

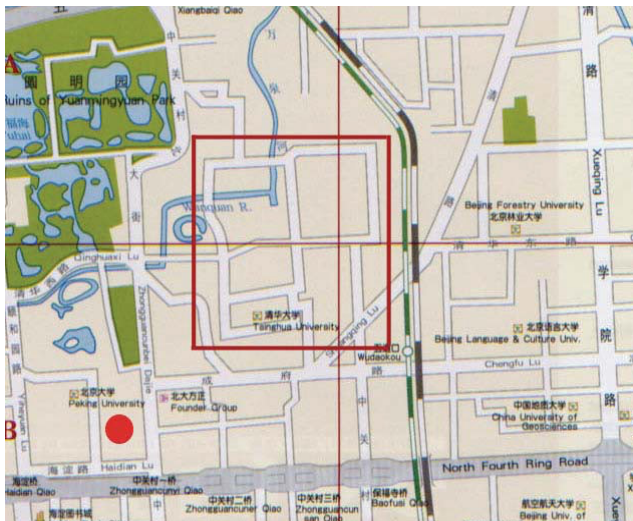
## Scope

Nowadays the civil engineering embraces broad disciplines from fundamental science to cutting-edge technologies, and has been deeply embedded into the sustainability of whole society. Actually civil engineering can contribute to the sustainability from the use of raw materials, new construction technologies and efficient life-cycle management. These issues are becoming increasingly important as the rapid urbanization and mass construction of infrastructures in developing countries, and the management of ageing infrastructures in developed countries. To answer such multiple challenges, Tsinghua University (China) and Université Gustave Eiffel (Univ. Eiffel, France) decide to set up a high-level workshop, addressing both scientific and technological challenges. This two-day workshop assembles leading experts on different themes, of which the first day is focused on fundamental research on science, mechanisms and modeling and the second day is concentrated on the advanced technology. At the end of each day, one round-table discussion is organized, providing deepened analysis on the scientific questions and technical problems. This workshop opens its door to both researchers and practical engineers. It is expected that knowledge and experiences can be shared between research and engineering communities and clearer vision is gained for the sustainability of civil engineering.

## Venue

STSCEI'2021 will be held on the campus of Tsinghua University, situated in the northern-west part of Beijing city between the 4th and 5th ring roads, and about 15 km from the ancient Beijing city center. The situation is convenient for both road and public transport (Bus and subway).

Subway: Line 4 Station Yuan Ming Yuan (Exit B); Line 13, Station Wu Dao Kou. Road transport (from Beijing Capital Int'l airport): Highway S12 to 4th Ring Road, Exit No. 46 (Zhong Guan Cun)



## About Université Gustave Eiffel

*Université Gustave Eiffel is, in France, a unique, pioneering university constituted in 2020 from merging of the Université Paris-Est Marne-la-Vallée, the French Institute of Science and Technology for Transport, Development and Networks (comprising the former LCPC - French Public Works Research Institute - created 1949), three Engineering High Schools and one School of Architecture. From civil engineering and social sciences to nanotechnologies, it promotes synergy of educational, research and expertise efforts toward the development of smart, resilient and resource-efficient cities of tomorrow. The Materials and Structures (MAST) Department represents about 180 permanent research staff and doctoral students, it includes 7 active laboratories in the field of building materials, bridges, civil structures, sustainable construction, roads and linear infrastructures.*



## About Tsinghua University

*Tsinghua University, founded in 1911, is a leading university in science and technology in China. It occupies a campus of 389 hectares, covering wide-spread disciplines of science, technology, medicine, law, literature and art. The personnel include 6,000 faculty members and 1,300 postdoctoral fellows. The Department of Civil Engineering, founded in 1926, is one of the oldest departments of Tsinghua University. Today, the civil engineering discipline covers the fields of Structural Engineering, Geotechnical Engineering, Hydraulic Engineering, Hydrology and water resources, Construction Management, Disaster Prevention and Mitigation, and Building Materials.*



# STSCEI'2021

**Tsinghua & Univ. Eiffel International Workshop on Science and Technology for Sustainability of Civil Engineering Infrastructures**

**20-22 October 2021**



with the support of:

**FUTURE**  
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# Organizing Committee

Véronique Baroghel-Bouny, Université Gustave Eiffel  
Teddy Fen-Chong, Université Gustave Eiffel (Chairman)  
Xiangming Kong, Tsinghua University  
Kefei Li, Tsinghua University (Chairman)  
Virginie Mouillet, Cerema, France  
Jean-Michel Torrenti, Université Gustave Eiffel  
Qiang Wang, Tsinghua University  
Junjie Wang, Tsinghua University  
Ya Wei, Tsinghua University

# Invited Speakers

Dr. V. Baroghel-Bouny, Univ. Eiffel, France  
Dr. A. Ben Fraj, Cerema, France  
Prof. P. Dangla, Univ. Eiffel, France  
Dr. M. Dierkens, Cerema, France  
Dr. A. Djerbi, Univ. Eiffel, France  
Dr. T. Fen-Chong, Univ. Eiffel, France  
Dr. V. Gaudefroy, Univ. Eiffel, France  
Dr. R.H. Guo, Tsinghua, China  
Dr. T.Y. Hao, MMC, China  
Prof. X.M. Kong, Tsinghua, China  
Prof. K.F. Li, Tsinghua, China  
Prof. B. Lothenbach, EMPA, Switzerland  
Dr. M. Marchetti, Univ. Eiffel, France  
Dr. V. Mouillet, Cerema, France  
Dr. O. Omikrine-Metalssi, Univ. Eiffel, France  
Prof. J.-M. Torrenti, Univ. Eiffel, France  
Dr. F. Toutlemonde, Univ. Eiffel, France  
Dr. Q. Wang, Tsinghua, China  
Dr. Y. Wei, Tsinghua, China  
Dr. F. Winnefeld, EMPA, Switzerland  
Prof. J. Zhang, Tsinghua, China

# Conference Secretariat

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# Workshop Program

## Day-1: October 20, 2021

Theme: Science for sustainability (science, mechanism, and modeling), Session chair: Prof. Kefei Li

8:45-9:00 (Beijing time)

Opening speech, by Prof. Dongping Fang (Tsinghua), Jean-Michel Torrenti (Univ. Eiffel)

9:00-9:45

Lecture 1: Recent results concerning long-term behavior of concrete structures

Speaker: Jean-Michel Torrenti

9:45-10:30

Lecture 2: Thermodynamic of complex binders

Speakers: Barbara Lothenbach, Frank Winnefeld

10:45-11:30

Lecture 3: Modeling the drying behavior of concrete over a wide range of humidity

Speaker: Patrick Dangla

11:30-12:15

Lecture 4: Multiscale creep modeling: role of interface bonding

Speaker: Ya Wei

>>>> 12:30-13:30 Lunch Break

14:00-14:45

Lecture 5: Monitoring of cementitious materials: a continuous and in-situ spectroscopic approach

Speaker: Mario Marchetti

14:45-15:30

Lecture 6: Fracture of engineered cement composites (ECC)

Speaker: Jun Zhang

15:45-16:30 | 8:45-9:30 am (Paris time)

Lecture 7: Long-term observations for industrial structures

Speaker: Tingyu Hao

16:30-17:15 | 9:30-10:15 am (Paris time)

Lecture 8: Durability: from field observations to understanding of mechanisms

Speaker: Véronique Baroghel-Bouny

17:30-18:30 | 10:30-11:30 (Paris time)

Round-table: what should be done to deepen the science?  
Animator: Teddy Fen-Chong

## Day-2: October 21, 2021

Theme: Fronts in technology for sustainability  
Session chair: Dr. Teddy Fen-Chong

9:00-9:45

Lecture 9: LCC-LCA joint approach for durability

Speaker: Kefei Li

9:45-10:30

Lecture 10: Updating Eurocode and European Standard for Concrete: towards a performance-based approach for durability specification

Speaker: François Toutlemonde

10:45-11:30

Lecture 11: Recycling of industrial wastes in building materials

Speaker: Qiang Wang

11:30-12:15

Lecture 12: Mechanical, durability and environmental performances of waste-containing concrete

Speakers: Assia Djerbi, Amor Ben Fraj

>>>> 12:30-13:30 Lunch Break

14:00-14:45

Lecture 13: Pavement systems, performance and long-term observations

Speaker: Runhua Guo

14:45-15:30

Lecture 14: Long term properties assessment of hot and warm mix asphalts with reclaimed asphalt pavements: microstructure, mechanical performance, and sustainability  
Speakers: Virginie Mouillet, Vincent Gaudefroy

15:45-16:30 | 8:45-9:30 am (Paris time)

Lecture 15: Hydrophobized concretes

Speaker(s): Xiangming Kong

16:30-17:15 | 9:30-10:15 am (Paris time)

Lecture 16: Pore crystallization and related issues

Speakers: Othman Omikrine-Metalssi, Teddy Fen-Chong, Mickaël Dierkens

17:30-18:30 | 10:30-11:30 (Paris time)

Round-table: what should be done to advance the technology?

Animator: Kefei Li

**Day-3: October 22, 2021 (Technical visit)**