
15:15 – 15:30	1392. **Advancements in structural rehabilitation: Mechanical characterization of bio-natural textile reinforced mortar systems** *ROSCINI, Francesca; IMPERATORE, Stefania; REZAEI, Nasrin; NERILLI, Francesca; FERRACUTI, Barbara*
15:30 – 15:45	1513. **Production of novel low-cost bamboo composites (LCBC) as load-bearing structural members** *MOFIDI, Amir; DRURY, Ben; PADFIELD, Cameron; RAJABIFARD, Mona*
15:45 – 16:00	2586. **Mechanical properties of PCM-composite materials for integrated energy-structural application: a comprehensive analysis and perspectives** *IMPERATORE, Stefania; ROSCINI, Francesca; MENDECKA, Barbara; BELLA, Gino*

DAY-2, July-15 | 14:45 – 16:00 | Technical Sessions TS5

Session: Seismic retrofit of existing structures (II) **Room:** DECivil Museum **Chairs:** Alper ILKI, Raafat EL-HACHA	
14:45 – 15:00	1324. **Backbone curves of FRP confined concrete columns with surface-embedded steel bars** *JALALPOUR, Mohammad; ALKHRDAJI, Tarek*
15:00 – 15:15	1365. **Seismic strengthening of reinforced concrete bridge columns using SMA-FRP hybrid system: performance and effectiveness** *AL EKKAWI, Adel; EL-HACHA, Raafat*
15:15 – 15:30	1396. **Seismic analysis of RC walls retrofitted with fiber reinforced composites using nonlinear truss models** *MURCIA-DELSO, Juan; KOUTROMANOS, Ioannis; ESCOBAR, Kevin; ALBRIGHT, Ann*
15:30 – 15:45	1398. **Rapid seismic evaluation of substandard building stock in Istanbul and the potential role of FRPS in risk mitigation efforts** *AYDOGDU, Hasan Huseyin; DEMIR, Cem; MAEDA, Masak; ILKI, Alper*
15:45 – 16:00	1461. **FRCM configurations for seismic strengthening of RC exterior joints: a parametric Finite element study** *FITWI, Teklewoin Haile; PELLEGRINO, Carlo; FALESCHINI, Flora*

DAY-2, July-15 | 16:30 – 18:00 | Technical Sessions TS6

Session: Concrete structures with FRP reinforcement (VI) **Room:** Auditorium **Chairs:** Lesley SNEED, Nino SPINELLA	
16:30 – 16:45	1472. **Experimental study on the behavior of wedge-barrel anchor systems for FRP bars** *CAGNONI, Alessandro; D'ANTINO, Tommaso; PISANI, Marco Andrea*
16:45 – 17:00	1496. **Bending and shear behavior of plain and PVA-fiber reinforced concrete beams with GFRP reinforcing bars** *BERTOLLI, Veronica; D'ANTINO, Tommaso; CARLONI, Christian*
17:00 – 17:15	1520. **Numerical analysis of RC beams reinforced with FRP bars** *VULLO, Samuele; SPINELLA, Nino; ROSSI, Pier Paolo; REQUENA GARCIA-CRUZ, Maria Victoria; MORALES-ESTEBAN, Antonio*
17:15 – 17:30	1578. **Interfacial shear transfer of concrete interfaces with FRP bars – State of the art and research needs** *KOZIEL, Caitlin; SNEED, Lesley*
17:30 – 17:45	2594. **Assessing the effectiveness of FRP reinforcement in reinforced concrete beams due to bending** *KORENTZ, Jacek*

DAY-2, July-15 | 16:30 – 18:00 | Technical Sessions TS6

Session: SS02. New approaches, unexplored issues, and future challenges on bond-dominated problems (III) **Room:** VA1 **Chairs:** Tommaso D'ANTINO, Francesco FOCACCI, Christian CARLONI	
16:30 – 16:45	1504. **Quasi-static and fatigue responses of concrete slabs internally reinforced with sand-coated GFRP bars** *ABAVISANI, Iman; BERTOLLI, Veronica; D'ANTINO, Tommaso; FOCACCI, Francesco; CARLONI, Christian*
16:45 – 17:00	1516. **Mirror DIC: A new insight on the debonding in FRP-strengthened beams** *OKONKWO, Ekene; ABAVISANI, Iman; D'ANTINO, Tommaso; FOCACCI, Francesco; CARLONI, Christian*
17:00 – 17:15	1437. **Fracture from mode I dominated to mixed mode I-II in CFRP repaired steel pipes** *WU, Jiayu; LI, Huayang; AN, Feng-Chen; LIN, Guan; CHEN, Jian-Fei*
17:15 – 17:30	1444. **An alternative direct-tension test setup to measure GFRP bar to strain-resilient cementitious composite bond properties** *NIKOLAIDIS, Dimitrios; TASTANI, Souzana; BALOPOULOS, Victor*
17:30 – 17:45	1216. **Size effect in reinforced concrete beams shear strengthened with externally bonded FRP** *HAGGALLA, Hewawasam; BRADLEY, Tann; BAE, Sang-Wook*
17:45 – 18:00	1376. **Bond behavior of alkali-activated concrete with steel and FRP reinforcement** *AIELLO, Maria Antonietta; COFFETTI, Denny; COPPOLA, Luigi; DELLA VECCHIA, Maria Milena; LEONE, Marianovella; NAPOLI, Annalisa; RAPELLI, Simone; REALFONZO, Roberto; ROMANAZZI, Vincenzo*

DAY-2, July-15 | 16:30 – 18:00 | Technical Sessions TS6

Session: SS04. FRP reinforced concrete: On a global path from niche to mainstream **Room:** VA2 **Chairs:** Jan BIELAK, Tamer EL MAADDAWY, Ehab EL-SALAKAWY, Fabio MATTA, Tao YU	
16:30 – 16:45	1575. **GFRP reinforced bridge barriers: Part 1, design and numerical studies** *MYERS, John; WU, Chenglin; WEI, Congjie*
16:45 – 17:00	1576. **GFRP reinforced bridge barriers: Part 2, experimental studies** *MYERS, John; WU, Chenglin; WEI, Congjie; GADHE, Manish Kumar*
17:00 – 17:15	1455. **Computational analysis of the shear and bonding performance of CFRP composite strips in UHPC and NSC using finite element methods** *SHEFERAW, Dawit Derers; GREEN, Mark; JAWDHARI, Akram*
17:15 – 17:30	1363. **A landmark GFRP reinforcement project: The low battery seawall repair, Charleston, South Carolina** *Fabio MATTA, Brett EISENHAUER, Laura BOISCLAIR, David HARTMAN, Josh BEECH, Ryan MATTIE, Jim O'CONNOR, Frank NEWHAM*
17:30 – 17:45	2580. **Numerical comparison of bent strength test setups of GFRP bars** *SZINVAI, Szabolcs; KOVÁCS, Tamás*
17:45 – 18:00	1433. **Finite element modelling of full-scale bridge beams strengthened with CFRP sheets: Enhancing shear capacity and fatigue resistance** *ALKEBLAWY, Ramy; THÉRIAULT, Sylvain; AHMED, Mohamed; METICHE, Slimane; MASMOUDI, Radhouane*

DAY-2, July-15 | 16:30 – 18:00 | Technical Sessions TS6

Session: SS06. Challenges and opportunities for end-of-life fibre reinforced polymers in civil engineering (II) **Room:** VA3 **Chairs:** Cristina BARRIS, Giovanni TERRASI, Chao WU	
16:30 – 16:45	1414. **Recycling waste wind turbine blades for making low carbon concrete** *WU, Chao; LIU, Shaoqing*
16:45 – 17:00	1441. **Production and investigations of semi-finished tools made from recycled carbon fibers** *BAUMGÄRTEL, Enrico; METSCHIES, Heike; ALBE, Christopher; OVERBERG, Matthias; SEIDEL, André; RITTNER, Steffen; BERTRAM, Normen; SEMSCH, Martin; SCHURIG, Matthias; STEINBRUCH, Johannes; ZEISBERG, Marcel; CIUPACK, Yvonne; BECKMANN, Birgit; MARX, Steffen*
17:00 – 17:15	1447. **Repurposing wind turbine blades for acoustic road barriers: A viable and sustainable solution** *BRONIEWICZ, Filip; DEC, Karolina*
17:15 – 17:30	1478. **Comparative techno-economic and life-cycle analysis (TEA/LCA) of pedestrian trail bridges made from pultruded FRP, steel, timber and decommissioned wind turbine blades** *SILVERMAN, Aeva; ACKALL, Gabriel; JOHANSEN, Eric; GENTRY, Russell; BANK, Lawrence*
17:30 – 17:45	1508. **Reuse of a wind turbine blade as structural element for pavilion roof** *FERNÁNDEZ, Alex; CODINA, Alba; SAWALMEH, Atef; BELLI, Renan; YUSTE, Javier; BLANCO, Norbert; COSTA, Josep; BARRIS, Cristina*
17:45 – 18:00	1577. **Recycling of glass and carbon fibers from wind turbine blades and other industries for recycling concrete structures: Review** *ELNEMR, Amr; LINSS, Elske; MEHTA, Manik; KOENKE, Carsten*

DAY-2, July-15 | 16:30 – 18:00 | Technical Sessions TS6

Session: Textile-reinforced mortar/concrete (II) **Room:** VA4 **Chairs:** Stijn MATTHYS, Fabian KUFNER	
16:30 – 16:45	1249. **Short-fiber-reinforced concrete meeting the demands of wrapping textile-reinforced concrete** *KUFNER, Fabian; RUCKER-GRAMM, Petra; HORSTMANN, Michael*
16:45 – 17:00	1250. **Approaches for shapeable textile reinforcements for concrete applications: development and validation** *SCHEURER, Martin; HEINS, Kira; GRIES, Thomas*
17:00 – 17:15	1257. **Prediction of the shear capacity of FRCM strengthened reinforced concrete beams** *MAZZUCA, Pietro; GUGLIELMI, Marielda; OMBRES, Luciano; FIRMO, Joao Pedro*
17:15 – 17:30	1268. **Retrofitting of seismically deficient concrete columns using FRCM** *MANSOUR, Moustafa; RTEIL, Ahmad*
17:30 – 17:45	1313. **Retrofitting soil-steel composite bridges with textile reinforced mortar** *CHIRA, Alexandru; ZWICKY, Daia; PELLISSIER, Etienne*
17:45 – 18:00	1383. **Tensile capacity of textile-reinforced alkali-activated mortar up to 1 year** *KRAJNOVIĆ, Ivana; MATTHYS, Stijn*

DAY-2, July-15 | 16:30 – 18:00 | Technical Sessions TS6

Session: Bond behavior (III) **Room:** VA5 **Chairs:** Hugo BISCAIA, Elyas GHAFOORI	
16:30 – 16:45	1235. **Effects of peel angle on the bond between FRCM and concrete** *GERVAIS, Lucas; JAWDHARI, Akram*
16:45 – 17:00	1379. **An inverse analysis approach for the identification of the cohesive zone model parameters of CFRP-to-steel bonded joints** *PAPA, Tommaso; BOCCIARELLI, Massimiliano*
17:00 – 17:15	1438. **Experimental and numerical modelling of the 4-point bending test of hinged concrete beams externally bonded with CFRP composites** *BISCAIA, Hugo; RODRIGUES, Nuno; LÚCIO, Válter; ABRANTES, Jedson; FERREIRA, Maurício*
17:15 – 17:30	1439. **Modelling of the debonding process of mechanically anchored CFRP-to-substrate joints by an analytical approach** *BISCAIA, Hugo; D'ANTINO, Tommaso; FERNANDO, Dilum; DAI, Jian-Guo*
17:30 – 17:45	1486. **Bond behaviour between high-strength foamed concrete and glass fibre-reinforced polymer (GFRP) reinforcing bars** *DIAS, Diogo; FALLIANO, Devid; FERRO, Giuseppe; CORRADO, Mauro*
17:45 – 18:00	2607. **Numerical study on bond behavior of FRP, SMA, and steel bonded joints** *WANG, Sizhe; WONG, Teck Neng; LI, Lingzhen; PICHLER, Niels; GHAFOORI, Elyas*

DAY-2, July-15 | 16:30 – 18:00 | Technical Sessions TS6

Session: SS08. Paradis Bridge: challenges and successes in the design and realisation of a 42 m full composite foot and bicycle bridge for Bergen, Norway **Room:** 01.1 **Chairs:** Liesbeth TROMP, Håkon TRYTI NILSSEN, Alf-Egil JENSEN, Jon INGE BRATTIKÅS, Oystein MEHL EIDE	
16:30 – 16:45	1563. **Paradis bridge background and reference design of a 42 m full composite foot and bicycle bridge for Bergen Norway** *TRYTI NILSSEN, Håkon; TROMP, Liesbeth*
16:45 – 17:15	1562. **Paradis bridge - Part I: Tender phase and Part II: Detail design phase** *BRATTEKAAS, Jon Inge; JENSEN, Alf Egil*
17:15 – 17:30	1573. **Paradis bridge: Quality control; practical implementation using CUR96** *TROMP, Liesbeth*
17:30 – 17:45	1564. **Paradis bridge: Transport and installation - A bridge that can go on land and on water, and in the air too** *TRYTI NILSSEN, Håkon*
17:45 – 18:00	2619. **Bridging knowledge gaps: The European composite bridge database initiative** *NYHAMMER, Vidar*

DAY-2, July-15 | 16:30 – 18:00 | Technical Sessions TS6

Session: Sustainability and recycling **Room:** DECivil Museum **Chairs:** Agnieszka WIATER, Mário GARRIDO	
16:30 – 16:45	1149. **Repurposing of FRP composite decomissioned wind turbine blades in bridge construction** *RAJCHEL, Mateusz; KULPA, Maciej; SIWOWSKI, Tomasz*
16:45 – 17:00	1160. **FRP material properties of various decommissioned wind turbine blades for structural repurposing** *WIATER, Agnieszka; RAJCHEL, Mateusz; SIWOWSKI, Tomasz*
17:00 – 17:15	1155. **Performance evaluation of concrete and 3D printing mortar reinforced with carbon fibers recycled from waste CFRP** *PARK, In-Beom; KIM, Yu-Seong; KIM, Dong-Hyun; CHANG, Chunho; YANG, Jun-Mo*
17:15 – 17:30	1283. **Electrochemical recycling of CFRP by using environmentally friendly acetic acid** *RÖHER, Stefan; SCHEEL, Julius; APEL, Alexandra; SCHEFFLER, Christina; LIEBSCHER, Marco; WEIDINGER, Inez*
17:30 – 17:45	1389. **Environmental and economic impacts of using glass fibre-reinforced polymer (GFRP) bars in reinforced concrete structures: Case study** *ZAWAM, Mohamed; SAADE, Julien; K RAHMAN, Muhammad; BADER, Eid; HASHEM, Mjed; MEHLISI, Abdulelah*
17:45 – 18:00	1544. **Proxximatm polyolefin thermoset systems bringing breakthrough performance** *GUISURAGA, Aranzazu*

DAY-3, July-16 | 08:30 – 10:15 | Technical Sessions TS7

Session: Concrete structures with FRP reinforcement (VII) / Concrete-filled FRP tubular members **Room:** Auditorium **Chairs:** Amir FAM, Mark F. GREEN	
08:30 – 08:45	1317. **Balcony slabs incorporating GFRP-reinforced thermal breaks for energy efficient** buildings *BOULES, Mina; FAM, Amir*
08:45 – 09:00	1332. ***Numerical study of seismic performance of concrete columns reinforced by CFRP bars and spiral*** *VO, Minh Quang; MAKI, Takeshi*
09:00 – 09:15	1336. **Compressive response of self-prestressing self-compacting concrete filled CFRP tubes** *LINKLETER, Alex Rose; OTT, Valentin; TERRASI, Giovanni Pietro; WYRZYKOWSKY, Mateusz; BISBY, Luke*
09:15 – 09:30	1351. **Cyclic flexural behavior of concrete filled FRP tube considering fiber orientation effect** *SHAKYA, Sajan; HAIN, Alexandra*
09:30 – 09:45	1464. **Prestressed concrete filled fibre reinforced polymer tubes for wind turbine towers** *WATFA, Abdul; GREEN, Mark F.; FAM, Amir; NOEL, Martin*
09:45 – 10:00	2616. **Finite element modelling of concrete beams reinforced with FRP bars** *YANG, Jun-Long; YU, Tao*
10:00 – 10:15	2620. **Mechanical behavior and calculation method of GFRP reinforced concrete beams under pure torsion** *Jiafei JIANG, Weichen XUE, Haoyang BAI, Eslam M SALEH*

DAY-3, July-16 | 08:30 – 10:15 | Technical Sessions TS7

Session: Confinement (II) **Room:** VA1 **Chairs:** Joaquim A.O. BARROS, Javad SHAYANFAR	
08:30 – 08:45	1367. **Digital image correlation analysis of FRP-confined concrete cylinders: Axial and lateral strain distribution** *SALAMEH, Nisreen; EL-HACHA, Raafat*
08:45 – 09:00	1368. **Development of an analytical model for predicting the compressive behaviour of FRP-confined concrete** *SALAMEH, Nisreen; EL-HACHA, Raafat*
09:00 – 09:15	1511. **Artificial neural network model for predicting the behavior of confined reinforced concrete columns** *SANTOS, Matheus de Santana; EVANGELISTA JÚNIOR, Francisco; CORREIA, João Ramôa*
09:15 – 09:30	2600. **Axial behaviour of concrete columns lightly confined with bonded and unbonded BFRP wraps** *WANG, Xin; SMITH, Scott T; VISINTIN, Phillip; TAFSIROJJAMAN, Tafsir*
09:30 – 09:45	1381. **Improved analytically modified concrete damage plasticity model for finite element analysis of CFRP-confined circular concrete columns** *NARA, Sandeep Kumar; S, Suriya Prakash*
09:45 – 10:00	1386. **Compressive strength of SRP-confined concrete: Design model** *MONTI, Giorgio; NAPOLI, Annalisa; REALFONZO, Roberto*

DAY-3, July-16 | 08:30 – 10:15 | Technical Sessions TS7

Session: Design codes and guidelines (II) **Room:** VA2 **Chairs:** Kent HARRIES, Emilie LEPRETRE	
08:30 – 08:45	1259. **Strengthening the design-oriented codes: Addressing the oversight in the current FRP torsional reinforcement standards** *BENCARDINO, Francesco; OMBRES, Luciano; CASCARDI, Alessio*
08:45 – 09:00	1290. **Implications of design standard requirements for local buckling capacity of pultruded GFRP members** *HARRIES, Kent*
09:00 – 09:15	1488. **Local buckling capacities for design of pultruded GFRP members subject to axial compression** *HARRIES, Kent*
09:15 – 09:30	1326. **Design-oriented resistance model for web-crippling failure of pultruded GFRP profiles under one-flange loading** *YE, Yu-Yi; GONILHA, José; SILVESTRE, Nuno; CORREIA, João R.*
09:30 – 09:45	1347. **Universal all-in-one approach for design of pultruded GFRP members** *LAZZARI, João Alfredo; CARDOSO, Daniel*
09:45 – 10:00	1418. **Development of a material specification for fiber anchors at the American Concrete Institute** *KANITKAR, Ravi; SHEKARCHI, Will*
10:00 – 10:15	1550. **Design approach for fibre reinforced polymer structures: A worked example** *LEPRETRE, Emilie; BRUNELLIERE, Kevin; DURAND, Samuel; CARON, Jean-François; JANDIN, Philippe*

DAY-3, July-16 | 08:30 – 10:15 | Technical Sessions TS7

Session: Strengthening of concrete, steel, masonry and timber structures (V) **Room:** VA3 **Chairs:** Helena CRUZ, Amirhossein MOHAMMADI	
08:30 – 08:45	1119. **Structural retrofit of glued-laminated timber beams using externally bonded FRP sheets and near surface mounted reinforcement** *GOODWIN, Jodie; WOODS, Joshua; ARNOLD, Scott; SAPIENZA, Tim*
08:45 – 09:00	1315. **Behavior of glulam beams reinforced with externally-bonded FRP** *KABASHI, Naser; KRASNIQI, Enes; MUHAXHERI, Milot; VESELI, Valon; MURATI, Ylli; MAHMUTI, Ridva*
09:00 – 09:15	1343. **Mechanical behaviour of FRP-reinforced bolted connections in timber structures** *GARRIDO, Mário; KORTHALS, Lina; CRUZ, Helena*
09:15 – 09:30	1479. **Fracture characteristics of pultruded FRP web strengthening of thin-walled steel beams** *OKEIL, Ayman; ÜLGER, Tuna*
09:30 – 09:45	1492. **Experimental campaign and numerical investigation on the shear behaviour of FRP-reinforced masonry triplets** *FAVA, Giulia; CEFIS, Nicola; FEDELE, Roberto; TEDESCHI, Cristina*
09:45 – 10:00	2589. **Improving load-carrying capacity of corroded steel bars with near-surface mounted CFRP and high-strength SHCC** *YOUNAS, Haroon; YU, Jing; LEUNG, Christopher KY*
10:00 – 10:15	1574. **Numerical modelling of concrete slanted column strengthened with FRP sheets** *EL-NEMR, Amr; ALLAHHAM, Yassin*

DAY-3, July-16 | 08:30 – 10:15 | Technical Sessions TS7

Session: Textile-reinforced mortar/concrete (III) **Room:** VA4 **Chairs:** Georgia THERMOU, Souzana TASTANI	
08:30 – 08:45	1223. **Cyclic shear behaviour of reinforced concrete beams strengthened by textile-reinforced mortar composite** *GABOR, Aron; SAIDI, Mohamed; BEN-DAHOU, Amine; MICHEL, Laurent*
08:45 – 09:00	1261. **Effectiveness of externally bonded composites in strengthening corroded reinforced concrete columns** *WAFA, Fouad; THERMOU, Georgia; TASTANI, Souzana; PANDEY, Madhup*
09:00 – 09:15	1388. **A FE non-linear 2D numerical model for masonry curved pillars reinforced with FRCM and subjected to single lap shear tests** *PINGARO, Natalia; MILANI, Gabriele*
09:15 – 09:30	1426. **Low-clinker binders and their impact on the tensile mechanical response of strain-hardening cement-based composites reinforced with carbon textile** *AHMED, Ameer Hamza; SIGNORINI, Cesare; LIEBSCHER, Marco; MECHTCHERINE, Viktor*
09:30 – 09:45	1552. **Short fibers, big gains: Advancing masonry shear performances with PVA-fibers enhanced FRCM** *JOHN, Shaise K; CASCARDI, Alessio; NADIR, Yashida; A S, Sharon*
09:45 – 10:00	2614. **Pullout behavior of profiled-end GFRP macro fibres in UHPC** *MENG, Yanran; YU, Tao*
10:00 – 10:15	2617. **Effect of geogrid materials on the drying shrinkage of concrete** *HADI, Muhammad; Abbas AL-HEDAD*

DAY-3, July-16 | 08:30 – 10:15 | Technical Sessions TS7

Session: SS01. Internal hybrid (FRP+Steel) reinforcement for concrete elements: Challenges and future perspectives (I) **Room:** VA5 **Chairs:** Maria ANTONIETTA AIELLO, Luciano OMBRES, Pietro MAZZUCA	
08:30 – 08:45	1253. **Deflection analysis of concrete beams with FRP and steel rebars** *OMBRES, Luciano; AIELLO, Maria Antonietta; MAZZUCA, Pietro; CAMPOLONGO, Francesco*
08:45 – 09:00	1254. **Crack width predictions of hybrid reinforced concrete beams with FRP and steel rebars** *OMBRES, Luciano; AIELLO, Maria Antonietta; MAZZUCA, Pietro; CAMPOLONGO, Francesco*
09:00 – 09:15	1421. **Reinforced concrete with hybrid reinforcement an evaluation from the ductility viewpoint** *THAMRIN, Rendy*
09:15 – 09:30	1451. **Seismic performance of hybrid beam-column joints with steel and GFRP reinforcement** *TUOZZO, Federico; MAGLIULO, Gennaro; D'ANGELA, Danilo; DI SALVATORE, Chiara; NANNI, Antonio*
09:30 – 09:45	1459. **Novel perspectives for seismic design of hybrid reinforced concrete beam sections** *MAGLIULO, Gennaro; TUOZZO, Federico; D'ANGELA, Danilo; DI SALVATORE, Chiara; NANNI, Antonio*
09:45 – 10:00	1474. **Numerical analysis of concrete beams reinforced with FRP and steel rebars for enhanced strength and durability** *BENCARDINO, Francesco; MAURO, Matteo*
10:00 – 10:15	1481. **Quasi-static cyclic performance of hybrid GFRP-steel piers** *STRATFORD, Cain; PALERMO, Alessandro*

DAY-3, July-16 | 08:30 – 10:15 | Technical Sessions TS7

Session: Thermoplastic-based composites **Room:** 01.1 **Chairs:** Inês C. ROSA, Luís CORREIA	
08:30 – 08:45	1217. **Coupon and component testing of a 3D printed FRP bridge deck** *CSILLAG, Fruzsina; SPRINGORUM, Arjen; TUINSTRA, Dimitri; VAN WAGENSVELD, Lidewij*
08:45 – 09:00	1234. **Influence of elevated temperatures on the mechanical properties of a thermoplastic composite produced with acrylic resin** *GAMEIRO, Mariana; ROSA, Inês C.; GARRIDO, Mário; CORREIA, João R.*
09:00 – 09:15	1241. **Experimental study on the adhesion performance of thermoplastic CFRP sheets for flexural reinforcement bonded to RC beams** *YOSHIMOTO, Chisaki; KURIHASHI, Yusuke; WADA, Michiaki; YANAGIDA, Ryohei*
09:15 – 09:30	1312. **Production and mechanical characterization of recycled PET fibre reinforced consolidated by pultrusion** *CARREIRAS, Ana Rita; ESFANDIARI, Puria; SILVA, João; MARQUES, António; MAGALHÃES, António*
09:30 – 09:45	1342. **Hygrothermal durability of vacuum-infused thermoplastic composites with glass fibre and acrylic resin** *GARRIDO, Mário; ROSA, Inês C.; CONSTANTINO, João; CUNHA, Maria; CABRAL-FONSECA, Susana; CORREIA, João R.*
09:45 – 10:00	1456. **Properties of the mortar composites containing waste polycarbonate particles: A preliminary study** *MORETTI, Elisa; PROIETTI, Maria Giulia; LI, Tian; NOBILI, Andrea*
10:00 – 10:15	1571. **Comparative approaches to assess the strength of thermoplastic GFRP bent bars** *PUPPIO, Mario Lucio; SERRA, Giorgio; BALCONI, Gabriele; SASSU, Mauro*

DAY-3, July-16 | 08:30 – 10:15 | Technical Sessions TS7

Session: Case studies / Durability (IV) **Room:** DECivil Museum **Chairs:** John MYERS, Russell GENTRY	
08:30 – 08:45	1306. **Impact of human-structure interaction on the vibration serviceability assessment of the Puurs FRP footbridge** *STROBBE, Senne; DE CORTE, Wouter; VAN DEN BROECK, Peter; VAN NIMMEN, Katrien*
08:45 – 09:00	1338. **Application of GFRP in Spanish port works** *JUÁREZ, Laura; MORALES, Asunción; HERNÁNDEZ, Enrique*
09:00 – 09:15	1399. **A case study on seismic retrofitting of sub-standard RC buildings using FRPs: A building damaged during 2023 Kahramanmaras earthquakes** *AYDOGDU, Hasan Huseyin; ATASEVER, Kurtulus; MAEDA, Masaki; ILKI, Alper*
09:15 – 09:30	1512. **Harkers Island bridge case study: North Carolina's first all FRP reinforced and prestressed concrete bridge** *ACUNA, Paul; SERACINO, Rudolf*
09:30 – 09:45	2611. **Stand-alone FRP stair structure in a high seismic zone: A case study in a post-earthquake zone in Italy** *BUTTAZZI, Manuela; CIANI, Francesco*
09:45 – 10:00	1395. **Hygrothermal durability of vacuum infused GFRP composites produced with polyester and vinyl ester resins** *HASAN, Tarikul; CORREIA, João R.; GARRIDO, Mário; CABRAL-FONSECA, Susana; SENA-CRUZ, José; JORGE, Marco*
10:00 – 10:15	2618. **Durability of pultruded GFRP composites with polyester and vinyl ester matrices under freeze-thaw cycles** *HASSANSHAHI, Omid; JORGE, Marco; CORREIA, Luís; SENA-CRUZ, José; HASAN, Tarikul; CORREIA, João Ramôa; GARRIDO, Mário; CABRAL-FONSECA, Susana*

DAY-3, July-16 | 14:00 – 15:00 | Technical Sessions TS8

Session: SS12. Durability, lifetime, and life cycle assessment of sustainable composites **Room:** Auditorium **Chairs:** Mário GARRIDO, Susana CABRAL-FONSECA	
14:00 – 14:15	1182. **The effect of internal non-uniformity in pultruded FRP profiles on moisture diffusion** *ZHANG, Shaojie; TEWANI, Hridyesh; FENG, Peng; PRABHAKAR, Pavana*
14:15 – 14:30	1196. **Durability and life prediction of a pultruded fibreglass flat sheet using an Arrhenius method** *ZAFARI, Behrouz; MOTTRAM, J. Toby*
14:30 – 14:45	1214. **Improvement in the aging resistance of uncoated AR-glass textile-reinforcement** *KUFNER, Fabian; HORSTMANN, Michael; RUCKER-GRAMM, Petra*
14:45 – 15:00	1519. **Durability of GFRP *vs*. steel reinforced concrete under seawater attack** *LAPIRO, Igor; EID, Rami; KOVLER, Konstantin*

DAY-3, July-16 | 14:00 – 15:00 | Technical Sessions TS8

Session: Inspection, monitoring and quality assurance (II) **Room:** VA1 **Chairs:** Ana Sofia LOURO, Helena CRUZ	
14:00 – 14:15	1568. **Damage detection in GFRP confined concrete cylinders using acoustic emission techniques** *ABEYSINGHE, Sithija A; CHEN, Fuzhen; CHAI, Hwa Kian; FERNANDO, Dilum*
14:15 – 14:30	1579. **Advancing self-sensing FRP systems for sustainable retrofitting: integration of distributed fiber optic sensors for real-time monitoring** *ACHILLOPOULOU, Dimitra; TZIAVOS, Nikolaos*
14:30 – 14:45	2591. **Long-term monitoring of three steel bridges strengthened with prestressed and non-prestressed CFRP** *LI, Lingzhen; HEYDARINOURI, Hossein; GHAFOORI, Elyas; AL-MAHAIDI, Riadh; ZHAO, Xiao Lin*
14:45 – 15:00	2606. **A sub-laminate based efficient modelling technique for wave propagation within composite beam containing delaminations** *FENG, Yuan; SHEIKH, Abdul Hamid; SMITH, Scott T.; TAFSIROJJAMAN, Tafsir*

DAY-3, July-16 | 14:00 – 15:00 | Technical Sessions TS8

Session: Composites for wind energy **Room:** VA2 **Chairs:** Marko PAVLOVIC, Dilum FERNANDO	
14:00 – 14:15	1141. **Study on properties and failure mechanisms of pultruded planks laminated structures** *JIANG, Yushi; FENG, Peng; LU, Xiaofeng*
14:15 – 14:30	1215. **Fracture resistance of steel-composite wrapped joints for tubular structures under combined axial and bending loads** *BASKAR, Abishek; CINTRA, Gisele; WALTENER, Clement; PAVLOVIC, Marko*
14:30 – 14:45	1220. **Influence of fracture toughness on multi-axial loading interaction criteria for wrapped composite joints** *CINTRA, Gisele Góes; KOETSIER, Mathieu; MYLONOPOULOS, Vasileios; PAVLOVIC, Marko*
14:45 – 15:00	1528. **Comprehensive review of composite repair strategies for wind turbine rotor blades** *CHRISTOFFERS, Marcel Alexander; ANILKUMAR, P. M.; SCHEFFLER, Sven; ROLFES, Raimund*

DAY-3, July-16 | 14:00 – 15:00 | Technical Sessions TS8

Session: Fire, impact and blast loading **Room:** VA3 **Chairs:** João PACHECO DE ALMEIDA, Asad-ur-Rehman KHAN	
14:00 – 14:15	1101. **Behaviour of different FRP rebars subjected to fire** *ČAIROVIĆ, Đorđe; ZLÁMAL, Martin; VENCLOVSKÝ, Jakub; ČAIROVIĆ, Iva; JEŽEK, Jakub; GIRGLE, František; ŠTĚPÁNEK, Petr; LISZTWAN, Dominik; PROKEŠ, Jan*
14:15 – 14:30	1117. **Fire performance of PGFRP composite beams with fire-resistant coatings** *LIU, TianQiao; WANG, Ruibao; ZHEN, Shilong*
14:30 – 14:45	1247. **Effect of high temperature on GFRP longitudinal modulus: a classical laminate theory (CLT) approach** *CASTILHO, Eloísa; FIRMO, João P.; GARRIDO, Mário; CORREIA, João R.; ROQUE, Marcos*
14:45 – 15:00	1299. **Numerical investigation of post-blast RC slabs strengthened with textile reinforced mortar** *KHAN, Asad-ur-Rehman; ASAD, Juwairia; FAREED, Shamsoon*

DAY-3, July-16 | 14:00 – 15:00 | Technical Sessions TS8

Session: SS07. Hybrid FRP composites: Recent advancements and future applications in Construction **Room:** VA4 **Chairs:** Luís CORREIA, Filipe RIBEIRO	
14:00 – 14:15	2590. **Advancements and emerging trends in hybrid FRP composites for construction** *RIBEIRO, Filipe; CORREIA, Luís; SENA-CRUZ, José*
14:15 – 14:30	1205. **Study of the flexural strengthening of steel plates with bonded hybrid flax/carbon composite patches** *TAZI, Mohamed Amine; JEBLI, Mouad; TEIXEIRA DE FREITAS, Sofia; CASARI, Pascal; DE BARROS, Silvio*
14:30 – 14:45	1358. **Novel sisal/flax braided hybrid natural fibre yarns for composite applications** *JOY, Jobin; KAWASAKI CAVALCANTI, Daniel Kioshi; ULLAH, Tehseen; ELLUL GRECH, Brian; DE MARCO MUSCAT-FENECH, Claire; MUSCAT, Martin; LI, Hongjun; CAMILLERI, Duncan*
14:45 – 15:00	1443. **Failure behavior of pseudo-ductile composite: an experimental and numerical approach** *ABDELLAHI, Sayyed Behzad; AZHARI, Fatemeh; NGUYEN, Phu*

DAY-3, July-16 | 14:00 – 15:00 | Technical Sessions TS8

Session: SS01. Internal hybrid (FRP+steel) reinforcement for concrete elements: challenges and future perspectives (II) **Room:** VA5 **Chairs:** Maria ANTONIETTA AIELLO, Luciano OMBRES, Pietro MAZZUCA	
14:00 – 14:15	1498. **Evaluation of FE analysis of hybrid GFRP-steel RC beams integrating an ANN-based bond behaviour model** *DEVARAJ, Rajeev; OLOFINJANA, Ayodele; GERBER, Christophe*
14:15 – 14:30	1505. **Optimization of steel and GFRP reinforcements for concrete elements: Sectional and structural analyses** *BARONI, Tommaso; FERRETTI, Francesca; MAZZOTTI, Claudio*
14:30 – 14:45	1537. **Multi-layer perceptron for strength prediction of FRP-confined circular columns** *SHANE, Kyaw; SHAYANFAR, Javad; NGUYEN, Hoang; REZAZADEH, Mohammadali*
14:45 – 14:00	1431. **Flexural behavior of new hybrid design for utility poles using lightweight aerated concrete** *BOUABIDI, Mohamed; METICHE, Slimane; GAGNÉ, Richard; MASMOUDI, Radhouane*

DAY-3, July-16 | 14:00 – 15:00 | Technical Sessions TS8

Session: SS09. Advancements in reliability-based design for FRP composites **Room:** 01.1 **Chairs:** Amirhossein MOHAMMADI, André Dias MARTINS	
14:00 – 14:15	1309. **Reliability analysis for improved design of pultruded GFRP SHS and RHS columns prone to local buckling** *MARTINS, André Dias; TEIXEIRA, Ângelo Palos; CORREIA, João Ramôa; LAZZARI, João Alfredo de; SILVESTRE, Nuno*
14:15 – 14:30	1314. **On the safe design of GFRP single-bolted double-lap connections susceptible to shear-out failure** *MARTINS, André Dias; SERUTI, Carlos Alexandre; GONILHA, José; CORREIA, João Ramôa; SILVESTRE, Nuno; TEIXEIRA, Ângelo Palos; FERREIRA, Francisco*
14:30 – 14:45	1534. **Reliability design for compressive strength of axially loaded FRP-confined concrete** *SHAYANFAR, Javad; MOHAMMADI, Amirhossein; BARROS, Joaquim A.O.*
14:45 – 15:00	1535. **Design model for shear resistance of RC beams strengthened with externally bonded CFRP reinforcement** *MOHAMMADI, Amirhossein; BARROS, Joaquim A.O.; SENA-CRUZ, José*

DAY-3, July-16 | 14:00 – 15:00 | Technical Sessions TS8

Session: SS10. Composites for fatigue strengthening and lifetime extension of existing structures **Room:** DECivil Museum **Chairs:** Angelo SAVIO CALABRESE, Elyas GHAFOORI, Qian-Qian YU	
14:00 – 14:15	1269. **Fatigue behavior of hollowcore slabs strengthened with externally post-tensioned CFRP plates** *ABDEL HAVEZ, Amr; AL-MAYAH, Adil; ZAWAM, Mohamed*
14:15 – 14:30	1403. **Study on fatigue cracks in welded joints repaired by carbon fiber sheets using VARTM technique** *THAY, Visal; TOMIYAMA, Shintaro; FUJIKURA, Shuichi; MATSUMOTO, Risa; NAKAMURA, Hitoshi; MATSUI, Takahiro*
14:30 – 14:45	1470. **Low-cycle fatigue performance of carbon FRCM** *BERTOLLI, Veronica; D'ANTINO, Tommaso; FAVA, Giulia; NOBILI, Andrea*
14:45 – 15:00	1491. **Repair of fatigue-damaged steel beams with CFRP plates externally-bonded with toughened adhesive** *CALABRESE, Angelo Savio; FAVA, Giulia; BOCCIARELLI, Massimiliano; COLOMBI, Pierluigi; ABBASI TOROGHI, Hanieh*

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