



# 2025 International Conference for Analysis in Steel Industry

ICASI2025  
Sep. 11<sup>th</sup>-13<sup>th</sup>

VENUE: Tokushima University

TOKUSHIMA, JAPAN

# Program at a glance

ICASI2025							
	September 11, Thursday		September 12, Friday		September 13, Saturday		
Japan	Plenary : 40 min. Keynote : 30 min. Invite: 20 min. Oral: 15 min						
9:00	Registration (8:30-9:30, 60 minutes)		Plenary (Chair:Prof. Xiaojia Li)	P-4: Irene Calliari	Plenary (Chair:Prof. Hiromi Eba)	P-7: Pavel Pořizka	
9:30	Opening Ceremony (20 minutes)			P-5: Zhigang Yang		P-8: Zhe Wang	
10:00	Group photo & Coffee Break				P-6: Keiko Sasaki		10:20-10:40
11:00	Plenary (Chair: Prof. Yoshihiro Deguchi)	P-1: Jiang Zhao	11:00-11:20	Coffee Break		Keynote&Invited (Chair:Prof. Pavel Pofizka)	K-8: Zhenzhen Wang  I-6: Yoshihiro Deguchi
		P-2: Yunhai Jia					
		P-3: Masao Kimura			Keynote&Invited (Chair: Prof. Susumu Imashuku)		
12:00	Lunch 12:00-13:00		Lunch 12:10-13:10				
13:00	Keynote, Invited & Oral (Chair: Dr. Reiko Murao)	Canceled  K-2: Hiromi Eba  I-1: Lei Zhao  O-1: Yujiro Hayashi O-2: Yusuke Kimura	Keynote, Invited & Oral (Chair: Prof. Irene Calliari)	K-5: Xiaojia Li			
14:00				K-6: Noritaka Saito  I-4: Arinori Inagawa O-7: Shoujie Li O-8: Jiajia Hou			
15:00				14:50-15:10			Coffee Break
16:00	Keynote, Invited & Oral (Chair: Prof. Yunhai Jia)	K-3: Susumu Imashuku  I-2: Lixia Yang  O-3: Miki Soma O-4: Zhizhe Chen O-5: Changqing Shu O-6: Huaqing Qin	Keynote, Invited & Oral (Chair: Prof. Kenji Kaneko)	K-7: Haiqing Yin  I-5: Hiroyuki Matsuura  O-9: Langlang Wang O-10: Xianmao Yang O-11: Zixiong Qin O-12: Kenichiro Tsuruta			
17:00				Welcome Party 17:10-210:00  "Unique venue at Bandai-Chuo Pier" (a project of the Japan Tourism Agency)		Poster Session with dinner and drinks 17:30-20:30	
18:00							
19:00							
20:00							
21:00							

## Chairperson



***Yoshihiro Deguchi,  
Tokushima University, Japan***

## Executive-Chairperson



***Zhenzhen Wang  
Xi'an Jiaotong University, China***

## Co-Chairperson

**Yunhai Jia(China)**

**Nobuo Uehara(Japan)**

**Hitoshi Mizuguchi(Japan)**

# **International Scientific Committees**

**Bo Larsson (Sweden)**

**Wang Haizhou(China)**

**Yoshihiro Deguchi(Japan)**

**Jia Yunhai(China)**

**Vittorino Tusset (Belgium)**

**Irene Calliari (Italy)**

**Yang Zhigang(China)**

**Li Xiaojia(China)**

**Reiko Murao(Japan)**

**Philip Briggs(Australia)**

**Kazutoshi Kakita(Japan)**

**Masao Saeki(Japan)**

**Wang Peng(China)**

**Zhao Jiang(China)**

## **Local Organizing Committees**

**Yoshihiro Deguchi(Japan)**

**Nobuo Uehara(Japan)**

**Hitoshi Mizuguchi(Japan)**

**Reiko Murao(Japan)**

**Hiromi Eba(Japan)**

**Takahisa Tsugoshi(Japan)**


**Arinori Inagawa(Japan)**

**Kenji Kaneko(Japan)**




**Susumu Imashuku(Japan)**

# Plenary, Keynote and Invited Speakers

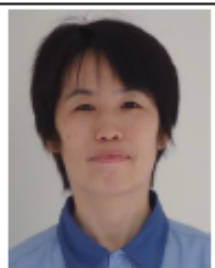

## Plenary Speakers





	<p><b>Keiko Sasaki</b> Waseda University/Science Council of Japan, Japan</p> <p>Challenges in Materials Engineering for Circular Economy</p>
	<p><b>Zhe Wang</b> Tsinghua University, China</p> <p>Carbon Neutrality and Energy System Transformation (CNEST) Program Introduction</p>
	<p><b>Pavel Pořízka</b> CEITEC Brno University of Technology, Czech republic</p> <p>LASER-INDUCED BREAKDOWN SPECTROSCOPY (LIBS) FOR IN-SITU ANALYSIS IN INDUSTRY AND SPACE</p>
	<p><b>Irene Calliari</b> Padova University, Italy</p> <p>Low-density steel for forging application: optimization and characterization</p>
	<p><b>Zhigang Yang</b> NCS TESTING TECHNOLOGY CO., LTD. , China</p> <p>Construction and Practice of Material and Testing Standard Systems</p>



	<p><b>Jiang Zhao</b> Institute of Chemistry, Chinese Academy of Sciences - ICC, CAS, China</p> <p><b>STANDARDIZATION OF MICROBEAM ANALYSIS – THE ESSENTIALS FOR STEEL QUALITY</b></p>
	<p><b>Yunhai Jia</b> NCS TESTING TECHNOLOGY CO., LTD. , China</p> <p><b>Characterization of Segregation Degree and Inclusions in Large-Scale Metallic Materials</b></p>
	<p><b>Masao Kimura</b> Institute of Materials Structure Science, High Energy Accelerator Research Organization (KEK), Japan</p> <p><b>How can we observe steel-related reactions using synchrotron radiation?</b></p>

## Keynote Speakers

	<p><b>Reiko Murao</b> Nippon Steel Corporation, Japan</p> <p><b>CHARACTERIZATION OF MULTI COMPONENT CALCIUM-FERRITES (SFCA SERIES) IN IRON ORE SINTER BY EBSD METHOD</b></p>
	<p><b>Zhenzhen Wang</b> Xi'an Jiaotong University, China</p> <p><b>Measurement Method of Different Elements in Steel Alloys Based on LIBS Technology</b></p>


	<p><b>Hiromi Eba</b> Tokyo City University, Japan</p> <p><b>MECHANISM ELUCIDATION AND EFFICIENCY IMPROVEMENT OF HYDROGEN AND AMMONIA PRODUCTION AND CO<sub>2</sub> FIXATION REACTION USING IRON</b></p>
	<p><b>Xiaojia Li</b> Chinese Society for Testing and Materials (CSTM) , China</p> <p><b>Glow Discharge Mass Spectrometry Analysis Standard for Trace Elements in Superalloys</b></p>
	<p><b>Susumu Imashuku</b> Shimane University, Japan</p> <p><b>THREE-DIMENSIONAL IONOLUMINESCENCE IMAGING OF NON-METALLIC INCLUSIONS IN STEEL</b></p>
	<p><b>Noritaka Saito</b> Kyushu University, Japan</p> <p><b>REAL-TIME SENSING AND IMAGING OF MULTIPHASE SLAGS WITH AC FIELDS</b></p>
	<p><b>Haiqing Yin</b> University of Science and Technology Beijing - USTB, China</p> <p><b>Cross-Process Integrated Computational Prediction of Properties and Data Standardization for Tire Cord Steels</b></p>

## Invited Speakers



	<p><b>Arinori Inagawa</b>  Utsunomiya University, Japan</p> <p><b>ISUALIZATION OF COLLOSION PROCESS OF  IRON MATERIALS IN CONTACT WITH FROZEN  AQUEOUS SALT SOLUTIONS</b></p>
	<p><b>Lei Zhao</b>  Beijing Key Laboratory of Metal Materials  Characterization, China</p> <p><b>High-Throughput Material Preparation and  Characterization</b></p>
	<p><b>Hiroyuki Matsuura</b>  Tokyo University, Japan</p> <p><b>INTEGRATED CHARACTERIZATION OF NON-  METALLIC INCLUSIONS GENERATED DURING  SOLIDIFICATION OF MOLTEN STEEL</b></p>
	<p><b>Peng Wang</b>  Chinese Society for Testing and Materials  (CSTM), China</p> <p><b>CSTM Material Data Standard System  Construction + ICASI Standardization Work  Proposal</b></p>
	<p><b>Lixia Yang</b>  Beijing Key Laboratory of Metal Materials  Characterization, China</p> <p><b>Omni-directional Stress Characterization of  High-Speed Railway Wheels</b></p>
	<p><b>Yoshihiro Deguchi</b>  Tokushima University, Japan</p> <p><b>Advanced Analysis and Control of Industrial  Processes with Digital Twin Integrating Laser  Diagnostics and CFD</b></p>

# Program - oral -

<b>2025 International Conference for Analysis in Steel Industry</b>  <b>ICASI2025</b> <a href="https://conference-lab.org/ICASI2025/index.html">https://conference-lab.org/ICASI2025/index.html</a> <b>Date: September 11-13, 2025</b>			
<b>Plenary Presentation (P-1~8) : 40 min.</b> <b>Keynote Presentation (K-1~8) : 30 min.</b> <b>Invited Presentation (I-1~6) : 20 min.</b> <b>Oral Presentation (O-1~12) : 15 min.</b>			
<b>Thursday 11th</b>			
<b>9:30-10:00 Opening, Photo</b>			
<b>Plenary Presentation, ROOM-A</b>			
P-1	10:00-10:40	Jiang Zhao	STANDARDIZATION OF MICROBEAM ANALYSIS – THE ESSENTIALS FOR STEEL QUALITY
P-2	10:40-11:20	Yunhai Jia	Characterization of Segregation Degree and Inclusions in Large-Scale Metallic Materials
P-3	11:20-12:00	Masao Kimura	How can we observe steel-related reactions using synchrotron radiation?
<b>12:00-13:00 Lunch</b>			
<b>Keynote, Invited, Oral Presentation, ROOM-B</b>			
K-1	13:00-13:30	Canceled	
K-2	13:30-14:00	Hiromi Eba	MECHANISM ELUCIDATION AND EFFICIENCY IMPROVEMENT OF HYDROGEN AND AMMONIA PRODUCTION AND CO <sub>2</sub> FIXATION REACTION USING IRON
I-1	14:00-14:20	Lei Zhao	High-Throughput Material Preparation and Characterization
O-1	14:20-14:35	Yujiro Hayashi	LAMINOGRAPHIC THREE-DIMENSIONAL X-RAY DIFFRACTION MICROSCOPY
O-2	14:35-14:50	Yusuke Kimura	THREE DIMENSIONAL OBSERVATION METHOD FOR NON-METALLIC INCLUSIONS
<b>14:50-15:10 Coffee Break</b>			
<b>Keynote, Invited, Oral Presentation, ROOM-B</b>			
K-3	15:10-15:40	Susumu Imashuku	THREE-DIMENSIONAL IONOLUMINESCENCE IMAGING OF NON-METALLIC INCLUSIONS IN STEEL

I-2	15:40-16:00	Lixia Yang	Omni-directional Stress Characterization of High-Speed Railway Wheels
O-3	16:00-16:15	Miki Soma	QUANTITATIVE RECOVERY OF BARIUM SULFATE IN GRAVIMETRIC ANALYSIS OF SULFUR IN STEEL
O-4	16:15-16:30	Zhizhe Chen	Advanced Plasma Measurement and Simulation Methods
O-5	16:30-16:45	Changqing Shu	Physics-Enhanced Machine Learning for Predicting Strength of High-Carbon Chromium Steel during Thermomechanical Processing and Spheroidizing Annealing
O-6	16:45-17:00	Huaqing Qin	Accuracy Improvement of Coal Quality Analysis Across Different LIBS systems by Transfer Learning
<b>Friday 12th</b>			
<b>Plenary Presentation, ROOM-A</b>			
P-4	9:00-9:40	Irene Calliari	Low-density steel for forging application: optimization and characterization
P-5	9:40-10:20	Zhigang Yang	Construction and Practice of Material and Testing Standard Systems
P-6	10:20-11:00	Keiko Sasaki	Challenges in Materials Engineering for Circular Economy
<b>11:00-11:20 Coffee Break</b>			
<b>Keynote, Invited, Oral Presentation, ROOM-B</b>			
K-4	11:20-11:50	Reiko Murao	CHARACTERIZATION OF MULTI COMPONENT CALCIUM-FERRITES (SFCA SERIES) IN IRON ORE SINTER BY EBSD METHOD
I-3	11:50-12:10	Peng Wang	CSTM Material Data Standard System Construction + ICASI Standardization Work Proposal
<b>12:10-13:10 Lunch</b>			
<b>Keynote, Invited, Oral Presentation, ROOM-B</b>			
K-5	13:10-13:40	Xiaojia Li	Glow Discharge Mass Spectrometry Analysis Standard for Trace Elements in Superalloys
K-6	13:40-14:10	Noritaka Saito	REAL-TIME SENSING AND IMAGING OF MULTIPHASE SLAGS WITH AC FIELDS
I-4	14:10-14:30	Arinori Inagawa	VISUALIZATION OF COLLOSION PROCESS OF IRON MATERIALS IN CONTACT WITH FROZEN AQUEOUS SALT SOLUTIONS
O-7	14:30-14:45	Shoujie Li	High-throughput and 3D microanalysis of steel segregation using picosecond laser-induced breakdown spectroscopy

O-8	14:45-15:00	Jiajia Hou	CHARACTERIZATION AND CORRECTION METHODS OF SELF-ABSORPTION EFFECT IN LASER-INDUCED BREAKDOWN SPECTROSCOPY
<b>15:00-15:20 Coffee Break</b>			
<b>Keynote, Invited, Oral Presentation, ROOM-B</b>			
K-7	15:20-15:50	Haiqing Yin	Cross-Process Integrated Computational Prediction of Properties and Data Standardization for Tire Cord Steels
I-5	15:50-16:10	Hiroyuki Matsuura	INTEGRATED CHARACTERIZATION OF NON-METALLIC INCLUSIONS GENERATED DURING SOLIDIFICATION OF MOLTEN STEEL
O-9	16:10-16:25	Langlang Wang	Plasma State and Analytical Performance Enhancement of LS-DP-LIBS for Multi-Element Analysis in Steel Samples
O-10	16:25-16:40	Xianmao Yang	A NOVEL PARTICLE FLOW STATE CONSTRAINT METHOD FOR ENHANCING LIBS PERFORMANCE IN COAL PARTICLE ANALYSIS
O-11	16:40-16:55	Zixiong Qin	Real-time Monitoring of Multiple Elements in Molten Steel Based on Multi-spectral LIBS Spectrometer
O-12	16:55-17:10	Kenichiro Tsuruta	TRIAL OF 3-DIMENSIONAL OBSERVATION OF REFRACTORY ERROSION BEHAVIOR UNDER SIMULATED DRI MELTING PROCESS CONDITIONS
<b>Saturday 13th</b>			
<b>Plenary Presentation, ROOM-A</b>			
P-7	9:00-9:40	Pavel Pořizka	LASER-INDUCED BREAKDOWN SPECTROSCOPY (LIBS) FOR IN-SITU ANALYSIS IN INDUSTRY AND SPACE
P-8	9:40-10:20	Zhe Wang	Carbon Neutrality and Energy SystemTransformation (CNEST) ProgramIntroduction
<b>10:20-10:40 Coffee Break</b>			
<b>Keynote, Invited, Oral Presentation, ROOM-B</b>			
K-8	10:40-11:10	Zhenzhen Wang	Measurement Method of Different Elements in Steel Alloys Based on LIBS Technology
I-6	11:10-11:30	Yoshihiro Deguchi	Advanced Analysis and Control of Industrial Processes with Digital Twin Integrating Laser Diagnostics and CFD

# Program - poster –

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## ICASI2025

<https://conference-lab.org/ICASI2025/index.html>

**Date: September 11-13, 2025**

<b>Poster Session (IP-XX) : Friday 12th 17:30-20:00</b> <b>Poster : W1.2m×H1.8m</b> <b>( * : student poster presentation)</b>		
IP-01	Yasutada Suzuki	DEVELOPMENT OF A PHOTOMETRIC TITRATOR USING A WHITE-COLOR LED AND AN RGB COLOR SENSOR FOR IRON AND STEEL ANALYSIS
IP-02*	Taishi Kitamura	REDOX BEHAVIOR OF DIPHENYLAMINE IN VANADIUM ANALYSIS OF STEEL
IP-03*	Daina Numao	TIFICATION BY REDOX TITRATION UTILIZING SUBSTANCE DIFFUSION AT BIAQUEOUS INTERFACE
IP-04*	Musashi Fujisawa	LEACHING BEHAVIOR OF INORGANIC AND ORGANIC COMPONENTS FROM MORTAR BLOCKS CONTAINING SLAG AND WOOD CHIPS AS FINE AGGREGATES
IP-05*	Yuki Soma	LEACHING OF MANGANESE(II) IONS FROM STEEL-MAKING SLAGS WITH STRONG ACID SOLUTIONS AND X-RAY ANALYSES OF RESULTING SLAGS
IP-06*	Ryota Yamasaki	REASSESSMENT OF UV-VIS SPECTROMETRIC METHODS FOR TRACE DETERMINATION OF SILICON AND TUNGSTEN IN STEEL
IP-07*	Hiroki Kitabayashi	DEVELOPMENT OF A PRINT TEST METHOD TO VISUALIZE COPPER SEGREGATION IN RECYCLED STEEL MATERIALS
IP-08*	Yudai Hase	DEVELOPMENT OF LIBS MULTIPLE SPECTRUM SPECTROMETER
IP-09*	Yuusaku Kurio	Development of industrial remote LIBS technology using autofocus technology
IP-10*	Shoya Tabata	CT-TDLAS application for total leak amount using digital twin
IP-11*	Keito Arisawa	DEVELOPMENT OF LIBS MAPPING TECHNOLOGY USING MICROSCOPE
IP-12*	Yunosuke Aida	Analysis of chemical configuration and morphology of Mn in steel slag using X-ray absorption spectroscopy
IP-13*	Yizhuo Chen	Acceleration of Iron-Mediated Hydrogen Production and CO <sub>2</sub> Fixation by Addition of Soluble Carbonates
IP-14*	Changqing Shu	Physics-Enhanced Machine Learning for Predicting Strength of High-Carbon Chromium Steel during Thermomechanical Processing and Spheroidizing Annealing
IP-15*	Miki Soma	QUANTITATIVE RECOVERY OF BARIUM SULFATE IN GRAVIMETRIC ANALYSIS OF SULFUR IN STEEL
IP-16*	Kenichiro Tsuruta	TRIAL OF 3-DIMENSIONAL OBSERVATION OF REFRACTORY ERROSION BEHAVIOR UNDER SIMULATED DRI MELTING PROCESS CONDITIONS
IP-17*	Langlang Wang	Analytical Performance Improvement of LIBS for Multi-Element Analysis in Steel Samples: A Comparison of Different Pulse Modes and Sampling Approaches



# Welcome Party: September 11

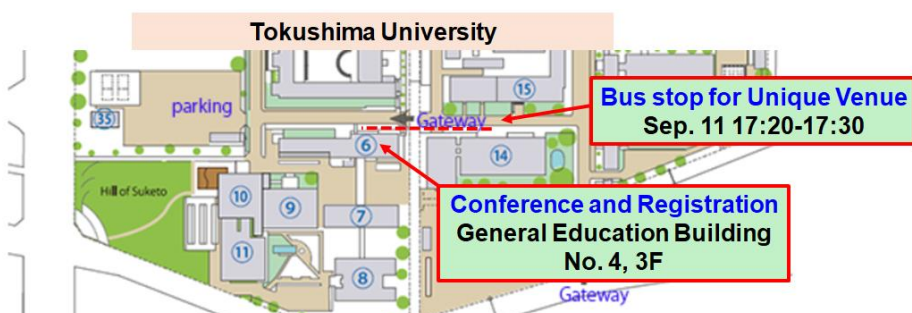
## 「Urban Development x MICE」 Unique Venue at Bandai-Chuo Pier



～ICASI2025 Welcome Party 「Pier MICE」～

**Departure time:17:30 (by bus)**

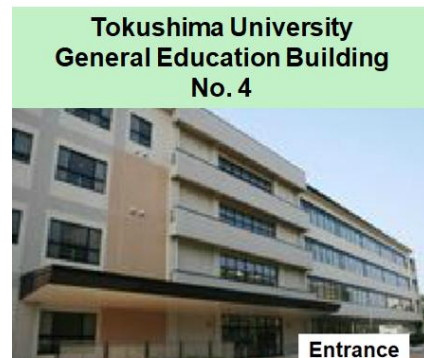
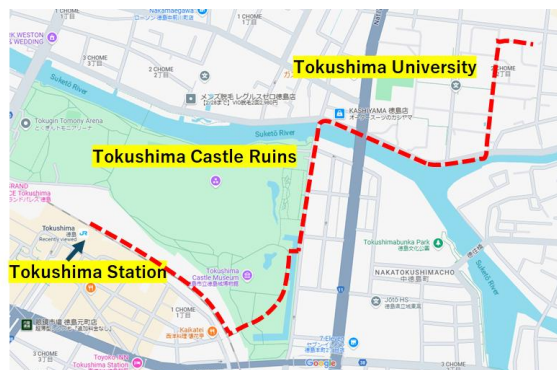
**From the conference site to  
Unique Venue at Bandai-Chuo Pier**



# Conference Venue

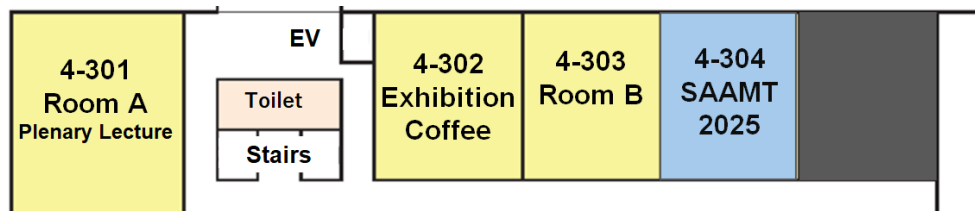
Conference venue: Tokushima University  
Josanjima Area

<https://www.tokushima-u.ac.jp/english/campusmap/index.html#josanjima>



## Conference and Registration :

General Education Building NO.4 3<sup>rd</sup> floor



## Poster Session

Kirara 2<sup>nd</sup> floor



## **Organized by**

**The Iron and Steel Institute of Japan**

## **Sponsors**

**International Community for Analysis in Steel Industry**

**Hyuga Memorial Grant for International Conference**

**Tokushima University**

**Japan Tourism Agency**

**Japan National Tourism Organization(JNTO)**

**Tokushima Prefecture Tourism Organization**

**Japan LIBS Community**

# TOKUSHIMA JAPAN

2025 International Conference for Analysis in Steel Industry



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Venue: Tokushima, Japan



Organized by: The Iron and Steel Institute of Japan

Jointly with SAAMT2025 (10<sup>th</sup> Symposium on Applications of Advanced Measurement Technologies)