

# Workshop on

# “Service-life design of reinforced concrete structures”

State-of-art researches and practical design in Europe and Japan

2024.3.21-22@Tokyo Institute of Technology

Lecture room W9-326 on the 3rd floor at West building 9, Tokyo Institute of Technology  
(2-12-1 Ookayama, Meguro-ku, Tokyo, Japan)

Register in the following URL. Zoom join will be also available !

<https://forms.gle/DXufadCCRsjsTgcj9>

21<sup>st</sup>

9:00~17:15

## “Fundamental research toward solution of sustainable concrete structures”



Coordinator: Shingo Asamoto  
(Saitama univeristy)

State-of-art experimental and numerical researches related to n Europe and Japan will be presented focusing on cracking and durability issues. 9 presentations will be given from European countries while 5 researches in Japan will be introduced. Each presentation has 25 minutes including discussion.

22<sup>nd</sup>

9:00~18:10

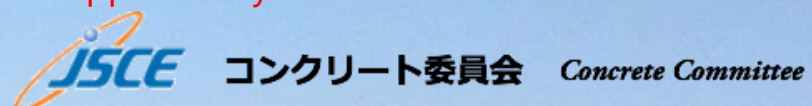
## “Lectures for service life design and practical issues of reinforced concrete”



Coordinator: Miguel Agenha  
(University of Minho)

Lectures related to sustainability, code-based design, BIM, assessment of practical issues in Asian countries and numerical assessment of deteriorated structures will be given. Each lecture will have 1 hour or 40 min including discussion.

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<https://www.titech.ac.jp/english/0/maps>

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# Program

**Date: 21<sup>st</sup> March 2024 (Thursday)**

**Time: 9:00am to 5:25pm**

- 09:00-09:10 Opening Address
- 09:10-09:35 New insights into experimental approaches to fresh and hardening cement-based materials (M. Azenha)
- 09:35-10:00 Influence of superabsorbent polymer (SAP) on uniaxial tensile performance and multiple cracking of strain hardening cementitious composites (SHCC) (Y. Luan)
- 10:00-10:25 Crack control and performance requirements throughout the service life of concrete materials and structures (F. Kanavaris)
- 10:25-10:45 Tea Break
- 10:45-11:10 Autogenous shrinkage of blast furnace slag cement concrete in actual structures and reduction effect of shrinkage by adding gypsum and limestone powder (T. Usui)
- 11:10-11:35 Creep of C-S-H from the molecular scale (T. Honorio)
- 11:35-12:00 Fatigue failure of cementitious mortar in water and its countermeasures (K. Takahashi)
- 12:00-12:25 Durability of eco-concretes (M. Maaroufi)
- 12:25-14:00 Lunch Break
- 14:00-14:25 Mesoscale simulation of damaged concrete materials and structures using a discrete analysis model (K. Nagai)
- 14:25-14:50 Prediction of crack openings in cement-based materials and impact on transport properties (F. Benboudjema)
- 14:50-15:15 Modelling of cracking in reinforced concrete structures (A. Jędrzejewska)
- 15:15-15:40 What is the crack opening in reinforced concrete? An answer on basis of advanced 3D-FEM modelling (D. Schlicke)
- 15:40-16:00 Tea break
- 16:00-16:25 Impact of the spatio-temporal expansion behavior on anisotropy mechanism of ASR evaluated by mesoscale analysis (M. Fujishima)
- 16:25-16:50 Impact of ASR on the mechanical behavior of cementitious materials. Application to electrical pylons foundations (S. Langlois)
- 16:50-17:15 Potential of shell co-products for structural elements in construction (A. Bourdot)
- 17:15-17:25 Closing





# Program

**Date: 22<sup>nd</sup> March 2024 (Friday)**

**Time: 9:00am to 6:10pm**

09:00-09:10 Opening Address

09:10-10:10 Opportunities and challenges towards the development of sustainable and durable concrete materials and structures (F. Kanavaris)

10:10-11:10 Anomaly of water uptake of dried concrete (I. Maruyama)

11:10-11:30 Tea Break

11:30-12:30 Code-based SLS design of RC structures subjected to restraint-induced cracking (A. Jędrzejewska)

12:30-13:40 Lunch Break

13:40-14:20 Initial cracking assessment in massive concrete structures (JCI)

14:20-15:00 Practical issues in Asian developing countries (S. Asamoto)

15:00-16:00 Deformation-based crack width control for restrained concrete members (D. Schlicke)

16:00-16:20 Tea Break

16:20-17:00 Toward a reliable assessment of ASR-affected concrete structures (N. Ueda)

17:00-18:00 Opportunities and challenges of BIM in the scope of concrete construction (M. Azenha)

18:00-18:10 Closing

