PROGRAMME

fib-course
on
„UHPC materials and structures”

Tuesday, 27 August 2024 – Preceding the PhD Symp. 2024 Budapest
Budapest University of Technology and Economics (BME)
Muegyetem 3, H-1111 Budapest,
1st Floor, Room 87 (depends on number of participants)

13:00-14:00	**Registration**	
14:00-14:20	**Prof. György L. Balázs** (Budapest)	**Introduction to UHPC** **Discussion**
14:20-14:40	**Dr. David Fernandez-Ordonez** (Lausanne)	**Introduction to *fib*** **Discussion**
14:40-15:40	**Prof. Stephen Foster** (Sydney)	**Exploring the Future of Ultra-High Performance Concrete (UHPC) Bridge Construction: Advancements, Challenges, and its Role in Critical Infrastructure Development** **Discussion**
15:40-16:00	**Coffee break**	
16:00-17:00	**Prof. Marco di Prisco** (Milano)	**UHPFRC for sustainability: a high-performance material for new and existing structures** **Discussion**
17:00-18:00	**Dr. Akio Kasuga** (Tokyo)	**A challenging concrete structure for the low carbon society** **Discussion**

19:00 – 21:00 Welcome cocktail of PhD Symposium 2024 at BME

Projects reailized by using UHPC

Photos are provided by Prof. Stephen Foster and Dr Yen Lei (Jackie) Voo

Fig. 1. Batu 6 Segmental Box Girder Bridge

Fig. 2. Lambor Bridge Section, Malaysia

Fig. 3. Ulu Geroh Bridge, Malaysia

Fig. 4. Negeri Sembilan Bridge, Malaysia

Fig. 5. Langat River Brigde (105 metre span)

Fig. 6. Lambor Bridge, Malaysia

Fig. 7. Gerik-Kota Bahru Viaduct, Malaysia

Fig. 8. Manong Bridge, Malaysia

SHORT ABSRACT OF PRESENTATIONS

Name, Affiliation

Title and Abstract of Presentation

Prof.
György L. Balázs,
Budapest Univ. of Technology and Economics, Budapest, Hungary

Title: Introduction to UHPC

Abstract:

Ultra-High-Performance Concrete is an extraordinary materials.
Ultra-High-Performance may mean characteristics of concrete that differs considerably from everyday concretes.

Presentation will demonstrate possible components and possible characteristics of Ultra-High-Performance Concretes.

Dr. David Fernandez-Ordonez, Secretary General of *fib*, Lausanne

Title: Introtduction to *fib*

Abstract:
The presentation will deal with the history, mission and objectives of the *fib* (The International Federation for Structural Concrete) and also on the latest development like the "*fib* Model Code for Concert Structures (2020).

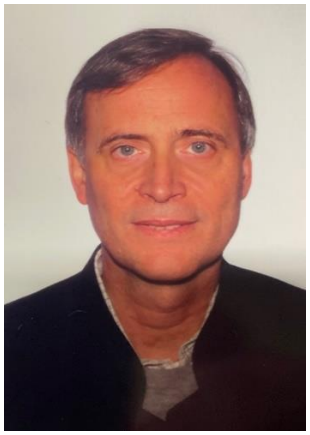
Prof. Stephen Foster,
University of New South Wales, Sydney, Australia

Title: Exploring the Future of Ultra-HighPerformance Concrete (UHPC) Bridge Construction: Advancements, Challenges, and its Role in Critical Infrastructure Development.

Abstract: This presentation examines the evolving landscape of bridge construction using Ultra-High-Performance Concrete (UHPC), highlighting several projects that have transformed the field. UHPC is renowned for its superior strength and durability, offering substantial improvements over traditional concrete in terms of structural integrity and design flexibility. These developments facilitate the creation of longer, slimmer, and more aesthetically appealing bridges, while simultaneously ensuring increased resilience and longevity. The presentation discusses some of the challenges associated with UHPC implementation, such as limited professional expertise, and the need for more national standards and practices. Despite these hurdles, the vital role UHPC plays in the future of designing remotely located bridges, which are instrumental in improving transportation networks, fostering economic growth, and providing durability against various hazards,

is examined. The presentation advocates for intensified education and policy initiatives to fully exploit UHPC's capabilities in bridge construction and broader infrastructure projects.

Prof. Marco di Prisco,
Politecnico di Milano, Italy



Title: UHPFRC for sustainability: a high-performance material for new and existing structures

Abstract:
Ultra-High-Performance Fibre Reinforced Concrete is a new material offered to the structural designer that can be regarded as an interesting option when severe environment, lightness requirement, significant protection, high-durability become stringent requirements to satisfy.
The identification of tensile behaviour usually is carried out by means of uniaxial tension tests, but some authors have shown that even 3 or 4 bending tests can be used to identify it.
Fibre distribution is always a major topic to analyse, because it is not easy to guarantee it in all the practical applications if conventional casting procedures are followed.
In the lecture, after some considerations concerning the identification procedures, several applications related to new structures, like light floor slabs, roofing elements, bridge loss formworks, and existing structures, like connecting beams and half joints in the bridge are shown.

Dr. Akio Kasuga,
Sumitomo Mitsui Construction Co. and The Tokyo University, Tokoy, Japan

Title: A challenging concrete structure for the low carbon society

Abstract:
We are entering a new period of uncertainty about the future as calls for global action on climate change begin to accelerate. As a concrete society, we must consider this movement as a contribution to the response to climate change. Therefore, in order to reduce the carbon emission of concrete structures, low-carbon technologies are more and more necessary.
The presentation will discuss the challenging bridge that used zero cement concrete and non-metallic reinforcement. The cement free concrete can reduce CO_2 emission up to 70% compared to conventional technology. And the non-metallic reinforcement used aramid fibre tendon has no deterioration factor of concrete. The much longer life of concrete structures leads to ultra-high durability and much less maintenance, which means CO_2 reduction after execution