

The 7th Joint Workshop on Building / Civil Engineering between Tongji and Tokyo Tech



August 25-26, 2023
Tokyo Institute of Technology
(Suzukakedai Campus)
Tokyo, Japan

Organized by

Department of Architecture and Building Engineering
School of Environment and Society
Tokyo Institute of Technology

Supported by



Multidisciplinary Resilience Research Center



Laboratory for Materials and Structures



Laboratory for Future Interdisciplinary
Research in Science and Technology

Foreword

On behalf of the Department of Architecture and Building Engineering at Tokyo Institute of Technology, we are pleased to announce the long-awaited return of the seventh Joint Workshop on Buildings and Civil Engineering after a three-year suspension. It is our great pleasure to have delegates from Tongji University for the Seventh Joint Workshop for Building and Civil Engineering at Suzukakedai Campus, Tokyo Institute of Technology, Japan, from August 25th to 26th, 2023.

We hope that the workshop resonates strongly with our current global context. As we navigate the challenges of climate change, population growth, and limited resources, the need for sustainable and resilient infrastructure has never been more crucial. We will explore together the latest advancements in building materials, construction techniques, and design principles that foster sustainability, durability, and adaptability.

Networking and social interactions are an integral part of any workshop experience. We have scheduled breaks, lunch, and social events, allowing participants to reconnect, forge new friendships, and establish collaborations extending far beyond the workshop's duration. The interactions often lead to lifelong partnerships and pave the way for groundbreaking research and development.

On behalf of the organizing committee, I extend my deepest gratitude to all the participants for their support and enthusiasm throughout the planning process. I also acknowledge the resilience and dedication of our students and professors who have continued to pursue excellence despite the challenges faced in recent years.

Professor Susumu KONO
August 2023

Overview of the Workshop Program

Day 1

August 25, 2023 (Friday)

Morning	Afternoon	Evening
◆ Registration	◆ Student session 2	◆ Opinion Exchange
◆ Opening ceremony	◆ Student session 3	Session for
◆ Keynote Lectures	◆ Lectures by Young	Professors and
◆ Student session 1	Faculty Members: Session 1	Students

Day 2

August 26, 2023 (Saturday)

Morning	Afternoon
◆ Student session 4	◆ Lectures by Young
◆ Student session 5	Faculty Members: Session 2
	◆ Closing ceremony

Guidelines for Student Presentation

- Presentations shall be delivered in English.
- Each student will be given total of 15 minutes for:
Presentation = 10 min (1st bell = 8-min mark, 2nd bell = end of presentation)
Discussion = 5 min (3rd bell = end of discussion)
- Presenters must conduct *equipment check* before the start of the session.
- Student presenters are advised to use their own laptop.
Types of ports available for projectors are (a) standard HDMI and (b) VGA.
If other than (a) & (b), students are advised to bring their own port adopters.
Laser pointers are available for use.
- Student participants are highly encouraged to be active in asking questions and discussions.
- Awards will be given to exemplary student presentations.

Workshop Program

Day 1 - August 25, 2023 (Friday)

Building J2 Room 203 (2nd Floor)

08:30 – 09:00 *Registration*

09:00 – 09:10 *Opening Addresses*
Prof. Suwen CHEN (Tongji), and Prof. Susumu KONO (Tokyo Tech)

Keynote Session

Chairpersons: Prof. Suwen CHEN (Tongji), and Prof. Susumu KONO (Tokyo Tech)

09:10 – 09:50 **Keynote Lecture 1**
"Study of seismic performance of Chinese-style suspended ceiling system"
Prof. Huanjun JIANG (Tongji)

09:50 – 10:30 **Keynote Lecture 2**
"E-Isolation--High-Performance Dynamic Testing Installation for Seismic Isolation Bearings and Damping Devices"
Prof. Toru TAKEUCHI (Tokyo Tech)

10:30 – 11:00 *Group photo and Coffee break*

Student Session 1

Chairpersons: Prof. Minjuan HE (Tongji), and Assoc. Prof. Daiki SATO (Tokyo Tech)

11:00 – 11:15 "Effect of Three-Directional Wind Input on Maximum and Residual Deformations of Base-Isolated High-Rise Buildings"
Speaker: Tong ZHAO (Tokyo Tech)

11:15 – 11:30 "Decoupled Stochastic Model and Survey Method for Extraordinary Load"
Speaker: Yang LI (Tongji)

11:30 – 13:00 *Lunch break*

Student Session 2

Chairpersons: Prof. Minjuan HE (Tongji), and Assoc. Prof. Daiki SATO (Tokyo Tech)

13:00 – 13:15 "Finite Element Analysis on the Anisotropic Behavior of 3D Printed Concrete under Compression"
Speaker: Haoran LIU (Tongji)

13:15 – 13:30 "Evaluation of High-Rise Building Response in Metro Manila, Philippines during 2019 Central Luzon Earthquake Using Video and Vibration Data"
Speaker: Mary Wenzel ANDAYA (Tokyo Tech)

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Day 1 - August 25, 2023 (Friday)

(Student Session 2)

13:30 – 13:45 “Dynamic Damage Constitutive Model for Concrete and Its Application”
Speaker: Xiaoli WEI (Tongji)

13:45 – 14:00 “Modeling of Compacted Snow Penetration Tests”
Speaker: Yuanpeng ZHENG (Tongji)

14:00 – 14:15 “Directionality of In-Plane Behavior Observed in Diagonal Loading Tests using One-Unit Specimen for JPN-US Suspended Ceiling”
Speaker: Reiko MOROHOSHI (Tokyo Tech)

14:15 – 14:40 *Coffee break*

Student Session 3

Chairpersons: Prof. Haihua ZHANG (Tongji), and Prof. Susumu KONO (Tokyo Tech)

14:40 – 14:55 “Numerical Simulations of the Full-Life Cyclic Behavior of Buckling Restrained Energy Dissipative Rod”
Speaker: Yunlong ZHONG (Tongji)

14:55 – 15:10 “Modelling and Prediction of Excavation-Induced Tunnel Displacement Based on Auto Machine Learning”
Speaker: Yiming SHEN (Tongji)

15:10 – 15:25 “Elastic Shear Buckling Coefficients for Oblique Plates”
Speaker: Keiichiro SADA (Tokyo Tech)

15:25 – 15:40 “A Rapid Assessment of Sinkholes Induced by Leakage of Water Pipelines”
Speaker: Mingyi LIN (Tongji)

15:40 – 15:55 “A Novel Numerical-Physical Coupling Method for Thermo-Mechanical Characteristics of Full-Scale Tunnel Structures”
Speaker: Linxi WANG (Tongji)

15:55 – 16:10 “A Comparative Study on Seismic Behavior of RC Frame with and without consideration of Axial Elongation of Beams”
Speaker: Kaito KUBO (Tokyo Tech)

16:10 – 16:25 *Short Break*

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Day 1 - August 25, 2023 (Friday)

Lectures by Young Faculty Members: Session 1 (move to afternoon)

Chairpersons: Prof. Huanjun JIANG (Tongji), and Prof. Kikuo IKARASHI (Tokyo Tech)

16:25 – 16:50

Lecture 1

“Monitoring of the Hardening of Concrete/Mortar using Plastic Optical Fiber Sensors”

Prof. Haihua ZHANG (Tongji)

16:50 – 17:15

Lecture 2

“A Novel Evaluation Method for Plate Buckling Coefficients in Cold-Formed Steel Members”

Asst. Prof. Kazuya MITSUI (Tokyo Tech)

17:15 – 18:00

Break and Setting

18:00 – 20:15

**Opinion Exchange Session for Professors and Students
(Building J2-J3, 20th floor)**

Day 2 - August 26, 2023 (Saturday)
Building J2 Room 203 (2nd Floor)

Student Session 4

Chairpersons: Asst. Prof. Shaojun ZHU (Tongji), and Prof. Toru TAKEUCHI (Tokyo Tech)

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| 09:00 – 09:15 | “Parametric Analysis on the Seismic Performance on Self-Centering Reinforced Concrete Frames”
<i>Speaker:</i> Fanfu BU (Tongji) |
| 09:15 – 09:30 | “Design Method for Base-Isolated Building considering Mass and Stiffness Distributions of Superstructure”
<i>Speaker:</i> Jing LI (Tokyo Tech) |
| 09:30 – 09:45 | “Residual Axial Capacity of Post-Blast RC Columns Before/After FRP Rehabilitation”
<i>Speaker:</i> Jiapei XU (Tongji) |
| 09:45 – 10:00 | “Performance Study on Self-Centering Wall Structure with Infill Walls”
<i>Speaker:</i> Xiaoying ZHU (Tongji) |
| 10:00 – 10:15 | “Experimental and Numerical Behavior of Concentrically Loaded Hollow Circular High-Strength Precast Concrete-Filled Steel Tube Piles”
<i>Speaker:</i> Clarissa JASINDA (Tokyo Tech) |

10:15 – 10:45 *Coffee break*

Student Session 5

Chairpersons: Prof. Xilin LYU (Tongji), and Prof. Kikuo IKARASHI (Tokyo Tech)

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| 10:45 – 11:00 | “Acoustic Monitoring of Slab Track Condition based on a Novel Acoustic Signal Denoising Method”
<i>Speaker:</i> Baorui DAI (Tongji) |
| 11:00 – 11:15 | “Surrogate Modelling for Easy-to-Repair Displacement Ductility of Scoured Bridge Pile-Group Foundations in Cohesionless Soils”
<i>Speaker:</i> Jingcheng WANG (Tongji) |
| 11:15 – 11:30 | “Numerical Modeling of Lightly Reinforced Concrete Walls subjected to In-Plane Cyclic Loading”
<i>Speaker:</i> Priyana RAJBHANDARI (Tokyo Tech) |
| 11:30 – 11:45 | “Modeling and Application of Digital Twin for Production Line of Intelligent Bridge Girder Precast Factory”
<i>Speaker:</i> Qi XU (Tongji) |
| 11:45 – 12:00 | “Flood Risk Assessment of Buildings Based on Vulnerability Curve: A Case Study in Anji County, Zhejiang Province”
<i>Speaker:</i> Weiqiang ZHENG (Tongji) |

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Day 2 - August 26, 2023 (Saturday)

(Student Session 5)

12:00 – 12:15 “Design Method for Active Base-Isolated Structures with a Gain-Scheduled Controller and Nonlinear Viscous Dampers based on Response-Spectrum”
Speaker: Yunhao ZHANG (Tokyo Tech)

12:15 – 13:30 *Lunch break*

Lectures by Young Faculty Members: Session 1

Chairpersons: Prof. Suwen CHEN (Tongji), and Assoc. Prof. Daiki SATO (Tokyo Tech)

13:30 – 13:55 **Lecture 3**
“State-of-the-Art Review of Initial Imperfection Field Simulation Methods for Single-Layer Gridshells”
Asst. Prof. Shaojun ZHU (Tongji)

13:55 – 14:20 **Lecture 4**
“Generating DTM from DSM Using a Conditional GAN in Coastal Urban Areas of Japan”
Asst. Prof. Haruki OSHIO (Tokyo Tech)

14:20 – 14:35 *Break and Decision-Making for Best Student Presentation Awards*

14:35 – 15:00 **Closing Ceremony and Best Student Presentation Awards**

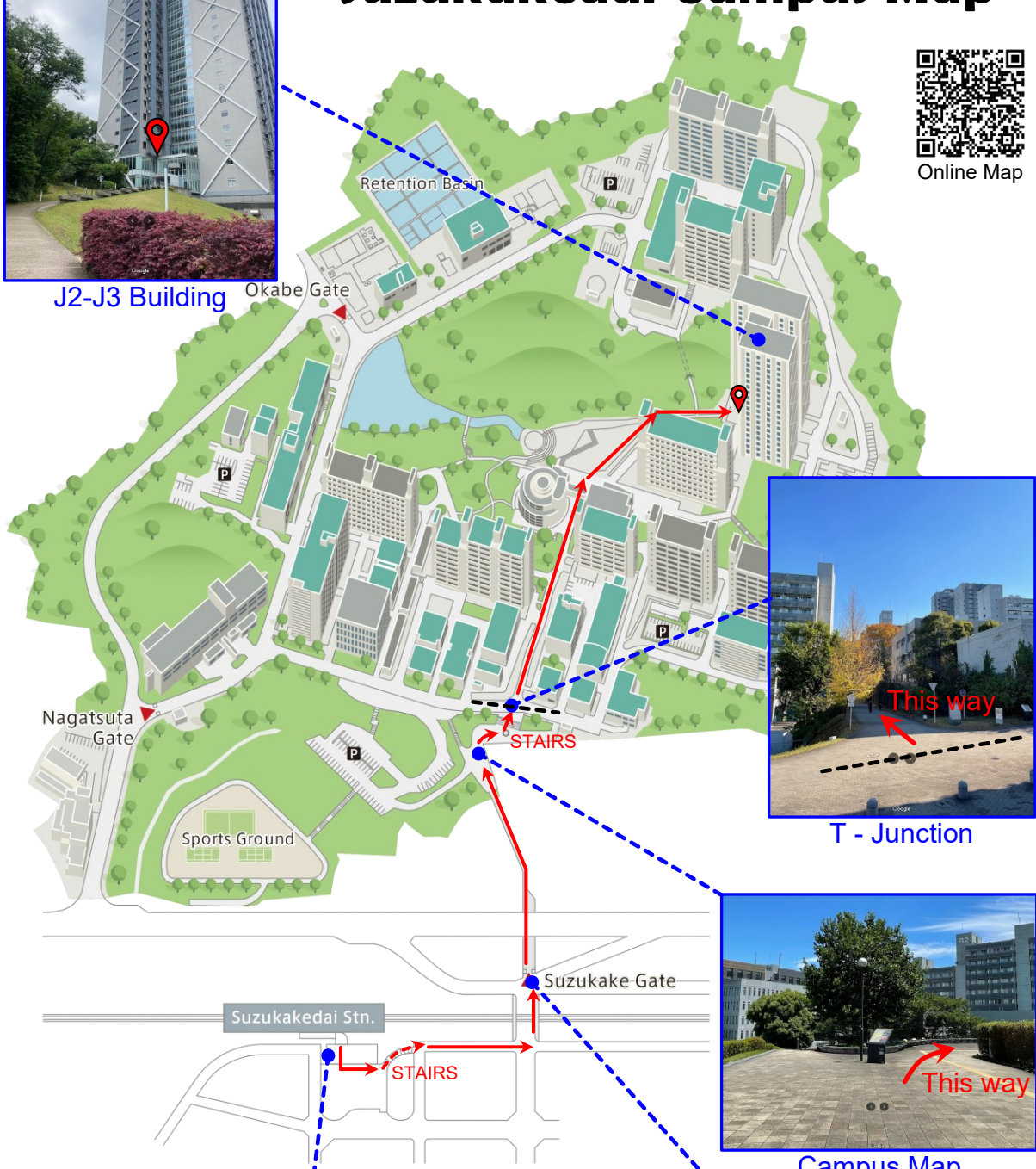
Tokyo Institute of Technology Suzukakedai Campus Map



J2-J3 Building



Online Map



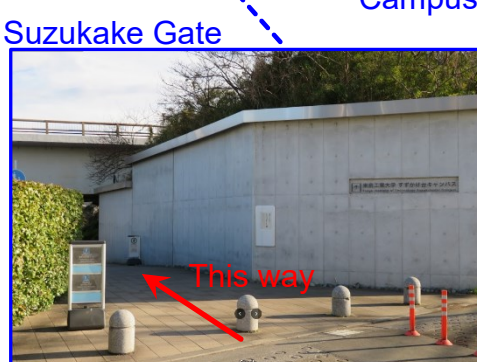
T - Junction



Campus Map



Suzukakedai Station



Suzukake Gate