

Steel Fibre Reinforced Concrete: Building Better Infrastructure

“Learn How to Transform Your Infrastructure Projects with SFRC”

Join us for an exclusive seminar that explores the innovative impact of Steel Fibre Reinforced Concrete (SFRC) on infrastructure and tunnelling projects

- ❖ **Discover** how the Land Transport Authority (LTA) is leading the way with SFRC to enhance safety, productivity, and durability in transport infrastructure
- ❖ **Gain insights** into LTA's successful applications of SFRC, including tunnel linings, and learn about their groundbreaking research on thick structural elements
- ❖ **Stay informed** about the latest specifications and best practices for SFRC design and construction

What You'll Learn:

Date:
22nd Oct 2024

- **Success Stories**
Hear about LTA's innovative use of SFRC and the tangible benefits it has delivered in real-world projects.

Time:
9am – 5.30pm

- **Research Insights**
Explore findings from LTA-funded research on SFRC, including its application in thick structural elements and the design implications.

Venue:
**LTA HSO
Auditorium**

- **Design and Specifications**
Understand the Singapore Standard SS 674 and the latest LTA specifications for SFRC.

PDU:
6 PDU Points

- **Best Practices**
Learn about designing SFRC mixes, ensuring quality control, and employing effective construction techniques.

This seminar is ideal for engineers, project managers, and infrastructure professionals to enhance their skills, stay updated with industry trends, network with industry leaders, and gain insights to improve your projects.



Register here: Scan the QR code or visit

https://sit.au1.qualtrics.com/jfe/form/SV_3mxzZXiAXzOUDJA

Registration Fee: SGD \$280 (incl. GST).

Fees include refreshments & lunch

Enjoy a group discount rate of \$250 per person with a min. of 3 persons. Send in your enquiry to CITE@singaporetech.edu.sg

SPEAKER PROFILE



**Dr. Goh Kok Hun, Group Director,
Infrastructure Design & Engineering (IDE)
(Land Transport Authority)**

Dr. Goh obtained his Bachelor of Engineering and Masters of Engineering from the National University of Singapore and received his doctorate from the University of Cambridge. He has about 20 years of geotechnical and tunnel engineering experience and has been involved in various aspects of several road and rail infrastructure projects in Singapore, including site investigations and testing, geotechnical interpretation, foundations, earth retaining structures, and tunnels. He conducts technical studies on topics such as deep excavation and tunnelling effects, building impact assessment, pile foundations, etc. and shares his findings regularly in local conferences and seminars.

He is registered as a professional engineer in civil engineering as well as a specialist professional engineer in geotechnical engineering in Singapore, and a chartered professional engineer.



**Mr. Ang Wei Jian, Executive Engineer,
Geotechnical & Tunnels, Infrastructure Design
& Engineering
(Land Transport Authority)**

Wei Jian is a geotechnical engineer and data analyst from Land Transport Authority. He has worked on various rail projects such as Thomson East Coast Line, North East Line Extension, Cross Island Line and Cross Island Line-Punggol Extension. He was also involved in LTA efforts to implement and adopt Steel Fibre Reinforced Concrete in cast in-situ structures.

SPEAKER PROFILE



Emeritus Professor Tan Kiang Hwee (National University of Singapore)

Prof. Tan has been a faculty member of the Department of Civil and Environmental Engineering at the National University of Singapore (NUS) since July 1981. He obtained his doctorate from the University of Tokyo, Japan in 1985.

He specialises in the area of structural concrete and composites and has taught courses in reinforced and prestressed concrete design at both undergraduate and postgraduate levels. He has carried out extensive research on concrete beams with transverse openings, external prestressing, fibre-reinforced polymer (FRP) reinforcement and systems, and fibre-reinforced concrete. He has published more than 300 refereed technical papers, a book entitled “Beams with Openings: Analysis & Design” (CRC Press LLC, USA, 1999), and edited the proceedings of the 6th International Symposium on FRP Reinforcement for Concrete Structures (World Scientific, 2003). He is also the author of the Design Guide for Fibre-Reinforced Concrete Structures to Singapore Standard SS 674:2021.

Professor Tan is a Fellow of the Institution of Engineers, Singapore (IES), Japan Concrete Institute, and Japan Society of Civil Engineers. He is also a registered professional engineer in Singapore and has been a consultant in structural engineering to several agencies in Singapore and the region.

SPEAKER PROFILE



**Associate Professor Kum Yung Juan
(Singapore Institute of Technology)**

Er. Kum has expertise in reinforced concrete technology having worked on lightweight reinforced concrete for his doctoral research. He subsequently gained experience contributing to the design of underground metro infrastructure including Little India and Rochor stations on Downtown Line, on the Thomson East Coast Line, Jakarta MRT, Klang Valley MRT, and tunnels at the HK International Airport. He currently leads research teams at SIT working with CTIL and CITE on improving concrete for underground structures.



**Er. Dr. Tan Pui Lai, Deputy Director,
Civil & Structures
(Land Transport Authority)**

Er. Dr. Tan brings over two decades of research and industrial experience in the built environment, with particular focus on concrete technology and underground infrastructure projects. She upholds a keen interest in environmental sustainability and plays an active role in championing sustainability initiatives for infrastructure projects.

SPEAKER PROFILE



Dr. Daneti Saradhi Babu, Technical Manager (Alliance Concrete Singapore Pte Ltd)

Dr. Daneti is currently a Technical Manager – Concrete Specialist at Alliance Concrete Singapore (ACS) Pte. Ltd. He obtained his Ph.D. from the National University of Singapore (NUS) in 2009 and a Master's degree from the Indian Institute of Technology (IIT), Madras in 2002. Prior to joining the RMC industry in 2011, he worked as a Research Engineer and Research Fellow at NUS for four years. Dr. Daneti is a Member and Board Director of the American Concrete Institute-Singapore Chapter, a Member of the Institution of Engineers Singapore (IES), and the Singapore Concrete Institute (SCI). He has been honored with awards at internal conferences, including OWICS 2015 in Singapore and ConMat'05 2005 in Canada, for his exceptional papers.



Mr. Gan Cheng Chian, Technical Manager (Bekaert)

Mr. Gan graduated from The University of Singapore in 1989 and has worked in the construction industry for 35 years. He has been involved in over 22 projects featuring fibre reinforced sprayed concrete linings and over 20 projects featuring fibre reinforced concrete precast segmental and cast concrete tunnel linings. Since Jan 2019, he was one of the members of the working group drafting the Singapore Standard on Design of Fibre Concrete Structures. In March 2019, he was appointed as the Domain Expert for Sprayed Concrete and in Jan 2020, he was appointed as Domain Expert for Fibre Reinforced Concrete under iNPQS (Intelligent National Productivity and Quality Specifications Singapore).

Steel Fibre Reinforced Concrete: Building Better Infrastructure - PROGRAMME -

22nd Oct 2024 (Tuesday)

Time	Topic	Speaker
9:00am	1. Opening Address	Mr. Ng Lang Chief Executive, Land Transport Authority
9:15am	2. Use of SFRC in Tunnelling <ul style="list-style-type: none"> LTA's journey in the adoption of SFRC 	Dr. Goh Kok Hun Group Director, IDE Land Transport Authority
10:00am	Morning Refreshment Break	
10:30am	3. Basis of SFRC Design <ul style="list-style-type: none"> Singapore Standard SS674 ULS & SLS SLS Design for Crack Width 	Emeritus Prof. Tan Kiang Hwee National University of Singapore
11:45am	4. Impact of SFRC on SLS & ULS Design <ul style="list-style-type: none"> Application of SFRC design on underground structural elements 	Mr. Ang Wei Jian Executive Engineer, IDE Land Transport Authority
12:15pm	Networking Lunch	
1:30pm	5. Research into the use of SFRC in Thick Structural Elements <ul style="list-style-type: none"> Research approach into the use of SFRC for crack control Casting of thick sections for testing and verification of design parameters Research findings and implications to design 	Assoc. Prof Kum Yung Juan Singapore Institute of Technology
2:30pm	6. Specifications for the use of SFRC in Infrastructure Projects <ul style="list-style-type: none"> LTA specification for the use of SFRC in tunnel segments and structural elements Construction testing requirements 	Er. Dr. Tan Pui Lai Deputy Director, IDE Land Transport Authority
3:00pm	7. SFRC: Production, Quality and Properties <ul style="list-style-type: none"> Design of concrete mixes for SFRC Quality Assurance and Control to ensure consistency Material Properties 	Dr. Daneti Saradhi Babu Technical Manager, Alliance Concrete Singapore Pte. Ltd.
3:30pm	Afternoon Refreshment Break	
4:00pm	8. Infrastructure Construction using SFRC <ul style="list-style-type: none"> Examples of SFRC construction locally & overseas Key considerations for concreting with SFRC Effect of congestion of rebars and fibre length Demolition of SFRC elements 	Mr. Gan Cheng Chian Technical Manager, Bekaert
4:30pm	9. The future of SFRC <ul style="list-style-type: none"> Current areas of research worldwide Other potential benefits of SFRC 	Assoc. Prof. Kum Yung Juan Singapore Institute of Technology
5:00pm	10. Panel Discussion	Chaired by: Prof. Chiew Sing Ping Singapore Institute of Technology
5:30pm	End of Seminar	

DIRECTIONS TO LTA AUDITORIUM



The Auditorium is located at LTA HSO, Blk 5.

As there are limited parking lots available, visitors are encouraged to take public transport.

Nearest MRT station, Little India (NE7/ DT12), Exit E/ F

Directions on OneMap

<https://www.onemap.gov.sg/?lat=1.3088584&lng=103.8493845>



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**Tunnelling and Underground
Construction Society (Singapore)**



Organised by **CENTRE FOR INFRASTRUCTURE AND TUNNEL ENGINEERING** jointly established by LTA and SIT with the aim of building engineering industry competency and competitiveness, with a focus on infrastructure and tunnelling