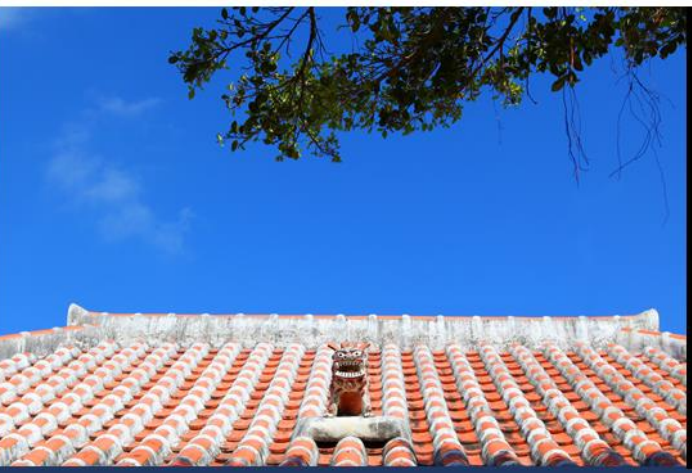
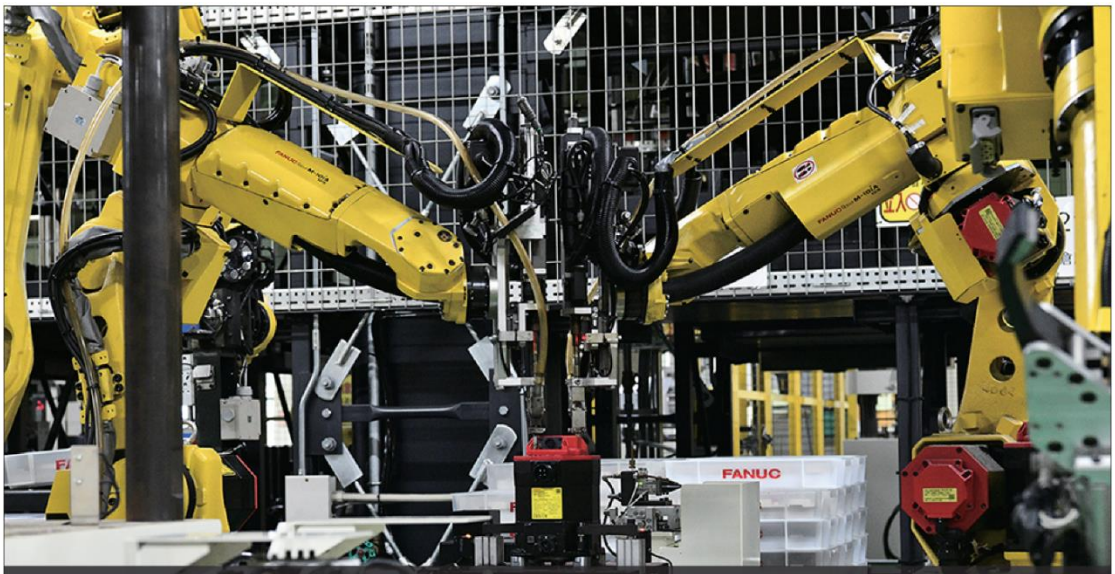
The11th International Conference on Leading Edge Manufacturing in 21st Century

December 1 - 5, 2025 Itoman, Okinawa, Japan





支えるのは、「工場の自動化」の未来。

NEW PRODUCTS

ファナックの新商品ラインアップ

最新の CNC・サーボとデジタルツイン

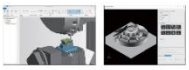
第 67 回 日刊工業新聞 十大新製品賞 本賞
新しい市場要求に対応する最新 CNC

FANUC Series 500*i*-A

第 66 回 日刊工業新聞 十大新製品賞 本賞
高速・高精度・省エネルギーの新世代サーボシステム

αi-D series SERVO

削る前に判る現場を変える



FANUC Smart Digital Twin

製造現場のデータを読み解き改善に導く IoT

工場のデータを収集・分析・活用し、課題を洗い出し対策を見つけることで工場の生産性向上を支援いたします。

FIELD system Basic Package

人手不足はファナックロボットで解決！

初めてでもすぐに使える協働ロボット

CRX-5*i*A　CRX-10*i*A　CRX-30*i*A

世界初！防爆協働ロボット

CRX-10*i*A/L Paint

様々な可搬質量の食品対応ロボット

LR Mate/10-11A　M-710/70-21D

24 時間連続稼働が可能なスカラロボット

SR-9*i*A/R

ウェット加工も可能な高剛性・高精度ロボット

M-810/270-27B

高可搬、ロングリーチの新大型ロボット

M-1000/550F-46A

サイバーセキュリティ対応ロボット制御装置

R-50*i*A B-cabinet

R-50*i*A Mate

R-50*i*A A-cabinet

軽量教示操作盤

自動化を推進し、生産性を向上するロボマシン

ROBODRILL DC series

ROBOSHOT SC series

ROBOCUT α-C*i*C series

「止まらない工場」を目指すファナックのサービス

Service First

ファナックは「サービスファースト」の精神のもと、世界２８０以上のサービス拠点から、100 カ国以上で保守サービスを提供し、お客様の生産設備の安定稼働に貢献します。

生涯保守　世界中のお客様の高い稼働率に貢献いたします。

FANUC

『ものづくりサービス』の力で
社会に貢献する

「地球温暖化抑制」、「働き方改革（ワークライフバランス）」、「人手不足」
様々な「今」と「未来」の課題に向き合い、可能性を切り拓くものづくりへ。
世界中のお客様のより良い未来の実現のために、私たちは応え続けます。

OPEN POSSIBILITIES

OKUMA

オークマ株式会社 www.okuma.co.jp

OPEN POSSIBILITIES

Welcome to Okinawa

We are pleased to announce that the International Conference on Leading Edge Manufacturing in 21st Century (LEM21) will be held in Itoman, Okinawa, which is well-known as “Uminchu (Fisherman) City". This conference has been continuously held every two years, and it has been providing opportunities for researchers and engineers to exchange new ideas and to establish relations for collaboration.

Acknowledgements

Sponsors

FANUC

OKUMA

DMG MORI

MAKINO

Yushiro

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Nakamura-Tome

Nidec

MITSUI SEIKI

Photonic Lattice

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工作機械技術振興財団

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大澤科学技術振興財団

Welcome Message from the Conference Chair of LEM21

General Chair

Dr. Masako Sudo

Chief Technical Advisor, Fanuc Corporation

Dear Colleagues, Friends, and First-time Visitors,

On behalf of the conference chairs and the organizing committee, it is our great pleasure to welcome you to the 11th International Conference on Leading Edge Manufacturing in the 21st Century (LEM21), held on December 1–5, 2025, in Itoman, Okinawa, Japan. The conference of LEM21 is organized and sponsored by the Manufacturing and Machine Tool Division of the Japan Society of Mechanical Engineers (JSME).

Since its inception in 1997, LEM21 has served as a platform for researchers and engineers worldwide to share cutting-edge knowledge and foster collaboration. This year, we gather in Okinawa, a region celebrated for its beautiful nature, UNESCO World Heritage sites, and unique culture and history. Known as “Uminchu City”, Itoman embodies resilience and craftsmanship—values that resonate deeply with the manufacturing community.

Okinawa’s rich cultural heritage and its beautiful environment offer participants a refreshing break from daily routines, creating an ideal setting for networking and inspiring new collaborations. We encourage you to take advantage of this opportunity to experience the harmony of advanced technology discussions and the serene beauty of Okinawa.

The conference features 13 organized sessions, covering topics from advanced machine tools and smart manufacturing to additive manufacturing and nano/micro technologies. We believe these sessions will provide invaluable insights and stimulate new ideas for future developments. Beyond technical discussions, we expect this conference to serve as a catalyst for strong industry–academia partnerships and the creation of innovative solutions that will shape the future of manufacturing.

We sincerely thank all participants, supporting members, and sponsors for making this event possible. We hope you enjoy not only the academic program but also the unique beauty and hospitality of Okinawa.

Conference Chairs and Organizing Committee List

- **General Chair**

  Masako Sudo, Chief Technical Advisor, Fanuc Corporation

- **Conference Co–chairs**

  Hiroyuki Sasahara, Professor, Tokyo University of Agriculture and Technology

  Kazumasa Kono, General Manager, Makino Milling Machine Co.,Ltd

  Takashi Matsumura, Professor, Tokyo Denki University

  Yasuhiro Takaya, Professor, Osaka University

- **Program Committee**

  Yasuhiro Kakinuma, Professor, Keio University (Program Chair)

  Ryo Koike, Associate Professor, Keio University (Program Secretary)

  Shuntaro Yamato, Associate Professor, Tokyo University of Agriculture and Technology (Program Secretary)

- **Secretaries**

  Norikazu Suzuki, Professor, Kobe University

  Shoichi Tamura, Professor, Tokyo Denki University

- **Executing Committee**

  Shingo Tajima, Senior Assistant Professor, Meiji University

  Ken Shimojima, Associate Professor, National Institute of Technology (Okinawa)

  Yasuhiro Mizutani, Associate Professor, Osaka University

  Atsushi Ezura, Associate Professor, Sanjo City University

Practical Information

● Venue

Kukuru Itoman

(Shabon-dama Sekken Kukuru Itoman, Itoman City Tourism & Cultural Exchange Center)
1-1-2 Shiozaki-cho, Itoman-shi, Okinawa 901-0364, Japan

Google Map

Access
(Japanese website)

Official Website

https://www.kukuru-itomancity.jp/

The venue is located next to Itoman City Hall and can be easily recognized by the large "Shabon-chan" sign. It features a spacious hall and multiple facilities suitable for plenary sessions, parallel sessions, poster exhibitions, and receptions.

Access

Public transportation routes may vary depending on time and transit connections. To avoid confusion on the day of travel, we encourage all participants to check their route in advance using Google Maps or similar tools. Typical examples are provided below for reference.

➢ **From Naha Airport (OKA)**

By Taxi / Rental Car : Approx. 20 minutes. Typical fare: 3,000–4,000 JPY.

By Tokyo Bus : Harley Express (TK01, express bus, 30 min),
Umikaji Liner (TK02, 60 min)

By Naha/Ryukyul Bus : Routes 189 (45 min), get off at Itoman City Hall entrance (糸満市役所入口) bus stop: 12 minutes on foot

You can check the bus timetable via the QR code on the right.
https://www.tokyobus.jp/okinawa/wp-content/themes/tokyobus-okinawa/img/one-city-bus01/tk0102-en202404.pdf

➢ **From Naha City Center (Kokyusai-dori / Kencho-mae)**

By Taxi / Rental Car : Approx. 40 minutes.

By Tokyo Bus : Harley Express (TK01, express bus, 40 min), Umikaji Liner (TK02, 65+ min), Get off at Itoman City Hall (糸満市役所) bus stop: 3 minutes on foot

By Naha/Ryukyu Bus : Route 89 (~55–65 min), Get off at Itoman City Hall entrance (糸満市役所入口) bus stop: 12 minutes on foot

➢ **From Bus Stop to Kukuru Itoman**

Rental Car

Renting a car is highly convenient for exploring Okinawa beyond the conference venue. However, for sustainability, we encourage participants to share rides or use public transportation whenever possible. If you choose to rent a car, please see the following information:

・The venue is easily accessible via local roads; no expressway is needed.

・Rental services are available at Naha Airport and in central Naha.

・Foreign drivers require an International Driving Permit (IDP).

・Please note that drive is on the left side in Japan.

General Information

- Visa : Check requirements with your nearest Japanese embassy or consulate.
- Climate : December is mild (18–23 °C). A light jacket is recommended.
- Currency : Japanese Yen (JPY). Credit cards widely accepted; some small shops are cash only.
- Electricity : 100 V, Type-A plug.
- Language : Japanese is the official language; English is generally understood in hotels and tourist areas.

Around the Venue

- Restaurants and convenience stores are within walking distance.
- Lunch options (Japanese, Okinawan, and international cuisine) are available nearby.
- Foreign drivers require an International Driving Permit (IDP).
- Complimentary Wi-Fi will be available inside the venue.

Registration desk

Location

1F, Kukuru Itoman – Itoman City Tourism and Cultural Exchange Center

Opening hours

	Desk	Cloak
Monday, December 1	15:00 – 17:00	–
Tuesday December 2	9:00 – 18:15	8:45 – 18:15
Wednesday, December 3	9:00 – 17:00	9:00 – 17:00
Thursday, December 4	9:00 – 17:10	9:00 – 17:10

On-site registration fees

Please note that on-site registration is available; however, only credit card payments will be accepted. The registration fees are listed below.

Regular participant (JSME member)	80,000 JPY
Regular participant (Non-member)	85,000 JPY
Student JSME member	40,000 JPY (incl. banquet) 25,000 JPY (banquet not included)
Student (Non-member)	50,000 JPY (incl. banquet) 25,000 JPY (banquet not included)

Badge Colors and Participation Categories

The participation category for each attendee can be identified by the color of the conference badge.

- **Green** – Standard registration (includes banquet)
- **Blue** – Student registration (includes banquet)
- **Red** – Student registration (banquet not included)

Lunch and coffee breaks

Lunches and coffee breaks are included in the conference registration fee. Lunches (lunch boxes) will be served **in the foyer at lunchtime**. Coffee will be served **in the foyer during the coffee breaks**.

Wi-Fi Usage Notice

Wi-Fi is available throughout the venue, but each room has a different SSID and password. Please connect using the appropriate settings for your current room.

Room / Area	SSID	Password
Communication lobby area	ITOMAN GUEST	kukuru2500
Conference Room 1	ITOMAN HOLE	h7UDXdEn
Conference Room 2	ITOMAN TAMOKUTEKI	TT6F5zzE
Conference Room 3	ITOMAN KAIGI 1	A53ggK79
Conference Room 4	ITOMAN KAIGI 2	s3HM5Ee6
Conference Room 5	ITOMAN KAIGI 3	E5HW7bBb
Conference Room 6	ITOMAN KATSUDOU 2	N68TXMxj

Oral presentations

- Each paper will be presented for 20 minutes;
  15 minutes for the oral presentation and 5 minutes for discussion.
- OS invited papers, the total time is 25 minutes;
  20 min. for the presentation and 5 min. for discussion

Please bring your own laptop computer capable of connecting to the projector via HDMI. Presenters will use their own laptop for the presentation in the session room. Please ensure that your laptop has:

- HDMI output (or bring an appropriate adapter)
- AC adapter / power supply

Please check your connection and ensure that your presentation works properly before your session begins.

Poster presentations

Core Time

Odd-numbered posters: December 2 (Tue.), 11:15–12:15 JST

Even-numbered posters: December 3 (Wed.), 11:15–12:15 JST

Venue

Organized Poster Session (OPS) : Foyer in front of Room 1

General Poster Session (GPS) : Open space in the Communication Lobby

(GPS is open to the public, and non-registered visitors are welcome to attend.)

Please mount your poster on the assigned panel (according to your poster number) **by the morning of December 2**. Posters should be attached using thumbtacks only. Tape is not permitted. During the poster session (core time), at least one author must stand by the poster to explain the work and engage in discussion.

Welcome Reception on December 1

Room 2 (Main Venue), Foyer & Lobby (Sub Venues)

We are pleased to invite all participants to the Welcome Reception on the evening of the first day. Light meals and a selection of beverages, including both alcoholic and non-alcoholic drinks, will be served. This informal gathering offers a relaxed atmosphere where attendees can meet new colleagues, reconnect with old friends, and begin building networks that will enrich their conference experience.

We warmly encourage your participation and hope you enjoy this opportunity for academic and industrial networking.

Farewell Party on December 4

Room 2 (Main Venue), Foyer & Lobby (Sub Venues)

On the final evening of the conference, we will host **the Farewell Party** to celebrate the successful completion of this year's meeting. During the event, we will present **awards for outstanding presentations**, recognizing the excellent contributions made throughout the conference. Light refreshments and drinks (both alcoholic and non-alcoholic) will be provided.

We invite you to join us as we reflect on the conference, strengthen professional connections, and enjoy a pleasant and friendly closing gathering.

We look forward to your participation.

Banquet Venue

Ryukyu Hotel & Resort Nashiro Beach

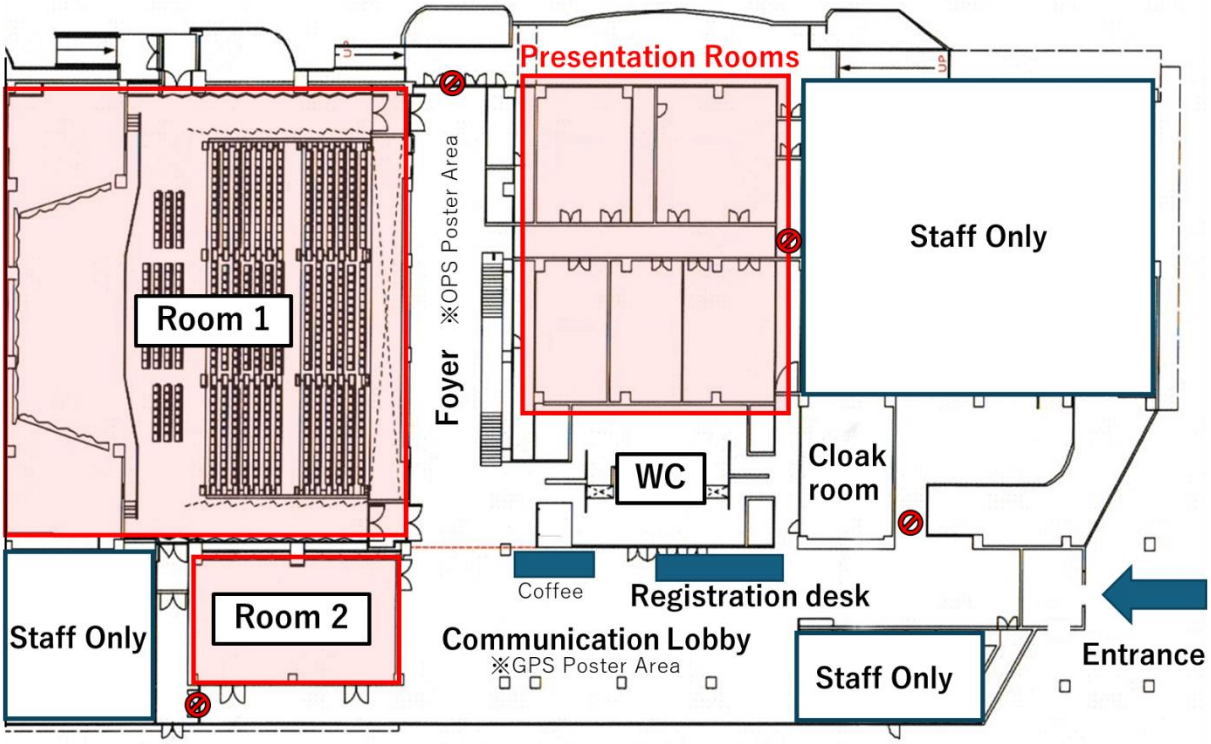
963 Nashiro, Itoman, Okinawa 901-0351, Japan

(Approx. 10 minutes by car from the main venue, Kukuru Itoman.)

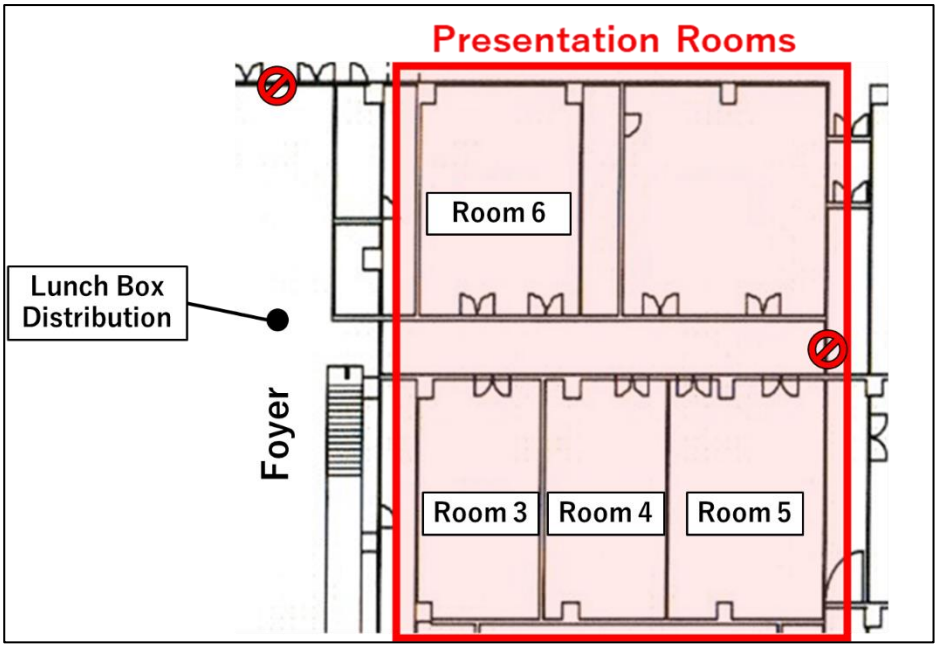
Hotel website

Shuttle buses to the banquet venue will be arranged. Shuttle buses will depart sequentially from 16:15 **on December 3**. Additional information will be announced at the venue.

● Floor Map



※ **Inset Map**



Parking

- **Main Lot** : ~70 spaces (including accessible parking)
- **Second Lot** : ~140 spaces (~8 minutes on foot, opened during large events)

Parking is free but limited. We recommend using car-sharing or public transport. If attending from the same organization, please cooperate by carpooling whenever possible.

Additional Notes

For details on venue access and travel information, please refer to the conference website via the QR code provided below.

Plenary Lectures

December 2, 2025 (Tue)

Prof. Sung-Hoon Ahn
President of KSPE
Department of Mechanical and Aerospace Engineering, Seoul National University, Korea

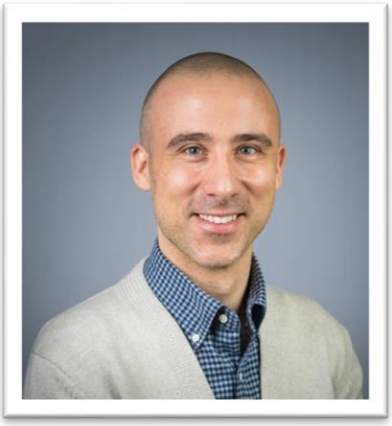
EASIER: Appropriate Smart Manufacturing and Robotics

Biography:

Professor Sung-Hoon Ahn is a distinguished Professor of Mechanical Engineering at Seoul National University and the 30th President of the Korean Society for Precision Engineering (KSPE). He specializes in smart materials, soft robotics, and smart manufacturing, and leads both the Innovative Design and Integrated Manufacturing Lab and the Institute of Advanced Machines and Design. Dr. Ahn received his Ph.D. from Stanford University in 1997 and has published over 320 journal papers with more than 28,000 citations (Google H-Index 80). He is recognized for his pioneering work on human-robot interaction and integrated manufacturing systems, is a Fellow of CIRP, Head of International Cooperation at the Korean Academy of Science and Technology, Associate Member of the National Academy of Engineering of Korea, and Fellow of the Academic Society for Appropriate Technology.

Plenary Lectures

December 2, 2025 (Tue)



Prof. Burak Sencer

Associate Professor, School of Mechanical, Industrial, and Manufacturing Engineering, Oregon State University (OSU), USA

Conference co-chair of the ASME MSEC 2027 (co-located with LEM&P 2027 at OSU)

Self-Optimizing Machine Tools: Advancing Speed, Stability, and Accuracy

Biography:

Dr. Sencer received his MS and PhD degrees from the University of British Columbia under Prof. Yusuf Altintas in 2009, followed by a JSPS post-doctoral fellowship at Nagoya University under Prof. Eiji Shamoto. He is currently Associate Professor at OSU, where his laboratory focuses on machine tool dynamics and control, machining, process control, and robotics. He has secured over $10M in research grants as PI/co-PI, published more than 100 refereed papers, and received awards including best paper prizes from JSPE and the ASME Blackall Machine Tool and Gage Award. He has held leadership positions at ASME and ASPE, and will co-chair the ASME MSEC 2027 conference at OSU.

Plenary Lectures

December 3, 2025 (Wed)

Prof. Berend Denkena
President of CIRP (2024-2025)
Institute of Production Engineering and Machine Tools (IFW), Leibniz University Hannover, Germany

Driving sustainability through advanced manufacturing research

Biography:

Berend Denkena is the full-time Institute Director and Chair of Production Engineering and Machine Tools at Leibniz University Hannover in Germany. Denkena is a trained machinist and a mechanical engineer. In 1992, after completing his doctorate in Hannover, he went into the machine tool industry as a design engineer and later head of various research and development teams in Germany and the USA. From 1996 to 2001, Denkena headed product development and engineering at GILDEMEISTER Turning Machines, now part of the DMG MORI Group. In 2002, after ten exciting years in industry, he returned to the University in the above-mentioned position. Denkena is an enthusiastic scientist, inventor and developer of machine tools and related technologies. His passion belongs to innovative concepts for machine tools including their further development towards more autonomy as well as future tools and manufacturing processes, and solutions for a more sustainable manufacturing. Denkena is a Member of the International Academy of Production Engineering (CIRP), the German Academic Association for Production Technology (wgp) and the National Academy of Science and Technology (acatech).

Plenary Lectures

December 3, 2025 (Wed)

Dr. Yasusuke Iwashita
Executive Engineer, FANUC Corporation, Japan

High efficiency of design and process of machine tool using CNC Digital Twin

Biography:

Dr. Iwashita has been engaged in the research and commercialization of CNC control systems for general machine tools, as well as servo and spindle motor control at FANUC since graduating from the University of Tokyo in 1986. He has contributed to the development of high-speed, high-precision machining technologies through servo system design and machine tool feed axis control. He received his PhD in 2019 for research on machine characteristics measurement and servo control. Currently, he works on advanced CNC command generation for 5-axis and multi-tasking machines, and is developing CNC digital twin technologies integrating servo system models for realistic machine tool simulation.

- **Program URL**

  For detailed program information, please access the URL or QR code provided:

  https://sites.google.com/go.tuat.ac.jp/lem21-2025-program

- Program at glance

December 1

Monday, December 1st		
start	end	**[Conference venue]**
15:00	17:00	Registration Desk Opens
17:00	19:00	Welcome Reception (Conference venue)

December 2

Tuesday December 2nd							
Program:		*Opening Remarks, Plenary Lecture 1&2, Poster Session 1*					
start	end	**[Room 1]**					
8:45	9:15	Registration Desk Opens					
9:15	9:30	Opening Remarks					
9:30	10:15	Plenary Lecture 1 (Prof. Sung-Hoon Ahn)					
10:15	11:00	Plenary Lecture 2 (Prof. Burak Sencer)					
11:15	12:15	Poster Session 1 with Coffee					
12:15	13:30	Lunch Break					
Program:		*Technical Session 1*					
start	end	**[Room 1]**	**[Room 2]**	**[Room 3]**	**[Room 4]**	**[Room 5]**	**[Room 6]**
13:30	13:50	OS05-1	OS12-1	OS08-1	OS01-1	OS9&10-1 (Invited, ~13:55)	OS04-1
13:50	14:10	OS05-2	OS12-2	OS08-2	OS01-2	OS9&10-2 (~14:15)	OS04-2
14:10	14:30	OS05-3	OS12-3	OS08-3	OS01-3	OS9&10-3 (~14:35)	OS04-3
14:30	14:50	OS05-4	OS12-4	OS08-4	OS01-4	OS9&10-4 (~14:55)	OS04-4
14:50	15:10	OS05-5	OS12-5	OS08-5	OS01-5	OS9&10-5 (~15:15)	OS04-5
15:10	15:30	OS05-6	OS12-6	OS08-6	OS01-6	OS9&10-6 (~15:35)	OS04-6
15:30	16:00	Coffee Break					
16:00	16:20	OS05-7	OS07-1 (Invited, ~16:25)	OS08-7	OS01-7	OS9&10-7	OS04-7
16:20	16:40	OS05-8	OS07-2 (~16:45)	OS08-8	OS01-8	OS9&10-8	OS04-8
16:40	17:00	OS05-9	OS07-3 (~17:05)	OS08-9	OS01-9	OS9&10-9	OS04-9
17:00	17:20	OS05-10	OS07-4 (~17:25)	OS08-10	OS01-10	OS9&10-10	OS04-10
17:20	17:40	OS05-11	OS07-5 (~17:45)	OS08-11	OS01-11	OS9&10-11	OS04-11
17:40	18:00		OS07-6 (~18:05)			OS9&10-12	

December 3

Wednesday, December 3rd							
Program:		***Prenary Lecture 3&4, Poster Session 2***					
start	end	**[Room 1]**					
9:00	9:30	Registration Desk Opens					
9:30	10:15	Plenary Lecture 3 (Prof. Berend Denkena)					
10:15	11:00	Plenary Lecture 4 (Dr. Yasusuke Iwashita)					
11:15	12:15	Poster Session 2 with Coffee					
12:15	13:30	Lunch Break					
Program:		***Technical Session 2***					
start	end	**[Room 1]**	**[Room 2]**	**[Room 3]**	**[Room 4]**	**[Room 5]**	**[Room 6]**
13:30	13:50	OS05-12	OS07-7	OS08-12	OS01-12	OS11-1	OS04-12
13:50	14:10	OS05-13	OS07-8	OS08-13	OS01-13	OS11-2	OS04-13
14:10	14:30	OS05-14	OS07-9	OS08-14	OS01-14	OS11-3	OS04-14
14:30	14:50	OS05-15	OS07-10	OS08-15	OS01-15	OS11-4	
14:50	15:10	Coffee Break					
15:10	15:30	OS05-16	OS05-20	OS13-1 (Invited, ~15:35)	OS06-1	OS11-5	OS03-1 (Invited, ~15:35)
15:30	15:50	OS05-17	OS05-21	OS13-2 (~15:55)	OS06-2	OS11-6	OS03-2 (~15:55)
15:50	16:10	OS05-18	OS05-22	OS13-3 (~16:15)	OS06-3	OS11-7	OS03-3 (~16:15)
16:10	16:30	OS05-19	OS05-23	OS13-4 (~16:35)	OS06-4	OS11-8	OS03-4 (~16:35)
16:30	16:50				OS06-5	OS11-9	
17:15	18:00	Sunset Welcome Drink (Nashiro Resort Hotel)					
18:00	20:00	Banquet (Nashiro Resort Hotel)					

December 4

Thursday, December 4th							
Program:		***Technical Session 3***					
start	end	**[Room 1]**	**[Room 2]**	**[Room 3]**	**[Room 4]**	**[Room 5]**	**[Room 6]**
9:30	9:50	OS05-24	OS05-31	OS13-5	OS06-6	OS11-10	OS03-5
9:50	10:10	OS05-25	OS05-32	OS13-6	OS06-7	OS11-11	OS03-6
10:10	10:30	OS05-26	OS05-33	OS13-7	OS06-8	OS11-12	OS03-7
10:30	10:50	Coffee Break					
10:50	11:10	OS05-27	OS05-34	OS13-8	OS02-1	OS11-13	OS03-8
11:10	11:30	OS05-28	OS05-35	OS13-9	OS02-2	OS11-14	OS03-9
11:30	11:50	OS05-29	OS05-36	OS13-10	OS02-3	OS11-15	OS03-10
11:50	12:10	OS05-30	OS05-37	OS13-11	OS02-4	OS11-16	OS03-11
12:10	13:20	Lunch Break					
13:20	13:40	OS05-38		OS13-12	OS02-5	OS11-17	OS03-12
13:40	14:00	OS05-39		OS13-13	OS02-6	OS11-18	OS03-13
14:00	14:20	OS05-40		OS13-14	OS02-7	OS11-19	OS03-14
14:20	14:40	OS05-41		OS13-15	OS02-8	OS11-20	OS03-15
14:40	15:00	OS05-42		OS13-16	OS02-9	OS11-21	OS03-16
15:00	15:20	OS05-43		OS13-17	OS02-10	OS11-22	OS03-17
15:30	17:00	Farewell Party & Award Ceremony (Room 2)					

December 5

Friday, December 5th	
Program:	***A) Excursion to explore the heart of Okinawa's traditional culture through a sightseeing bus tour*** ***B) Technical tour of National Institute of Technology, Okinawa College (Okinawa Kosen)***

● Details of Excursion on December 5

(This excursion is available only to participants who have made an advance reservation.)

A) Excursion to explore the heart of Okinawa's traditional culture through a sightseeing bus tour

Planned destinations include: Peace Memorial Park, Okinawa World, and Sefa Utaki. The participation fee for this excursion is 3,000 JPY per person, which covers the admission fee to Okinawa World. Additional expenses such as lunch and optional activities in Okinawa World, as well as optional admission fees for Peace Memorial Park and Sefa Utaki, are not included. (These sites may charge a few hundred yen, but there are also free areas and scenic coastal views to enjoy without charge.)

Itinerary

- Bus Pickup

  8:20 Kokusai Street (Kencho-mae Bus Stop in front of Kenmin Hiroba)
  8:50 Southern Beach Hotel & Resort in Okinawa
  9:00 Kukuru Itoman (Conference venue)
  9:15 Ryukyu Hotel & Resort Nashiro Beach
- Okinawa Exploring

  9:30-10:20 Peace Memorial Park
  10:50-13:20 Okinawa World (with free time for lunch and activities)
  13:50-14:50 Sefa Utaki
- Bus Drop-off

  16:20 Kokusai Street
  16:40 Naha Airport
  17:10 Southern Beach Hotel & Resort in Okinawa
  17:20 Kukuru Itoman
  17:35 Ryukyu Hotel & Resort Nashiro Beach

Notes

- The schedule and destinations may change due to traffic or other circumstances.
- Pickup or drop-off points with no participants may be skipped to save time.

Meeting Point

Kencho-mae Bus Stop

(please check the location via the QR cord or link)

https://maps.app.goo.gl/syne6S8rL4z71VhDA

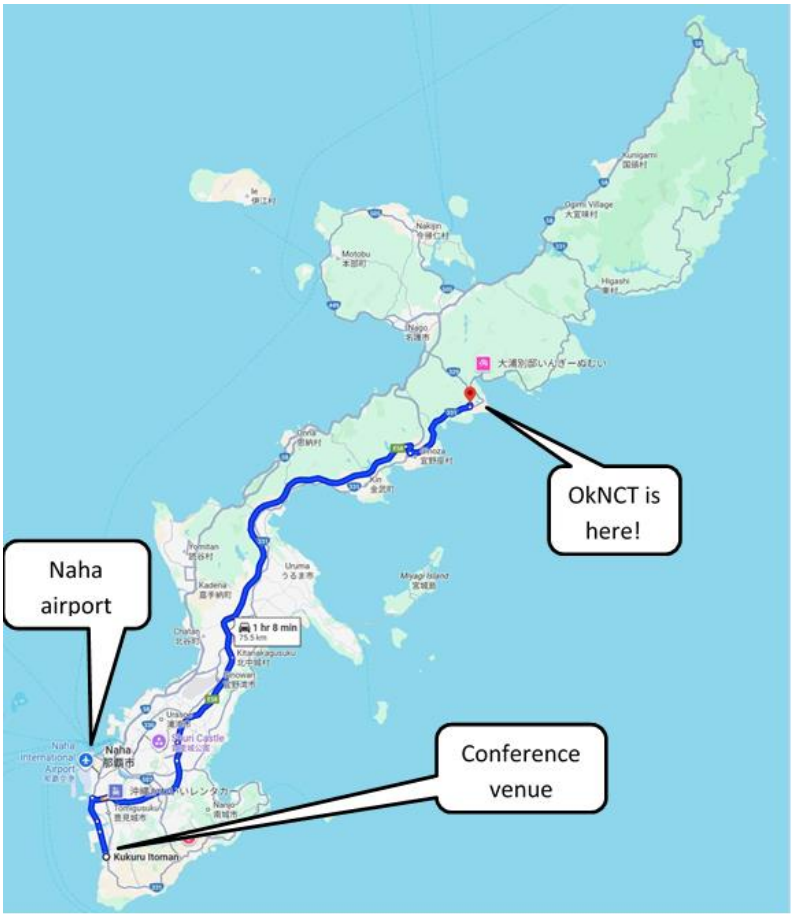
B) Technical tour of National Institute of Technology, Okinawa College (Okinawa Kosen)

Participation is free of charge.

Time and place

15:00 at the National Institute of Technology, Okinawa College. Technical tour participants must travel directly to the site by themselves.

The tour ends at the same location (on-site dismissal).



Access

By Taxi / Rental Car : Approximately 1 hour from the LEM venue via highway.

By Public Transportation: Approximately 3.5 hours by bus from the LEM venue.

Parking

Please refer to the campus map below:

Note: Drive along the yellow dotted line and park cars in the area marked “P” on the right side of the image. Please disregard numbers ①–⑤ on the map.

Guided Tour Program (approx. 1 hour)

- Demonstration of the X-ray CT Scanner (TOSCANER 32300)
- Demonstration of an Underwater Shock Wave Food Processing System
- Tour of the Machining Factory
- Observation from the OkNCT viewing point (Camp Schwab construction site)

Notes

- The tour will start and end at OkNCT.
- Please ensure your transportation arrangements in advance.

- **Participant Satisfaction Survey**

LEM21 is supported by the Okinawa Convention & Visitors Bureau (OCVB).

To help improve future MICE activities in Okinawa, OCVB is conducting a short satisfaction survey for conference participants. Your feedback is valuable and will greatly contribute to enhancing future events. Please access the survey using the QR code below.

If you are unable to scan the QR code, please use the following link:
https://forms.office.com/r/8k4XpANckK

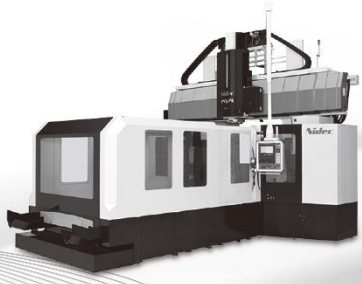
Thank you very much for your cooperation.

MEMO

MEMO

Nidec

All for dreams



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MACHINING TRANSFORMATION

zero-sludgeCOOLANT pro*

* Option

Flexible high-variety applications with max. accuracy & min. thermal displacement

Outer race // S50C
ϕ95 mm × 200 mm
Automotive

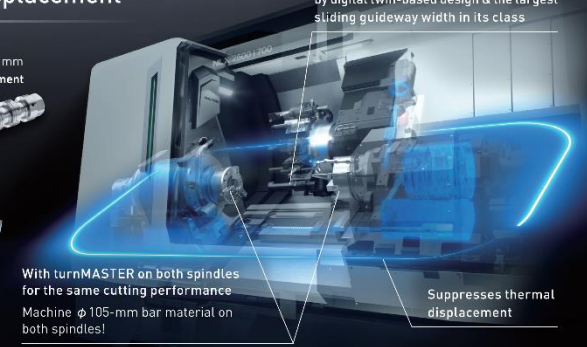
Manifold block // SUS303
35 mm × 40 mm × 100 mm
Hydraulic equipment

Spool // S45C
ϕ70 mm × 360 mm
Hydraulic equipment

Gear shaft // S45C
ϕ100 mm × 200 mm
Industrial equipment

Sprocket // S45C
ϕ180 mm × 80 mm
Industrial equipment

Realize high rigidity
by digital twin-based design & the largest sliding guideway width in its class

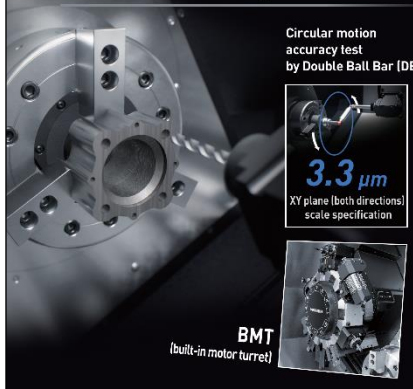


With turnMASTER on both spindles for the same cutting performance

Machine ϕ105-mm bar material on both spindles!

Suppresses thermal displacement

Milling capability on #40 Machining Center-level



Circular motion accuracy test by Double Ball Bar (DBB)

BMT
(built-in motor turret)

Process integration

Cycle time reduction
– 49%
from previous models*

* 1× Turning Center (2 processes) 1× Vertical Machining Center (1 process)
into 1× NLX 2500 2nd Generation (2 processes)

Automation

Both spindles with turnMASTER and large through-hole
+
bar feeder

Rich automation line-up and solutions against chips, coolant, and mist

GX Enables energy efficient & sustainable production

Annual CO_2 reduction **-1,890 kg**
Equivalent to **63*** camphor trees

* When operating a machine for 2,000 hours to produce 3,500 parts
* CO_2 absorption per camphor tree: 30 kg per year

by DX

Uses digital tools to improve work efficiency and create an operator-friendly shop floor

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MAPPS specifications
FANUC F31iB Plus

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