

PROGRAM

APFIS 2024

Ninth Asia-Pacific Conference on FRP in Structures

8-11 December 2024 | Adelaide, Australia

Organised by



**THE UNIVERSITY
of ADELAIDE**



**University of
South Australia**

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FORWARD

On behalf of the Organising Committee, a very warm welcome to the Ninth Asia-Pacific Conference on FRP in Structures (APFIS 2024) that is being held in Adelaide, Australia, 8-11 December 2024. APFIS 2024 is organised by The University of Adelaide and the University of South Australia, and is supported by the International Institute for FRP in Construction (IIFC).

APFIS is an international conference series that is dedicated to researchers, academics, students, manufacturers, consultants, contractors and policy makers. Its aim is to showcase and promote research, development and application of fibre-reinforced polymer (FRP) composites in the built environment. The inaugural APFIS conference was held in Hong Kong in 2007. Since then, it has been held in Seoul, Korea (2009), Hokkaido, Japan (2012), Melbourne, Australia (2013), Nanjing, China (2015), Singapore (2017), Gold Coast, Australia (2019), Shenzhen, China (2022, online). APFIS 2024 therefore constitutes the first face-to-face APFIS since 2019. The proceedings of past conferences can be found on the IIFC website: <https://www.iifc.org/>.

We would like to express our utmost gratitude to our FRP composites in construction community for contributing to the technical aspects of the conference. Organising Committee and International Scientific Committee members are sincerely thanked for aiding in the organisation of the conference as well as the peer review process. Authors who contributed papers and abstracts to the proceedings as well as those who presented their work at the conference are also thanked. Thank you to our Keynote and Invited Lecturers, as well as Mini-Symposia and Special Session Organisers, and Panel Chairs and panellists. Thank you to all our delegates who have come from around the world to participate in the conference.

In terms of delivery of the conference, our home institutions, namely The University of Adelaide and the University of South Australia are thanked, and especially for providing a broad range of services such as website development and maintenance, financial systems and secretarial support. Thank you too to Sally Betton, Dalia Lasso Serna and Allyssa Gepp from the Faculty of Sciences, Engineering and Technology at the University of Adelaide. We are also most thankful to our industry, government and institutions supporters, namely Department for Infrastructure and Transport (Government of South Australia), Study Adelaide, IIFC, Novafast Holdings, Wagners, Forte, Pultron Composites and Hallett Group. Thank you too to the Hilton Adelaide and well as the National Wine Centre of Australia for offering such lovely facilities.

We trust that you have a fruitful APFIS 2024 experience as well as a most pleasant stay in Adelaide.

Chairs, APFIS 2024
December 2024



Prof. Scott SMITH
The University of
Adelaide



Prof. Yan ZHUGE
University of South
Australia



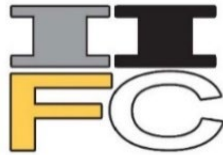
Dr. Jun-Jie ZENG
University of South
Australia



Dr. Tafsir
TAFSIROJJAMAN
The University of
Adelaide

SUPPORTERS

INDUSTRY, GOVERNMENT AND INSTITUTION SUPPORTERS



UNIVERSITY SUPPORTERS



GENERAL INFORMATION

Conference Website and Email

W: <https://set.adelaide.edu.au/apfis2024>

E: apfis2024@adelaide.edu.au

Conference Chairs

Professor Scott Smith (The University of Adelaide), scott.smith@adelaide.edu.au

Professor Yan Zhuge (University of South Australia), Yan.Zhugue@unisa.edu.au

Dr Jun-Jie Zeng (University of South Australia), Jun-Jie.Zeng@unisa.edu.au

Dr Tafsir Tafsirojjaman (The University of Adelaide), tafsirojjaman@adelaide.edu.au

Conference Venue

All conference technical sessions are held on Level 1 of the *Hilton Adelaide Hotel*, 233 Victoria Square Adelaide, SA 5000, <https://www.hilton.com/en/hotels/adlhitw-hilton-adelaide/>

Registration Desk

Conference related enquiries can be directed to the registration desk. Registration and information desk is located on Level 1 of the Hilton Adelaide Hotel and opening times are:

- Sunday 8 December 2024: 5:00 pm - 8.00 pm
- Monday 9 December: 8.00 am - 3:00 pm
- Tuesday 10 December: 8.30 am - 3:00 pm
- Wednesday 11 December: 9.00 am - midday

Name Badges

It is necessary to wear your official APFIS 2024 conference name badge to gain access to the conference technical sessions as well as morning and afternoon teas and lunch breaks. Your name badge will also gain you entry to the Welcome Reception and Conference Banquet (as per your registration package).

Internet

Wi-Fi is available at the Conference Venue. Details will be available onsite.

Conference Bags

All delegates will receive a conference bag upon registration. Each bag will contain a program and a USB containing the conference proceedings, as well as additional material. Delegates are encouraged to access the proceedings via their own electronic devices.

Mobile Phones

As a courtesy to presenters and other delegates, please ensure that all mobile phones are either turned off or in silent mode during all sessions and social functions.

Conference Assistants

If you require any assistance, please don't hesitate to approach the Conference Chairs (**GREEN** Badge) or Volunteers (**RED** badge).

Car Parking

Self-parking facilities within a 5-minute walk to the hotel are available, namely, (i) Central Market UPark is located directly behind the hotel, (ii) Grote Street UPark is located on Grote Street, and (iii) Mill St Autopark is located on Mill St (a side street located near the hotel).

Social Media

Delegates are encouraged to upload articles about the conference to their own social media platforms (e.g. LinkedIn, WeChat). You may consider adding handles to your posts such as #APFIS, #IIFC and #FRP.

Speaker Ready Area

There will be tables and chairs, as well as power, available in the Gallery area of the conference venue.

Information for Presenters

All papers are to be presented and discussed in English which is the official language of the Conference. The time allocation per presenter is:

- 30 minutes per *Keynote Lecture*
(22 min. presentation plus 8 min. discussion)
- 15 minutes per *Invited Lecture* and *Speaker* in one of the parallel sessions associated with General Sessions, Mini-Symposia and Special Sessions
(12 min. presentation plus 3 min. discussion)

There is no presentation template for the conference and .ppt is the preferred form of visual support. In addition, speakers are required to upload their presentation onto the laptop in the appropriate session room at least one session prior to their presentation. The uploading of presentations immediately prior to the delivery of the presentation will not be permitted. Volunteers (**RED** badge) are on hand to provide assistance.

Speakers should introduce themselves to the Session Chair prior to the commencement of their session.

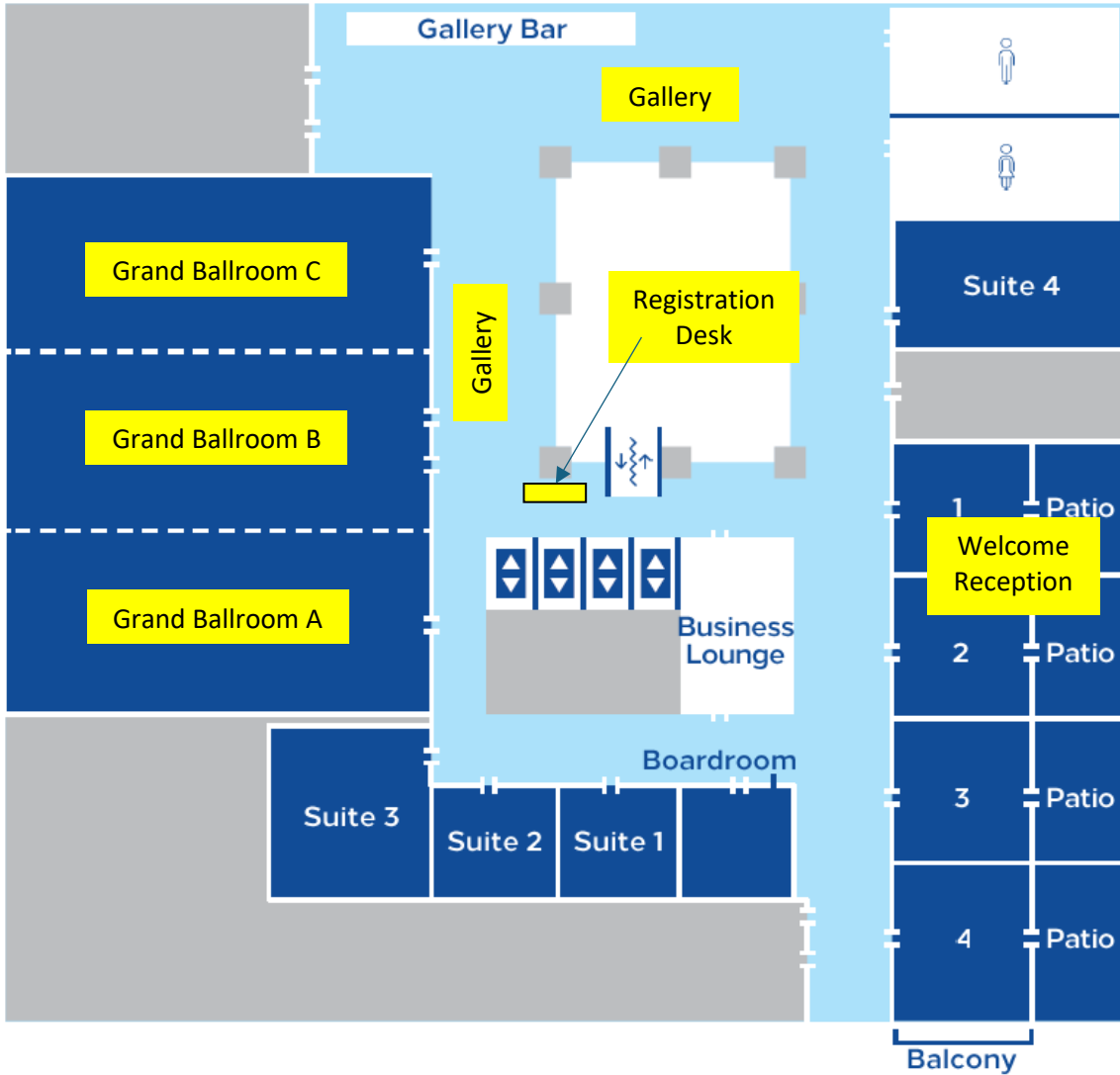
Information for Session Chairs

Session Chairs undertake several important duties, namely:

- Ensure strict adherence to presentation time limits,
- Announce relevant speaker using their autobiographical information prior to each presentation,
- Facilitate Q&A. If there are no questions from the audience then the Chair is expected to ask at least one relevant question, and
- In the case of “no shows” (i.e. presenter is not in attendance to deliver a scheduled presentation), the Chair is to facilitate a discussion on a topic relevant to the theme of the session or some other topic that the Chair and audience mutually agreed upon. The discussion takes place during the time allocated for the “no show” presentation. Presentations are not to be moved forward in the case of no shows – it is important that delegates are able to move freely between presentation rooms and attend presentations at their scheduled times.

CONFERENCE VENUE LAYOUT

Hilton Adelaide (Level 1)



PROGRAM AT A GLANCE

Sunday, 8 December 2024 (Day 0)

17:00-20:00	Registration Desk Opening Hours (Adjacent to Balcony Room 1)
18:00-20:00	Welcome Reception (Balcony Rooms 1+2)

Monday, 9 December 2024 (Day 1)

08:00-15:00	Registration Desk Opening Hours (Adjacent to Grand Ballroom B)		
08:30-09:00	Opening Ceremony (Grand Ballroom A+B) <i>Chair: S.T. Smith</i>		
09:00-10:30	Keynote Lectures 1, 2, 3 (Grand Ballroom A+B) <i>Chair: R. Al-Mahaidi</i> Professor Amir Fam (Queen's University, Canada) Professor Sujeeva Setunge (RMIT University, Australia) Professor Yufei Wu (Shenzhen University, China)		
10:30-10:35	Group Photograph		
10:35-11:00	Morning Tea (Gallery)		
	Grand Ballroom A	Grand Ballroom B	Grand Ballroom C
11:00-13:00	Session A-1 FRP-CONCRETE <i>Chairs: R. Gravina, J.J. Zeng</i>	Session B-1 INTERNAL REINFORCEMENT <i>Chairs: J. Correia, L.J. Li</i>	Session C-1 MEASUREMENT AND DURABILITY <i>Chairs: T. Yu, B. Glisic</i>
13:00-14:00	Lunch (Gallery)		
14:00-15:15	Session A-2 FRP-SPACE (EXTRATERRESTRIAL) <i>Chairs: J.J. Myers, H. Valipour</i>	Session B-2 FRP-METAL <i>Chairs: G.X. Lu, H. Nakamura</i>	Session C-2 MINI-SYMPOSIUM: STRUCTURAL DEFICIENCIES AND FRP SOLUTIONS <i>Chairs: Z.K. Cai, Z.Q. Dong</i>
15:15-15:45	Afternoon Tea (Gallery)		
15:45-17:00	Session A-3 MINI-SYMPOSIUM: SUSTAINABILITY OF FRP COMPOSITES AND CONCRETE MATERIALS <i>Chairs: S.A. Hadigheh, H.J. Du</i>	Session B-3 PANELS <i>Chairs: S. Setunge, Y.Y. Zhang</i>	Session C-3 MINI-SYMPOSIUM: STRUCTURAL DEFICIENCIES AND FRP SOLUTIONS (CONT.) <i>Chairs: Z.K. Cai, Z.Q. Dong</i>
Evening	Free		

PROGRAM AT A GLANCE (CONTINUED)

Tuesday, 10 December 2024 (Day 2)

08:30-15:00	Registration Desk Opening Hours (Adjacent to Grand Ballroom B)		
	Grand Ballroom A	Grand Ballroom B	Grand Ballroom C
09:00-10:30	Session A-4 MINI-SYMPOSIUM: SUSTAINABILITY OF FRP COMPOSITES AND CONCRETE MATERIALS (CONT.) <i>Chairs: S.A. Hadigheh, H.J. Du</i>	Session B-4 CONFINEMENT <i>Chairs: Y.F. Wu, T. Tafsirojjaman</i>	Session C-4 ALL FRP STRUCTURES <i>Chairs: P. Feng, A. Wheeler</i>
10:30-11:00	Morning Tea (Gallery)		
11:00-12:45	Session A-5 FRP-TIMBER, HYBRID <i>Chairs: Y. Liu, S. Dimas</i> + MINI-SYMPOSIUM: SEAWATER SEA-SAND CONCRETE (SSC) STRUCTURES REINFORCED WITH FIBRE-REINFORCED POLYMER (FRP) COMPOSITES <i>Chairs: T. Yu, Y. Xiang</i>	Session B-5 MINI-SYMPOSIUM: ADVANCES IN FRP/UHPC- ENABLED NOVEL STRUCTURAL MEMBERS <i>Chairs: G. Lin, C. Jiang</i>	Session C-5 MINI-SYMPOSIUM: ADVANCES IN FRP-CONCRETE HYBRID STRUCTURES <i>Chairs: H.W. Lin, J.Q. Yang</i>
12:45-13:30	Lunch (Gallery)		
13:30-15:00	Keynote Lectures 4, 5 (Grand Ballroom A+B) <i>Chair: Y. Zhuge</i> Professor Peng Feng (Tsinghua University, China) Professor Branko Glisic (Princeton University, USA) Panel 1 (Grand Ballroom A+B) <i>Commercialisation and Technology Readiness Level Considerations for the FRP Composites in Construction Sector</i>		
15:00-15:30	Afternoon Tea (Gallery)		
	Grand Ballroom A	Grand Ballroom B	Grand Ballroom C
15:30-16:45	Session A-6 EXTREME LOADING <i>Chairs: J. Deng, R. Kalfat</i>	Session B-6 SPECIAL SESSION: RESEARCH AND APPLICATIONS OF FRP IN UNDERGROUND SPACES AND GEOTECHNICAL ANCHORING <i>Chairs: Y. Liu</i>	Session C-6 MINI-SYMPOSIUM: ADVANCES IN FRP-CONCRETE HYBRID STRUCTURES (CONT.) <i>Chairs: H.W. Lin, J.Q. Yang</i>
18:00-22:30	Conference Banquet (National Wine Centre of Australia)		

PROGRAM AT A GLANCE (CONTINUED)

Wednesday, 11 December 2024 (Day 3)

09:00-Noon	Registration Desk Opening Hours (Adjacent to Grand Ballroom B)		
09:30-10:30	Keynote Lectures 6, 7 (Grand Ballroom A+B) <i>Chair: M.N.S. Hadi</i> Professor Rebecca Gravina (University of Queensland, Australia) Professor Tao Yu (Hong Kong Polytechnic University, China)		
10:30-11:00	Morning Tea (Gallery)		
	Grand Ballroom A	Grand Ballroom B	Grand Ballroom C
11:00-13:00	Session A-7 MINI-SYMPOSIUM: SEAWATER SEA-SAND CONCRETE (SSC) STRUCTURES REINFORCED WITH FIBRE-REINFORCED POLYMER (FRP) COMPOSITES (CONT.) <i>Chairs: T. Yu, Y. Xiang</i> + ADDITIVE MANUFACTURING <i>Chairs: M. Ali, R. Hassanli</i>	Session B-7 MATERIALS <i>Chairs: R. El-Hacha, T. Pham</i>	Session C-7 SPECIAL SESSION: APPLICATION OF FRP TO STRUCTURAL REINFORCEMENT <i>Chair: X. Chen</i>
13:00-14:00	Lunch (Gallery)		
14:00-14:45	Panel 2 (Grand Ballroom A+B) <i>What does the Future have in Store for FRP Composites in Construction?</i>		
14:45-15:30	Wrap-up Discussion, Best Paper Awards, Closing Ceremony (Grand Ballroom A+B) <i>Chair: S.T. Smith</i>		
15:30-16:15	Networking and Afternoon Tea (Gallery)		

DETAILED PROGRAM:

OPENING AND CLOSING CEREMONIES, KEYNOTE LECTURES, BANQUET

OPENING CEREMONY (GRAND BALLROOM A+B)

MONDAY, 9 DECEMBER 2024: 8:30-9:00 (DAY 1)

08:30 WELCOME BY CHAIR, APFIS 2024 ORGANISING COMMITTEE

S.T. Smith

08:45 WELCOME BY PRO VICE-CHANCELLOR (RESEARCH OPERATIONS & COMMERCIALISATION)
THE UNIVERSITY OF ADELAIDE

M.E. Goodsite

08:55 WELCOME BY PRESIDENT, INTERNATIONAL INSTITUTE FOR FRP IN CONSTRUCTION (IIFC)

A. Fam

KEYNOTE LECTURES 1, 2, 3 (GRAND BALLROOM A+B)

MONDAY, 9 DECEMBER 2024: 9:00-10:30 (DAY 1)

Chair: R. Al-Mahaidi

09:00 FATIGUE BEHAVIOR OF A FULL-SCALE GFRP-REINFORCED CONCRETE BRIDGE DECK UNDER
PULSATING AND ROLLING LOAD

A. Fam (Queen's University, Canada)

09:30 ENGINEERED FRP COMPOSITES FROM RECLAIMED WASTE RESOURCES TOWARDS A CIRCULAR
ECONOMY

S. Setunge (RMIT University, Australia)

10:00 A LOW-CARBON, ECONOMICAL, HIGH-PERFORMANCE FRP REINFORCED CONCRETE MARINE
FLOATING STRUCTURE

Y.F. Wu (Shenzhen University, China)

KEYNOTE LECTURES 4, 5 (GRAND BALLROOM A+B)

TUESDAY, 10 DECEMBER 2024: 13:30-14:30 (DAY 2)

Chair: Y. Zhuge

13:30 STUDY ON PULTRUDED FIBER REINFORCED POLYMER PROFILES IN ENGINEERING: PRODUCTS,
STRUCTURES, AND APPLICATIONS

P. Feng (Tsinghua University, China)

14:00 SMART CIVIL STRUCTURES: ADVANCEMENTS IN SENSING, DATA ANALYTICS, AND KINETIC
STRUCTURES

B. Glisic (Princeton University, USA)

PANEL SESSION 1 (GRAND BALLROOM A+B)

TUESDAY, 10 DECEMBER 2024: 14:30-15:00 (DAY 2)

COMMERCIALISATION AND TECHNOLOGY READINESS LEVEL CONSIDERATIONS FOR THE
FRP COMPOSITES IN CONSTRUCTION SECTOR

KEYNOTE LECTURES 6, 7 (GRAND BALLROOM A+B)

WEDNESDAY, 11 DECEMBER 2024: 9:00-10:00 (DAY 3)

Chair: M.N.S Hadi

09:30 DURABILITY OF FRP STRENGTHENED REINFORCED CONCRETE STRUCTURES

R. Gravina (University of Queensland, Australia)

10:00 SEAWATER SEA-SAND CONCRETE STRUCTURES REINFORCED WITH FIBRE-REINFORCED POLYMER:
INNOVATIVE STRUCTURAL MEMBERS AND RECENT RESEARCH ADVANCES

T. Yu, J.G. Teng (Hong Kong Polytechnic University, China)

PANEL SESSION 2 (GRAND BALLROOM A+B)

WEDNESDAY, 11 DECEMBER 2024: 14:00-14:45 (DAY 3)

WHAT DOES THE FUTURE HAVE IN STORE FOR FRP COMPOSITES IN CONSTRUCTION?

WRAP-UP DISCUSSION, BEST PAPER AWARDS, CLOSING CEREMONY (GRAND BALLROOM A+B)

WEDNESDAY, 11 DECEMBER 2024: 14:45-15:30 (DAY 3)

14:45 WRAP-UP DISCUSSION

S.T. Smith

15:15 CLOSING CEREMONY

S.T. Smith

**DETAILED PROGRAM:
DAY 1 - SESSIONS A-1, B-1, C-1
MONDAY, 9 DECEMBER 2024, 11:00-13:00**

SESSION A-1 (GRAND BALLROOM A)

FRP-CONCRETE

Chairs: R. Gravina, J.J. Zeng

- 11:00 USE OF FRP IN CONCRETE MEMBERS
M.N.S. Hadi (APFIS2024-083)
Invited Lecture
- 11:15 EXPERIMENTAL TESTING AND NUMERICAL SIMULATION OF THE BOND PERFORMANCE OF TENSILE LAP-SPLICED BASALT-FRP REINFORCEMENT IN HIGH-STRENGTH CONCRETE BEAMS
I. Eltantawi, W. Alnahhal, M. N. Sheikh and M. N. S. Hadi (APFIS2024-013)
- 11:30 MECHANICAL PERFORMANCE OF OPTIMISED FIBRE-REINFORCED GGBS-BASED GEOPOLYMER CONCRETE STRUCTURES
M. Alameri, M.S.M. Ali, M. Elchalakani (APFIS2024-035)
- 11:45 INFLUENCE OF INCLINED FRP ANCHORS ON THE STRENGTH OF RC T-BEAMS SUBJECTED TO FLEXURE
A. Alhelal, R. Kalfat, R. Al-Mahaidi (APFIS2024-042)
- 12:00 FLEXURAL BEHAVIOUR OF CNF-UHPFRC BEAMS: STRENGTH, DUCTILITY, AND COST CONSIDERATIONS
M. Ibrahim and R. El-Hacha (APFIS2024-066)
- 12:15 GFRP REINFORCED CONCRETE BEAMS – EFFECT OF CONFINEMENT
S. Solyom (APFIS2024-079)
- 12:30 ENHANCING SEISMIC PERFORMANCE OF DEFICIENT RC COLUMNS THROUGH PRESTRESSED FE-SMA PLATES AND EXTERNALLY BONDED CFRP SHEETS: A COMPARATIVE STUDY – DAMAGE BASED ASSESSMENT
A.A. Ekkawi, R. El-Hacha (APFIS2024-058)
- 12:45 ENHANCING SEISMIC PERFORMANCE OF DEFICIENT RC COLUMNS THROUGH PRESTRESSED FE-SMA PLATES AND EXTERNALLY BONDED CFRP SHEETS: A COMPARATIVE STUDY – PERFORMANCE BASED ASSESSMENT
A.A. Ekkawi, R. El-Hacha (APFIS2024-045)

SESSION B-1 (GRAND BALLROOM B)

INTERNAL REINFORCEMENT

Chairs: J. Correia, L.J. Li

- 11:00 DATABASE REVIEW AND ANALYSIS OF REDUCED BONDED EMBEDMENT LENGTHS OF VARIOUS FIBRE-REINFORCED POLYMER (FRP) BARS IN CONCRETE
J.J. Myers (APFIS2024-051)
Invited Lecture
- 11:15 COMPARATIVE BEHAVIOUR OF STEEL AND GFRP-REINFORCED CONCRETE CULVERTS
H. Shebl, O. Alajarmeh, A. Manalo, D. Lutze, P. Adams (APFIS2024-008)
- 11:30 EVALUATION OF THE MANUFACTURING PROCESS OF GFRP-REINFORCED CONCRETE CULVERTS
S.E. Zadeh, A. Manalo, O. Alajarmeh, H. Seligmann, S. Ebrahimzadeh, H. Shebl, D. Lutze, P. Adams (APFIS2024-012)

- 11:45 SECOND-ORDER EFFECTS ON SLENDER GFRP-RC CIRCULAR COLUMNS UNDER UNEQUAL END MOMENTS
A.M. Khamis, Y.M. Selmy, E.F. El-Salakawy (APFIS2024-024)
- 12:00 EFFECT OF SLENDERNESS RATIO ON THE BEHAVIOR OF GFRP-RC CIRCULAR COLUMNS
B.H. Aljada, Y.M. Selmy, E.F. El-Salakawy (APFIS2024-040)
- 12:15 INTERFACE SHEAR TRANSFER OF BASALT FIBER REINFORCED POLYMER (BFRP) BARS IN RC USING THE PUSH - OFF TEST
J.J. Myers, L. Coulter (APFIS2024-052)
- 12:30 BEHAVIOUR OF GFRP REINFORCED PRECAST CONCRETE BEAM-COLUMN CONNECTIONS
M. H. El-Naqeeb, R. Hassanli, Y. Zhuge, X. Ma, M. Bazli, A. Manalo (APFIS2024-075)

SESSION C-1 (GRAND BALLROOM C)

MEASUREMENT AND DURABILITY

Chairs: T. Yu, B. Glisic

MEASUREMENT

- 11:00 THE BONDING AND STRUCTURAL PERFORMANCE OF CFRP-STRENGTHENED STEEL BEAMS BASED ON PZT EVALUATION DURING ADHESIVE CURING
J. Deng, X. Li (APFIS2024-054)
Invited Lecture
- 11:15 GUIDED WAVE-BASED STRUCTURAL HEALTH MONITORING METHOD FOR FRP-STRENGTHENED STEEL STRUCTURES
X.W. Hu, K.W. Chen, J.J. Zeng (APFIS2024-022)
- 11:30 SMART STRUCTURAL HEALTH MONITORING USING COMPUTER VISION AND EDGE COMPUTING
Z. Peng, J. Li, H. Hao (APFIS2024-034)
- 11:45 PIEZORESISTIVE PROPERTIES OF GEOPOLYMER CONCRETE
Z. Yu, C. Wu, R. Shao, J. Li (APFIS2024-020)

DURABILITY

- 12:00 NATURAL WEATHERING DURABILITY OF GFRP COMPOSITES PRODUCED BY VACUUM INFUSION
T. Hasan, J.R. Correia, M. Garrido, S. Cabral-Fonseca, J. Sena-Cruz, M. Jorge (APFIS2024-032)
- 12:15 ASSESSMENT OF FIELD DURABILITY OF GFRP BARS BASED ON INTERLAMINAR SHEAR STRENGTH
H. Sakuraba, A. Manalo, O. Alajarmeh (APFIS2024-001)
- 12:30 DEGRADATION OF PULTRUDED GFRP RETAINING WALL SLEEPERS UNDER ACCELERATED WEATHERING
N.H. Ramli Sulong, S. Fawzia, T. Zahra (APFIS2024-029)
- 12:45 BOND DURABILITY BETWEEN GFRP BARS AND SEAWATER SEA SAND CONCRETE IN MARINE ENVIRONMENTS
G. Mai, F. Liu, Z. Xiong, L. Li (APFIS2024-027)

**DETAILED PROGRAM:
DAY 1 - SESSIONS A-2, B-2, C-2
MONDAY, 9 DECEMBER 2024, 14:00-15:15**

SESSION A-2 (GRAND BALLROOM A)

Chairs: J.J. Myers, H. Valipour

FRP-SPACE (EXTRATERRESTRIAL)

- 14:00 THE ROLE OF FRP COMPOSITES IN LUNAR AND MARTIAN CONSTRUCTION
S.T. Smith (APFIS2024-064)
- 14:15 FLEXURAL BEHAVIOUR OF FRP-REGOLITH-RESIN-COMPOSITE (FRRC) FOR LUNAR CONSTRUCTION
M.A. Hossain, S.T. Smith, T. Tafsirojjaman (APFIS2024-050)
- 14:30 FIBRE-REINFORCED LUNAR GEOPOLYMER CONCRETE: A REVIEW
R.M. Faysal, S.T. Smith, T. Tafsirojjaman (APFIS2024-080)
- 14:45 MECHANICAL BEHAVIOUR OF REGOLITH-RESIN-COMPOSITE (RRC): A LUNAR POLYMER CONCRETE
T. Tafsirojjaman, S.T. Smith (APFIS2024-078)
- 15:00 EVALUATION METHODOLOGY FOR RESIN BASED POLYMER CONCRETE UNDER LUNAR EXTREME THERMAL ENVIRONMENT
M.M. Molla, C.T. Ng, T. Tafsirojjaman (APFIS2024-077)

SESSION B-2 (GRAND BALLROOM B)

FRP-METAL

Chairs: G.X. Lu, H. Nakamura

- 14:00 FATIGUE STRENGTH IN ADHESIVELY BONDED JOINTS WITH DIFFERENT PATCH PLATE END SUBJECTED TO BENDING FORCE
Y. Kanazawa, V. Thay, S. Fujikura, H. Nakamura, H. Horii (APFIS2024-003)
- 14:15 COMPLETE FATIGUE CRACK ARREST OF OUT-OF-PLANE GUSSET WELDED JOINTS REPAIRED BY CARBON FIBER SHEETS USING VARTM TECHNIQUE
S. Tomiyama, V. Thay, S. Fujikura, H. Nakamura, R. Matsumoto, T. Matsui (APFIS2024-004)
- 14:30 BEHAVIOR OF CFRP-TO-STEEL INTERFACE BONDED WITH DUCTILE ADHESIVE AT ARCTIC TEMPERATURES
D. Guo, J. Deng (APFIS2024-053)
- 14:45 STRUCTURAL CHARACTERISTICS OF HIGH-STRENGTH BOLTED JOINTS OF GFRP PLATES REINFORCED BY STEEL PLATE BONDING
A. Kajihara, H. Nakamura, R. Onodera, K. Kobayashi, K. Hanamura, T. Niikura (APFIS2024-031)
- 15:00 ON COLLAPSE AND PROPAGATION CAPACITIES OF CFRP-WRAPPED SUBSEA PIPELINES
M. Alrsai, H. Karampour, H. Guan (APFIS2024-049)

SESSION C-2 (GRAND BALLROOM C)

MINI-SYMPOSIUM: STRUCTURAL DEFICIENCIES AND FRP SOLUTIONS

Organisers: Z.K. Cai (Nanjing Tech University, China), Z.Q. Dong (Southeast University, China)

Chairs: Z.K. Cai, Z.Q. Dong

14:00 TEST METHOD AND OPTIMIZATION DESIGN OF TRAY-NUT ANCHORAGE SYSTEM FOR FRP ANCHOR BOLTS

Z.K. Cai, C.Y. Sha (APFIS2024-161)

Invited Lecture: Z.K. Cai (Nanjing Tech University, China)

14:15 STUDY ON CONFINEMENT MECHANISM OF CORE CONCRETE IN STEEL TUBULAR-CORRUGATED STEEL PLATE CONFINED CONCRETE COLUMNS

Y. Zou (APFIS2024-162)

14:30 INVESTIGATION ON SEISMIC PERFORMANCE DETERIORATION OF PRECAST BRIDGE PIERS CONSIDERING SLEEVE CORROSION

X.T. Wu, W.T. Yuan, A. Guo (APFIS2024-163)

14:45 COMPRESSIVE BEHAVIOUR OF FRP-CONFINED COLUMNS CONTAINING RECYCLED CONCRETE LUMPS AND SELF-COMPACTING MORTAR

J.S. Yuan, H. Zhu, G. Chen, L. Zhao (APFIS2024-164)

DETAILED PROGRAM:

DAY 1 - SESSIONS A-3, B-3, C-3

MONDAY, 9 DECEMBER 2024, 15:45-17:00

SESSION A-3 (GRAND BALLROOM A)

MINI-SYMPOSIUM: SUSTAINABILITY OF FRP COMPOSITES AND CONCRETE MATERIALS

Organisers: S.A. Hadigheh (The University of Sydney, Australia), H.J. Du (National University of Singapore)

Chairs: S.A. Hadigheh, H.J. Du

- 15:45 BALANCING PERFORMANCE AND SUSTAINABILITY: THE FUTURE OF CARBON FIBRE AND CFRP COMPOSITES
S.A. Hadigheh (APFIS2024-141)
Invited Lecture: S.A. Hadigheh (The University of Sydney, Australia)
- 16:00 ESTABLISHING A CLOSED-LOOP LIFE CYCLE FOR CFRP COMPOSITES VIA AN INNOVATIVE HYBRID RECYCLING METHOD
Y. Wei, S.A. Hadigheh (APFIS2024-142)
- 16:15 SMART SELF-SENSING MORTAR WITH RECYCLED FILLERS
Y. Tao, S.A. Hadigheh, S. Saha, Y. Wei (APFIS2024-143)
- 16:30 INNOVATIVE SUSTAINABLE COMPOSITE ANODES FOR ENHANCED CATHODIC PROTECTION OF BRIDGES
Z. Huang, S.A. Hadigheh and Y. Tao (APFIS2024-144)
- 16:45 NUMERICAL MODELLING OF TIMBER-CONCRETE JOINTS WITH FRP CONNECTIONS
S. Li, S.A. Hadigheh, H.R. Valipour (APFIS2024-145)

SESSION B-3 (GRAND BALLROOM B)

PANELS

Chairs: S. Setunge, Y.Y. Zhang

- 15:45 OVERVIEW OF DIFFERENT CORE SYSTEMS USED IN FRP SANDWICH PANELS FOR BRIDGE APPLICATIONS
T. Succar, S.T. Smith, T. Tafsirojjaman (APFIS2024-063)
- 16:00 NUMERICAL MODELLING ON FLEXURAL BEHAVIOUR OF STRUCTURAL INSULATED PANELS REINFORCED WITH CFRP TUBE SHEAR CONNECTORS AND UHPC-CFRP HYBRID FACE-SHEETS
H.M.S.C. Rathnasiri, S. Mahdi, R.J. Gravina (APFIS2024-015)
- 16:15 EFFECT OF CORE MATERIALS ON THE FLEXURAL BEHAVIOUR OF COMPOSITE SANDWICH PANELS
A. Islam, W. Ferdous, P. Burey, K. Nahar, A. Manalo (APFIS2024-016)
- 16:30 NUMERICAL MODELLING OF IMPACT BEHAVIOUR OF CONVENTIONAL WHIPPLE SHIELDS FOR LUNAR INFRASTRUCTURE APPLICATIONS
M.A. Rakib, S.T. Smith, T. Tafsirojjaman (APFIS2024-056)
- 16:45 SHEAR PERFORMANCE OF PULTRUDED GFRP CONNECTORS IN COMPOSITE PREFABRICATED CONCRETE SANDWICH PANELS
T.P. Sah, A.W. Lacey, H. Hao, W. Chen (APFIS2024-026)

SESSION C-3 (GRAND BALLROOM C)

MINI-SYMPOSIUM: STRUCTURAL DEFICIENCIES AND FRP SOLUTIONS

Organisers: Z.K. Cai (Nanjing Tech University, China), Z.Q. Dong (Southeast University, China)

Chairs: Z.K. Cai, Z.Q. Dong

- 15:45 EXPERIMENTAL STUDY AND THEORETICAL ANALYSIS ON THE FLEXURAL PERFORMANCE OF HIGH MODULUS HFRP REINFORCED CONCRETE BEAMS DURING NORMAL USE STAGE
P. Zhang, S.H. Mi, X.D. Lu, Y. Liu, S.A. Sheikh (APFIS2024-165)
- 16:00 INVESTIGATION ON SEISMIC RESILIENCE OF COASTAL BRIDGE PIERS REINFORCED WITH FRP MATERIALS
W. Yuan, F. Xu (APFIS2024-166)
- 16:15 FRP INNOVATION ROAD: A SPLENDID LEAP FROM LABORATORY TO ENGINEERING
F. Shen, Z.K. Cai (APFIS2024-167)
- 16:30 EFFECT OF REINFORCEMENT ORIENTATION ON THE FAILURE MODE OF CARBON FIBRE TEXTILE-REINFORCED CEMENTITIOUS COMPOSITES
A.A.E. Elseady, Y. Zhuge, X. Ma, C.W.K. Chow, I. Lee, J.J. Zeng (APFIS2024-044)

**DETAILED PROGRAM:
DAY 2 - SESSIONS A-4, B-4, C-4
TUESDAY, 10 DECEMBER 2024, 09:00-10:30**

SESSION A-4 (GRAND BALLROOM A)

MINI-SYMPOSIUM: SUSTAINABILITY OF FRP COMPOSITES AND CONCRETE MATERIALS (CONT.)

Organisers: S.A. Hadigheh (The University of Sydney, Australia), H.J. Du (National University of Singapore)

Chairs: S.A. Hadigheh, H.J. Du

- 09:00 BENDING MOMENT CAPACITY AND STIFFNESS OF TIMBER BEAMS REINFORCED WITH FRP BARS/SHEETS
H. Valipour (APFIS2024-151)
- 09:15 EFFECT OF WATER DEPTH ON PROPERTIES OF UNDERWATER 3D CONCRETE PRINTING
H. Zhang, H.J. Du (APFIS2024-146)
- 09:30 STRUCTURAL PERFORMANCE AND FINITE ELEMENT ANALYSIS OF A 3D-PRINTED CONCRETE BENCH
R. Luo, Y.Y. Gao, S.H. Bong, H.J. Du (APFIS2024-147)
- 09:45 EXPERIMENTAL STUDY ON THE THERMAL INSULATION PERFORMANCE OF 3D PRINTED CONCRETE WALLS
R.Q. Liu, H.J. Du (APFIS2024-148)
- 10:00 SULFATE RESISTANCE OF MORTAR CONTAINING CALCINED MARINE CLAY AS CEMENT SUBSTITUTE
Y. Wang, H.J. Du (APFIS2024-149)
- 10:15 SUSTAINABLE DESIGN OF REINFORCED CONCRETE COLUMN AND COMPOSITE COLUMN THROUGH EMBODIED CARBON OPTIMIZATION
Z.Y. Zhang, R.J.Y. Liew, H.J. Du (APFIS2024-150)

SESSION B-4 (GRAND BALLROOM B)

CONFINEMENT

Chairs: Y.F. Wu, T. Tafsirojjaman

- 09:00 INVESTIGATION ON STRESS PATH-DEPENDENCY OF FRP-CONFINED CONCRETE WITH A NEW ENERGY BALANCE APPROACH
S.X. Zhong, J.Y. Zhu (APFIS2024-043)
- 09:15 COMPARATIVE ANALYSIS OF THE COMPRESSIVE BEHAVIOUR OF CFRP AND SFRP CONFINED CONCRETE CYLINDERS
N. Salameh, R. El-Hacha, O. Awassa (APFIS2024-046)
- 09:30 BEHAVIOUR OF CONCRETE CYLINDERS CONFINED WITH STEEL FIBRE REINFORCED POLYMER UNDER UNIAXIAL COMPRESSION
N. Salameh, R. El-Hacha, O. Awassa (APFIS2024-047)
- 09:45 CONCRETE COLUMNS LIGHTLY CONFINED WITH FRP WRAPS
X. Wang, S.T. Smith, P. Visintin, T. Tafsirojjaman (APFIS2024-065)
- 10:00 SEAWATER SEA SAND RUBBERISED CONCRETE FILLED PULTRUDED GFRP TUBES UNDER AXIAL COMPRESSION
C. Shrivastava, N.H.R. Sulong, A. Mohammed, S. Fawzia (APFIS2024-055)
- 10:15 ANALYTICAL AND EMPIRICAL MODELING OF FRP-CONFINED CONCRETE CYLINDERS: PERFORMANCE EVALUATION
N. Salameh, R. El-Hacha, O. Awassa (APFIS2024-048)

SESSION C-4 (GRAND BALLROOM C)

ALL FRP STRUCTURES

Chairs: P. Feng, A. Wheeler

- 09:00 CRUSHING AND ENERGY ABSORPTION OF COMPOSITE THIN-WALLED STRUCTURES
G. Lu (APFIS2024-068)
Invited Lecture
- 09:15 SEISMIC BEHAVIOUR OF PULTRUDED GFRP FRAME STRUCTURES: OVERVIEW OF THE FRP-QUAKE PROJECT
J.A. Gonilha, D. Martins, J.R. Correia, N. Silvestre, L. Guerreiro, F.A. Branco (APFIS2024-033)
Invited Lecture
- 09:30 ORIGAMI STRUCTURES: MECHANICS AND ENERGY ABSORPTION
G. Lu (APFIS2024-069) CR RG
- 09:45 GRAPHENE ORIGAMI AMPLIFIES MECHANICAL PROPERTIES OF POLYMER NANOCOMPOSITES
Y. Wang, C.H.R. Yang, J. Yang, Y.Y. Zhang (APFIS2024-081)
- 10:00 DESIGN AND FABRICATION OF CFRP BUCKLING RESTRAINED BRACE
H. Nakamura, S. Tetsuka, T. Matsui (APFIS2024-057)
- 10:15 AN EFFICIENT MODELLING TECHNIQUE FOR FRP LAMINATED COMPOSITE STRUCTURE CONTAINING DELAMINATION
Y. Feng, A.H. Sheikh, S.T. Smith (APFIS2024-073)

DETAILED PROGRAM:
DAY 2 - SESSIONS A-5, B-5, C-5
TUESDAY, 10 DECEMBER 2024, 11:00-12:45

SESSION A-5 (GRAND BALLROOM A)

FRP-TIMBER, HYBRID

Chairs: Y. Liu, S. Dimos

- 11:00 FRP REINFORCED TIMBER BEAMS AND COLUMNS: A REVIEW OF THE LITERATURE
H. Valipour (APFIS2024-084)
Invited Lecture
- 11:15 EXPERIMENTAL AND NONLINEAR FINITE ELEMENT ANALYSIS OF HYBRID FRP-CONCRETE-STEEL DOUBLE SKIN TUBULAR COLUMNS SUBJECTED TO AXIAL COMPRESSION
M. Zakir, D.R. Sahoo (APFIS2024-018)
- 11:30 ECCENTRIC COMPRESSION BEHAVIOR OF HYBRID DOUBLE-SKIN TUBULAR COLUMNS WITH CIRCLE-CIRCLE CONFIGURATION
M. Zakir, D.R. Sahoo (APFIS2024-071)
- 11:45 TENSILE AND COMPRESSIVE PROPERTIES OF HYBRID GLASS FIBRE REINFORCED POLYMER PLYWOOD LAMINATES: AN EXPERIMENTAL STUDY
Y. Ou, W. Zhu, Y. Ke (APFIS2024-059)
- 12:00 FIBRPRO® SYNTHETEC® FRP REINFORCED STONE AND ITS APPLICATION
H.T. Wong (APFIS2024-070)

MINI-SYMPOSIUM: SEAWATER SEA-SAND CONCRETE (SSC) STRUCTURES REINFORCED WITH FIBRE-REINFORCED POLYMER (FRP) COMPOSITES

Organisers: T. Yu (Hong Kong Polytechnic University, China), Y. Xiang (Hong Kong Polytechnic University, China)

Chairs: T. Yu, Y. Xiang

- 12:15 VALORISATION OF RECYCLED MACRO FIBRES AS DISCRETE REINFORCEMENT IN SEAWATER SEA-SAND CONCRETE
Y. Xiang, B. Fu (APFIS2024-243)
- 12:30 BIOMIMETIC GRAPHENE OXIDE-LAYERED DOUBLE HYDROXIDE HETEROSTRUCTURES FOR ENHANCED CHLORIDE ADSORPTION AND CORROSION RESISTANCE IN MARINE CONCRETE
S.Q. Ding, L.S. Qiu, B.G. Han and Y.Q. Ni (APFIS2024-245)
- 12:45 FBG-BASED RELATIVE HUMIDITY SENSING SYSTEM AND RELATIVE HUMIDITY PREDICTION WITH MACHINE LEARNING
Z. Lin, S.Q. Ding, Y.Q. Ni (APFIS2024-247)

SESSION B-5 (GRAND BALLROOM B)

MINI-SYMPOSIUM: ADVANCES IN FRP/UHPC-ENABLED NOVEL STRUCTURAL MEMBERS

Organisers: G. Lin (Southern University of Science and Technology, China), C. Jiang (Western Sydney University, Australia)

Chairs: G. Lin, C. Jiang

- 11:00 ANALYSIS-ORIENTED STRESS-STRAIN MODEL FOR FRP-CONFINED ULTRA-HIGH-PERFORMANCE CONCRETE (UHPC)
S.S. Zhang, J.J. Wang (APFIS2024-124)

- 11:15 HYBRID FRP-UHPC-STEEL THIN-WALLED MEMBERS FOR LARGE OCEAN ENGINEERING STRUCTURES: CONCEPT AND PRELIMINARY TEST RESULTS
G. Lin, W. Xiong, Y. Xiang (APFIS2024-125)
- 11:30 FRP-CONFINED CONCRETE WITHOUT COARSE AGGREGATE
C. Jiang (APFIS2024-121)
- 11:45 DEVELOPMENT OF A NOVEL FIBER-BRIDGING INTERFACE FOR CONNECTING FRP PROFILE AND UHPC
H.W. Lin, H. Xu, J.S. Ma (APFIS2024-122)
- 12:00 DESIGN-ORIENTED STRESS-STRAIN MODEL FOR FIBER-REINFORCED POLYMER (FRP)-CONFINED ULTRA-HIGH-PERFORMANCE CONCRETE (UHPC)
J.J. Wang, S.S. Zhang (APFIS2024-126)
- 12:15 A NOVEL STRENGTHENING APPROACH FOR RC COLUMNS USING FRP AND PREFABRICATED UHPC BLOCKS
Y. Ke, S.S. Zhang (APFIS2024-127)
- 12:30 BOND STRENGTH MODELS OF FRP BARS IN CONCRETE
C.Y. Cui, J.Y. Wu, T. Yu, J.F. Chen (APFIS2024-123)

SESSION C-5 (GRAND BALLROOM C)

MINI-SYMPOSIUM: ADVANCES IN FRP-CONCRETE HYBRID STRUCTURES

Organisers: H.W. Lin (Beijing Jiaotong University, China), J.Q. Yang (China University of Mining and Technology (Beijing), China)

Chairs: H.W. Lin, J.Q. Yang

- 11:00 DYNAMIC AND FLEXURAL BEHAVIOR OF CONCRETE SOLID AND SANDWICH SEGMENTS REINFORCED WITH GFRP REBARS
A. Chen, H.F. Tang, Z. Li, J. Sun (APFIS2024-101)
Invited Speaker: A. Chen (Beijing Jiaotong University, China)
- 11:15 SHEAR TRANSFER MECHANISM IN AN FRP-TO-CONCRETE BONDED JOINT WITH MULTIPLE ANCHORS
J.Y. Wu, Y.M. Huang, C.Y. Cui, J.F. Chen (APFIS2024-104)
- 11:30 MODEL DEVELOPMENT AND EXPERIMENTAL VERIFICATION OF CFFT CONSIDERING BIAXIAL BEHAVIOUR OF FILAMENT WOUND TUBE
Z.Y. Li, J.Q. Yang, P. Feng (APFIS2024-105)
- 11:45 AXIAL COMPRESSIVE BEHAVIOR OF ECC-COVERED FRP TUBES WITH AND WITHOUT INNER CONCRETE
H.W. Lin, H.D. Qu (APFIS2024-107)
- 12:00 ENVIRONMENTAL PERFORMANCE OF FRP-CONFINED CONCRETE COLUMNS: COMPARATIVE ANALYSIS OF FIBER TYPES
T.Y. Xie, B. Bennett, P. Visintin (APFIS2024-108)
- 12:15 BOND-SLIP MODEL FOR EMBEDDED THROUGH-SECTION RIBBED GFRP BAR-TO-CONCRETE JOINTS AT ELEVATED TEMPERATURES
Y.J. Wang, D. Ma, Z.M. Wu, H.B. Liu (APFIS2024-109)

**DETAILED PROGRAM:
DAY 2 - SESSIONS A-6, B-6, C-6
TUESDAY, 10 DECEMBER 2024, 15:30-16:45**

SESSION A-6 (GRAND BALLROOM A)

EXTREME LOADING

Chairs: J. Deng, R. Kalfat

- 15:30 PRESTRESSED SEGMENTAL VS MONOLITHIC FRP REINFORCED GEOPOLYMER CONCRETE BEAMS UNDER IMPACT LOADING
T.M. Pham, D.T. Tran, H. Hao (APFIS2024-021)
- 15:45 NUMERICAL STUDY ON THE HOLLOW-CORE FRP-CONCRETE-STEEL COLUMN AGAINST CLOSE-IN BLAST LOAD
Q. Ling, Z. Wang, Z.L. Xiong, W.Q. Wang (APFIS2024-005)
- 16:00 MATERIAL DEVELOPMENT OF FLY ASH GEOPOLYMER ADHESIVE FOR NSM CFRP APPLICATIONS UNDER ELEVATED TEMPERATURES
H. Shdeifat, R. Kalfat, R. Al-Mahaidi (APFIS2024-041)
- 16:15 MULTI-HAZARD RESISTANT INTERLOCKING BRICK SYSTEM AND STRENGTHENING USING FRP
X. Zhang, G. Wang, G. Xie, H. Hao (APFIS2024-074)

SESSION B-6 (GRAND BALLROOM B)

SPECIAL SESSION: RESEARCH AND APPLICATIONS OF FRP IN UNDERGROUND SPACES AND GEOTECHNICAL ANCHORING

Organiser: Y. Liu (University of Science and Technology Beijing | Beijing)

Chair: Y. Liu

- 15:30 EXPERIMENTAL AND NUMERICAL INVESTIGATION OF CORRUGATED ANCHORS FOR CFRP PLATES
J. Yang, H.S. Wang (APFIS2024-181)
Invited Lecture: J. Yang (China University of Mining and Technology (Beijing), China)
- 15:45 EXPERIMENTAL AND FINITE ELEMENT COMPARATIVE ANALYSIS OF THE BENDING PROPERTIES OF CFRP AND HYBRID FRP RODS
T.A. Ka (APFIS2024-182)
- 16:00 APPLICATION OF FULL-PROCESS MONITORING IN DIAPHRAGM WALL CONSTRUCTION BASED ON FRP SMART REBAR SELF-SENSING MONITORING TECHNOLOGY
S.C. Xu (APFIS2024-183)
- 16:15 FLEXURAL BEHAVIOR OF SHORT-CUT LIQUID CRYSTAL POLYARYLATE FIBER-REINFORCED CEMENT MORTAR
M.Y. Xi, C. Rith, Y. Liu (APFIS2024-184)
- 16:30 STUDY ON SHEAR PERFORMANCE OF NEW LIQUID CRYSTAL POLYMER (LCP) FIBER HYBRID REINFORCED CARBON FIBER COMPOSITE ROD
R.X. Jia, Y. Liu (APFIS2024-185)

SESSION C-6 (GRAND BALLROOM C)

MINI-SYMPOSIUM: ADVANCES IN FRP-CONCRETE HYBRID STRUCTURES (CONT.)

Organisers: H.W. Lin (Beijing Jiaotong University, China), J.Q. Yang (China University of Mining and Technology (Beijing), China)

Chairs: H.W. Lin, J.Q. Yang

- 15:30 LOAD-BEARING CAPACITY AND DEFORMATION PERFORMANCE OF SUBWAY SHIELD TUNNELS STRENGTHENED WITH LIQUID CRYSTAL POLYARYLATE (LCP) FIBER SHEETS
Y. Liu, B. Liu (APFIS2024-106)
Invited Lecture: Y. Liu (University of Science and Technology Beijing, China)
- 15:45 EXPERIMENTAL STUDY ON MECHANICAL BEHAVIOR OF SEGMENTAL JOINT OF SHIELD TUNNELING STRENGTHENED BY CFRP REINFORCED ANCHOR RODS
W. Zhang, J.W. Lin (APFIS2024-111)
Invited Lecture: W. Zhang (Fujian University of Technology, China)
- 16:00 PHASE-FIELD APPROACH FOR INTERFACIAL BOND BEHAVIOR ANALYSIS OF CFRP STRIPS IN INCLINED CONCRETE GROOVES
J. Chou, P. Feng, H. Peng (APFIS2024-110)
- 16:15 DUCTILE BEHAVIOUR OF RC BEAM PRESTRESSED WITH CFRP PLATE
J.Q. Yang, B. Liu (APFIS2024-112)
- 16:30 ANCHORED SPIRAL JACKETING FOR ENHANCING ELEVATED TEMPERATURE RESISTANCE OF FRP-CONFINED CONCRETE COLUMNS
M. Elshorbagi, C. Jiang, Z. Tao (APFIS2024-114)

DETAILED PROGRAM:

DAY 3 - SESSIONS A-7, B-7, C-7

WEDNESDAY, 11 DECEMBER 2024, 11:00-13:00

SESSION A-7 (GRAND BALLROOM A)

MINI-SYMPOSIUM: SEAWATER SEA-SAND CONCRETE (SSC) STRUCTURES REINFORCED WITH FIBRE-REINFORCED POLYMER (FRP) COMPOSITES (CONT.)

Organisers: T. Yu (Hong Kong Polytechnic University, China), Y. Xiang (Hong Kong Polytechnic University, China)

Chairs: T. Yu, Y. Xiang

- 11:00 FRP DEBONDING DETECTION VIA LOCAL AND GLOBAL APPROACHES
X.Y. Wang, H. Guan, L.F. Li, Y. Xia (APFIS2024-241)
Invited Speaker: Y. Xia (Hong Kong Polytechnic University)
- 11:15 EVAPORATION OF WATER FROM NACL SOLUTION CONFINED IN C-S-H GEL PORE USING MD STUDY: EFFECTS OF CA/SI RATIO
U. Hayat, M.F. Kai, H. Manzano, J.G. Dai, Y. Dong, T. Yu (APFIS2024-242)
- 11:30 NOVEL FILAMENT WOUND FRP GRID TUBE
C.W. Chan, P.C. Liu, T. Yu (APFIS2024-244)
- 11:45 HYDRATION AND HARDENING PROPERTIES OF SEAWATER-MIXED CEMENTITIOUS MATERIALS: DISCUSSION FROM C3S AND C3A PHASES
Y.M. Cai, Y.J. Sun, C.S. Poon (APFIS2024-246)
- 12:00 ON DEVELOPING A TIME-DEPENDENT BOND STRESS-SLIP MODEL FOR GFRP BARS IN SEAWATER SEA-SAND CONCRETE
J.J. Zhang, T. Yu (APFIS2024-248)
- 12:15 PRECAST SEAWATER AND SEA-SAND CONCRETE STRUCTURES REINFORCED WITH FIBRE-REINFORCED POLYMER (FRP) COMPOSITES
Z.H. Xue, T. Yu, K.C. Liu (APFIS2024-249)

ADDITIVE MANUFACTURING

Chairs: M. Ali, R. Hassanli

- 12:30 3D PRINTED FIBRE-REINFORCED POLYMER COMPOSITES IN CIVIL INFRASTRUCTURE
S. Wickramasinghe, O. Alajarmeh, C.A. Sorbello, S. Weerakoon, A. Manalo (APFIS2024-010)
- 12:45 INVESTIGATION OF MECHANICAL PROPERTIES AND SUPERELASTIC BEHAVIOR IN NITI ALLOY STRUCTURES WITH TPMS FABRICATED VIA ADDITIVE MANUFACTURING
M.T. Zhong, W. Zhou, Z.G. Wu, J. Deng (APFIS2024-030)

SESSION B-7 (GRAND BALLROOM B)

MATERIALS

Chairs: R. El-Hacha, T. Pham

- 11:00 ANALYSES OF FUNCTIONALLY GRADED POROUS STRUCTURES - A REVIEW
D. Chen (APFIS2024-006)
- 11:15 MECHANICAL PERFORMANCE OF RUBBERISED CONCRETE WITH STEEL FIBRE REINFORCEMENT
M. Qureshi, J. Li, C. Wu (APFIS2024-017)
- 11:30 STUDY ON THE TENSILE MECHANICAL PERFORMANCE OF GFRP-STEEL COMPOSITE BAR AND TAPERED HEAD STAINLESS STEEL SLEEVE CONNECTION JOINT
W. Chen, L. Li, Z. Xiong, F. Liu (APFIS2024-028)
- 11:45 EVALUATING THE ENERGY ABSORPTION CAPACITY OF CORYMBIA FICIFOLIA FRUIT FOR ADVANCED MATERIAL APPLICATIONS: INSIGHTS INTO BIO-INSPIRED MATERIAL DESIGN
C. Mao, J. Zhang, H. Xi (APFIS2024-036)
- 12:00 ENVIRONMENTALLY FRIENDLY PREPARATION OF ALUM SLUDGE/CHITOSAN NANOCOMPOSITES FOR PH-SENSITIVE SELF-HEALING APPLICATIONS
Q. Jia, Y. Zhuge, J. Ma (APFIS2024-061)
- 12:15 EFFECT OF PORE WATER PRESSURE ON MECHANICAL PERFORMANCE OF RECYCLED AGGREGATE CONCRETE UNDER TRIAXIAL COMPRESSION
H. Zhao, W. Li (APFIS2024-067)
- 12:30 NANO/MICRO-CHARACTERISATION ON THE HETEROGENEITY OF INTERFACIAL TRANSITION ZONES IN RECYCLED LUMP CONCRETE
H. Zhao, W. Li (APFIS2024-076)
- 12:45 NEXT-GEN CONSTRUCTION: NANO-ENABLED BACTERIAL SELF-HEALING CONCRETE FOR ENHANCED DURABILITY
M.A. Ahmad, P. Tan, X. Deng (APFIS2024-082)

SESSION C-7 (GRAND BALLROOM C)

SPECIAL SESSION: APPLICATION OF FRP TO STRUCTURAL REINFORCEMENT

Organiser: X. Chen (Xi'an University of Architecture and Technology, China)

Chair: X. Chen

- 11:00 SEISMIC PERFORMANCE OF SUBWAY STATION STRUCTURES REINFORCED BY ECC-FRP
X. Chen, Z.M. Xiong, Y. Liu, Z. Chen (APFIS2024-201)
- 11:15 INVESTIGATION OF SEISMIC PERFORMANCE AND DESIGN METHOD FOR GFRP-STEEL BUCKLING-RESTRAINED BRACES
Z. Chen, Z.M. Xiong, X. Chen (APFIS2024-202)
- 11:30 STUDY ON SHEAR PERFORMANCE OF ECC REINFORCED PREFABRICATED GFRP BEAM
H. Qian, Z.M. Xiong, X. Chen (APFIS2024-203)
- 11:45 SEISMIC BEHAVIOR OF PRECAST GFRP BEAM-COLUMN INTERIOR JOINTS INTEGRATED WITH ECC FOR LOCALIZED STRENGTHENING
Z.M. Xiong, Q.R. Sun, P. Zhou, L.Y. Lin (APFIS2024-204)

WELCOME RECEPTION AND BANQUET DETAILS

WELCOME RECEPTION (SUNDAY 8 DECEMBER)

The Welcome Reception will be held at the Hilton Adelaide Hotel at the Balcony Rooms 1+2, which are located on Level 1. The event will run from 6:00 to 8:00pm. A registration desk is also located outside of the Welcome Reception venue and the desk opens at 5:00pm on the day.

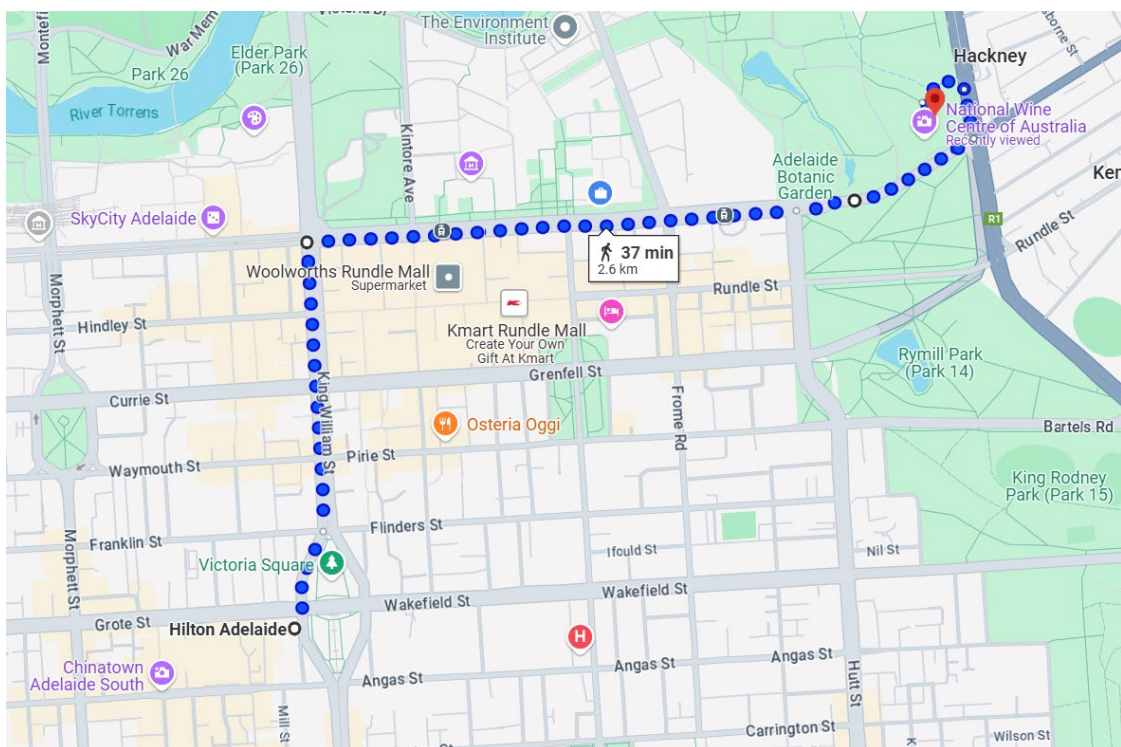
CONFERENCE BANQUET (TUESDAY 10 DECEMBER)

The Conference Banquet (herein *Banquet*) will be held at the National Wine Centre of Australia (<https://www.nationalwinecentre.com.au/>). The Banquet will take place in the Exhibition Hall, and will commence at 6:30pm. The venue also includes an interactive *Wine Discovery Journey* centre that will be open before the Banquet at 6:00pm. Delegates are welcome to explore the Centre,

Delegates are asked to make their way to the Banquet venue and there are several ways to travel from the Hilton Adelaide to the National Wine Centre. Our Volunteers will be on hand to guide (and accompany) delegates on their journey through the city via walking or tram. At the conclusion of the Banquet at 10.30pm, a bus is intended to be available to drive delegates from the Wine Centre back to the Hilton Adelaide.

1. Walking (approximately 40 minutes) from Hilton Adelaide to National Wine Centre

This will provide a wonderful opportunity to explore the beautiful city of Adelaide, including its many historical “sandstone” buildings. North Terrace is particularly delightful with the Government House, State Library of South Australia, South Australian Museum, Art Gallery of South Australia, and the University of Adelaide and the University of South Australia



2. Public Transport from Hilton Adelaide to National Wine Centre

The City of Adelaide offers free travel on trams and select busses within the central business district.

If travelling by tram to the Banquet venue:

- (i) Catch tram from the tram station directly opposite the Hilton Adelaide Hotel and travel in the direction of the Adelaide Railway Station.
- (ii) Change trams at the Adelaide Railway Station stop and then catch the tram to the Botanic Gardens Tram stop.
- (iii) Walk from the Botanic Gardens Tram stop to the National Wine Centre (about 550 m)

The total duration of the tram ride from the Hilton Adelaide to the National Wine Centre is about 30 minutes. Trams frequency is 10 minutes.

APFIS 2024

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Chairs, APFIS 2024

Professor Scott Smith (The University of Adelaide)

Professor Yan Zhuge (University of South Australia)

Dr Jun-Jie Zeng (University of South Australia)

Dr Tafsir Tafsirojjaman (The University of Adelaide)

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history.