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<https://www.agr.nagoya-u.ac.jp/~mechbio/IWMS-25/index.html>



## IWMS-25 Overview

Schedule :

Date	October 4	October 5		October 6		October 7	
AM	Registration starts from 16:00 at Portmesse Nagoya 2F	09:00-11:00	Machinery Show Visit	09:00-10:00	Oral session 3.Wood Machining	Machinery Show Visit 9:00-11:00	
		11:00-11:15	Opening ceremony (Registration starts from 9:00)	10:00-10:40	Poster Session (coffee)		
		11:15-12:00	Keynote Presentation	10:40-11:40	Oral session 4. Wood Processing		
		Lunch box provided					
PM		13:00-14:40	Oral session 1.Saw Cutting Force and Power	13:00-14:40	Oral session 5.Sensors and Quality Control	Seminar Tour 11:00-19:40 (Please come to the meeting place on time. Remember, don't forget your lunch box provided at IWMS-25. Kindly be reminded not to overlook your stored luggage in the cloak on the 3 <sup>rd</sup> floor	
		14:40-15:30	Poster Session (coffee)	14:40-15:00	Coffee break		
		15:30-16:50	Oral session 2. Sawing Mechanics	15:00-16:20	Oral session 6.Wood Properties		
				16:20-16:40	Next Seminar Announcement		
Evening	Welcome Reception 17:30~19:00 @ Restaurant in Portmesse			Conference Banquet @ String Hotel 19:00-21:00 (Please make your way to the String hotel individually. See p.6)			

## Welcome to IWMS-25 !

It is our great pleasure to cordially invite you to participate in the 25th International Wood Machining Seminar (IWMS-25 Nagoya), which will be held from Wednesday through Saturday, October 4-7, 2023, at Portmesse Nagoya (Nagoya International Exhibition Hall), Japan. The meeting is co-organized by Nagoya University and the Japan Wood Research Society (JWRS). Concurrently at same venue, the Japan Woodworking Machinery Association organizes the Japan Woodworking Machinery Fair with Wood Ecological Technology Fair (Mokkiten Japan/Wood EcoTech). There are numerous visitors from various industries such as furniture, fixture, woodworking, construction, lumbering, veneer and plywood, environment, forestry, plastic, ecology and so on from within and outside Japan.

2023 marks the 4th time that IWMS series has come to Japan. For the arrangement of this memorable seminar, we deeply appreciate the major support from the Japan Woodworking Machinery Association and many companies and associations.

We have a great week planned for you, with substantial technical content, much opportunity for great social interaction with friends, and for Post-Seminar Tour participants, the Mokkiten Japan/Wood EcoTech.

We are excited to welcome you to Nagoya, Japan. “Heart of Wood Machining in Japan” is our motto, symbolizing the location and the emulation of science, stimulating atmosphere and personal contacts.

Very much looking forward to welcoming you in Nagoya, we remain with best regards.



Satoru Tsuchikawa

Chairperson, IWMS-25

# Preface

This is the 25<sup>th</sup> meeting of a series started in 1963 at the University of California, Richmond, originally named as the Wood Machining Seminar. In the early days, the meetings were based solely in Richmond, were of modest size, and were specialized solely on wood machining. For the 9<sup>th</sup> and subsequent meetings, the increasing success of the Seminars gave confidence to expand the scope of the discussions to encompass all aspects of wood processing and also to diversify the meeting sites to various centers of wood processing research around the world. This required a name change and thus the International Wood Machining Seminars were born. Since then, IWMS meetings have been held in nine different countries, always with strong attendance and with increasing diversity.

A central and distinctive feature of the IWMS meetings is the strong feeling of community among the participants, with numerous regulars of many years standing. Thus, in addition to being a high-level technical meeting, IWMS is also a gathering of both old and newly formed friends. Strong personal relationships and collaborations are both born and strengthened. New participants, particularly those at the start of their careers are warmly welcomed. In this way, the foundations developed by the established generation can be passed on to the new generation for them to build on and add their own contributions. It is the hope that they in turn will become regular IWMS participants and encourage the following generation. This was the dream of the original founders.

Welcome to IMWS-25, welcome to the technical sessions, but most particularly, welcome to the IWMS community.

With best wishes,



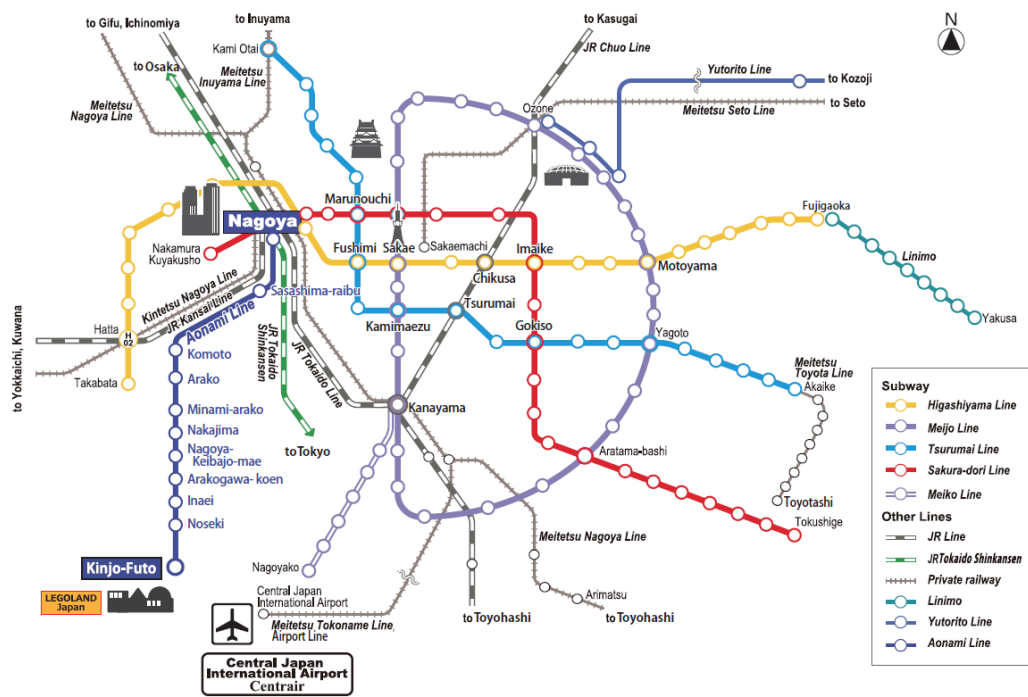
Gary S. Schajer

Chair, IWMS International Advisory Committee

# Venue

Access to Portmesse Nagoya (Welcome reception, Machinery Show Visit, Opening Ceremony, Key note lecture, Oral session, Poster session, Coffee break, Seminar Tour meeting point)

From Nagoya station to Closest station

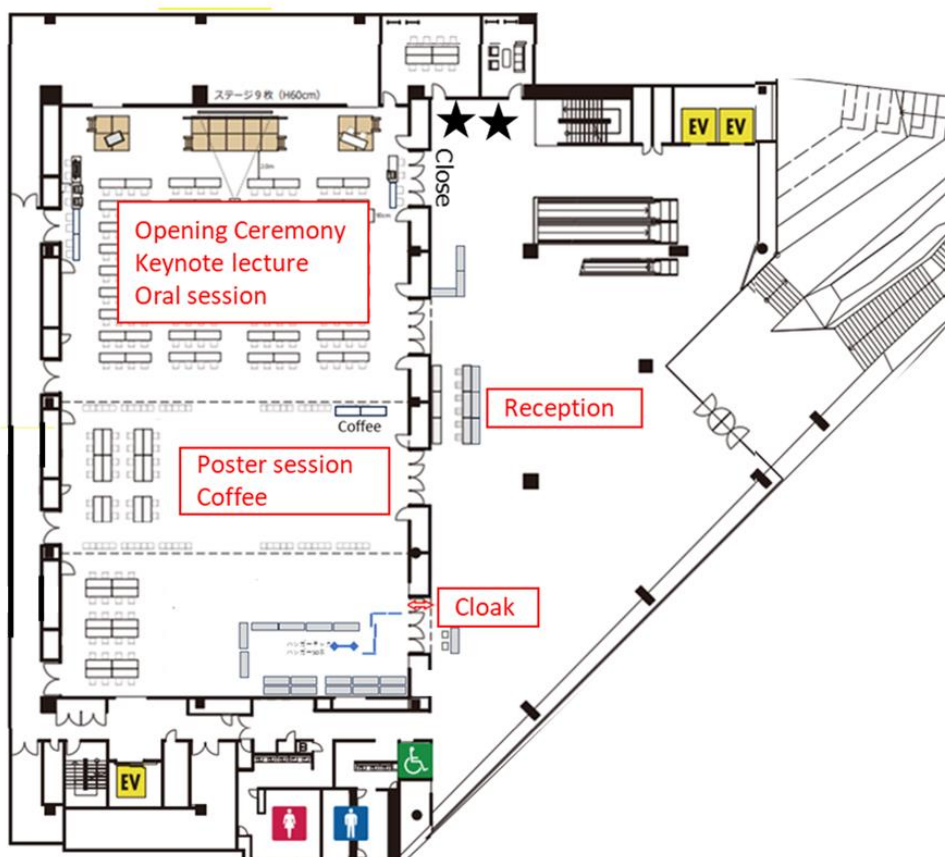


## Portmesse Nagoya Convention Hall



## Portmesse Nagoya Convention Hall 3<sup>rd</sup> floor

Welcome reception will be held on the 2nd floor of Port Messe Nagoya



Access to the String Hotel (Banquet)



## **Instruction for Presentations**

### **■ Oral Presentation**

- Presentation Language: English
- Presentation Duration: 20 minutes (please allocate approximately 5 minutes for discussion).
- Presentation Format: Only PowerPoint presentations are accepted.

#### Output Connection to Projector:

- Use your own laptop equipped with an HDMI output. This will be connected to a projector via the switcher apparatus at the PC desk in the session room.
- Mac and Surface users should bring an HDMI adapter.
- Audio output equipment is NOT provided.
- Please bring a storage device with your presentation file as a backup. Note: the committee will provide only a Windows PC.
- Connection issues might shorten your presentation time. Ensure your PC is functioning properly.
- To prevent battery exhaustion, bring an AC adapter. Power in Aichi is supplied at 100V, 60Hz. The plug type is A, with two flat parallel pins.

#### Previewing:

- Bring your laptop to the PC desk near the podium in the session room (Main Hall) at least 60 minutes before your presentation to preview.
- Adjust your settings to prevent the screen saver or power-saving mode from activating.

#### Stand-by:

- All presenters must be seated in the designated "Next Presenter's Seat" at least 15 minutes before their presentation. Your punctuality is greatly appreciated.

#### Presentation Instrument - Remote Presentation System:

- Presenters can operate their laptop from the PC operator's desk remotely using a mouse or keyboard on the podium while viewing the monitor.



## ■ Poster Presentations

### Poster Size:

· Posters should not exceed 35 inches (900 mm) in width and 63 inches (1600 mm) in height. The standard poster size is A0 (width: 841 mm, height: 1189 mm). We will provide poster numbers and pushpins.

### Poster Presentation Schedule:

· As mentioned in the program, all posters will be presented on October 5th (Thu) from 14:40 to 15:30 and on October 6th (Fri) from 10:20 to 11:00 at the Poster Session Venue.

### Poster Display:

· Posters can be displayed from 16:00 on October 4th (Wed) to 17:00 on October 6th (Fri). Ensure your poster is up by 14:40 on October 5th (Thu). Posters left after 17:00 on October 6th (Fri) will be removed and discarded by the secretariat.

## Presentation timetable and list of chairpersons

October 4	
17:30~19:00	Welcome Reception
October 5	
09:00-11:00	Machinery Show Visit
11:00-11:15	Opening Ceremony
11:15-12:00	Keynote Presentation: “Achievements, present situation and future prospect of the technology of wood machining” Yoshihisa Fujii (Kyoto University) (Chair: Satoru Tsuchikawa)
12:00-13:00	Lunch
13:00-14:40	1. Saw Cutting Force and Power: Chair-Jakub Sandak
13:00-13:20	“Cutting Forces for Clear and Knotty Pine Wood” Orlowsk Kazimierz (Gdansk University of Technology, Poland)
13:20-13:40	“Experimental study of the effect of velocity on cutting forces for bevelled handsaw teeth” Mellqvist Daniel (Linnaeus University, Sweden)
13:40-14:00	“Cutting forces of fast-growing trees in Japan” Matsuda Yosuke (Forestry and Forest Products Research Institute, Japan)
14:00-14:20	“Specific Cutting Coefficients for Some Engineered Wood Products” Goli Giacomo (DAGRI University of Florence, Italy)
14:20-14:40	“Evaluating the impact of five machining parameters on cutting power when sawing Douglas-fir wood” Cool Julie (The University of British Columbia, Canada)
14:40-15:30	Poster Session + coffee
15:30-16:50	2. Sawing Mechanics: Chair-Julie Cool
15:30-15:50	“The Influence of High Cutting Speeds on Cutting Forces, Surface Roughness and Tool Wear in the Milling Process of Wood” Jaquemod André (University of Stuttgart, Germany)
15:50-16:10	“Improvement in Edge Quality of Melamine-laminated Particleboard by “TDM” Circular Saw Blade” Asaka Keiichi (Kanefusa Corporation, Japan)
16:10-16:30	“Improvement of the performance of guided circular saws” Georges Rémi (Laval University, Canada)
16:30-16:50	“Modelling chip ejection of wood cutting tools using the Discrete Element Method with bonded particles” Hausmann Julius (Technische Universität Dresden, Germany)

October 6	
09:00-10:00	3. Wood Machining: Chair-Gary Schajer
09:00-09:20	“Effect of wood machining conditions on the delamination of bond lines” Sandak Jakub (InnoRenew CoE, Slovenia)
09:20-09:40	“Effect of mechanical and thermal reaction in high-speed friction processing of wood surface” Ohtani Tadashi (Tokyo Gakugei University, Japan)
09:40-10:00	“Investigation of tool wear of the trimming unit and resulting quality in the edgebanding process“ Binninger Karsten (Rosenheim Technical University of Applied Sciences, Germany)
10:00-10:40	Poster Session + coffee
10:40-11:40	4. Wood Processing: Chair-Kazimierz Antoni Orlowski
10:40-11:00	“The history of the development of the Rotary Lathe (Veneer Lathe) that we have been working on” Naito Koji (Meinan Machinery Works, Inc., Japan)
11:00-11:20	“Design of Dies for Solid Wood Bending considering the Elasto-Plastic Spring-back Effect of Wood” Eggert Otto (GHEBavaria Maschinen GmbH, Eibelstadt, Germany)
11:20-11:40	“Effect of angles between side-front blades of pyramidal precision-shaped abrasive belt on sanding performance of Medium-density fiberboard (MDF)” Du Yao (Beijing Forestry University, China)
11:40-13:00	Lunch
13:00-14:40	5. Sensors and Quality Control: Chair-Yoshihisa Fujii
13:00-13:20	“Radiographic Measurement of Knot Position and Orientation in Logs” Schajer Gary (University of British Columbia, Canada)
13:20-13:40	“Veneer Mechanical Grading Based on Online Local Wood Fiber Orientation Measurements to Model and Manufacture Variable Stiffness Beams” Denaud Louis (Arts & Metiers, Institute of Technology, France)
13:40-14:00	“Information technology and data-driven decision making in Swedish sawmills” Fredriksson Magnus (Luleå University of Technology, Sweden)
14:00-14:20	“Tool monitoring using a TreeNet gradient boosting machine” Cool Julie (The University of British Columbia, Canada)
14:20-14:40	“Machining Feature Recognition in Furniture Parts based on a Graph Neural Network” Böhm Stefan (Technical University Rosenheim, Germany)
14:40-15:00	Coffee

15:00-16:20	6. Wood Properties: Chair-Otto Theobald Eggert
15:00-15:20	<p>“Three-dimensional modeling of moisture transport in wood by means of near-infrared hyperspectral imaging and X-ray computed tomography coupled with finite element analysis method”</p> <p>Zeng Wenpeng (Nagoya University, Japan)</p>
15:20-15:40	<p>“Investigation of the relationship between the early and late wood ratio and particle size of ball-milled Japanese cedar wood flour by using hyperspectral imaging”</p> <p>Kobori Hikaru (Shizuoka University, Japan)</p>
15:40-16:00	<p>“Holistic approach for geometric and technological similarity search in the production for profiled elements in the wood working industry for a more efficient production.”</p> <p>Kortüm Christian (Rosenheim Technical University of Applied Sciences, Germany)</p>
16:00-16:20	<p>“Characteristics of wood properties and drying of <i>Toona sinensis</i>”</p> <p>Wang Yifan (Graduate School of Bioresource and Bioenvironmental Science, China)</p>
16:20-16:40	Next Seminar Announcement
19:00-21:00	Conference Banquet
October 7	
09:00-11:00	Machinery Show Visit
11:00-19:40	Seminar Tour

## Poster list

Poster List	
P1	“Investigations on energy-efficient energy conversion in the edge banding process” Christian Gottlöber (Technische Universität Dresden, Germany)
P2	“Online Measurement of Outline Size for <i>Pinus Densiflora</i> Dimension Lumber: Maximizing Lumber Recovery by inimizizing Enclosure Rectangle Fitting Area” Wei Zhang (Research Institute of Wood Industry, Chinese Academy of Forestry, China)
P3	“Coupling of Local Wood Properties Extracted from X-ray Computed Tomography with Cutting Force” Yunbo Huang (Luleå University of Technology, Sweden)
P4	“Influences of cutting edge wear and wood species on cutting noise in planer machining evaluated by an acoustic camera” Ryuichi Iida (Polytechnic university, Japan)
P5	“Effect of wood chipper type and screen mesh size on energy consumption, cost, and chip size distribution during comminution of logging residues” Kiyohiko Fujimoto (Forestry and Forest Products Research Institute, Japan)
P6	“Strength evaluation of kyogi” Sakura Ishii (Tokyo University of Agriculture, Japan)
P7	“Effect of drill diameter for incising on fire resistance performance of fire resistance glulam -Observation of charring state near incising hole-“ Takumi Osada (Tokyo Univ. of Agri. and Tech., Japan)
P8	“Effects of cutting and feed speeds on energy requirements of a chipper” Roger Hernandez (Laval University, Canada)
P9	“The separation of softwood and hardwood in historical wooden statues in Japan using NIR spectroscopy. -Comparison of the separation accuracy for using several algorithms-“ Yohei Kurata (Nihon University, Japan)
P10	“Optical 3D vision method for analysis of the cutting tool wear” Jakub Sandak (InnoRenew CoE, Slovenia)
P11	“Evaluation of visible and near-infrared spatially resolved spectroscopy for growth strain measurement” Te Ma (Nagoya University, Japan)
P12	“Seat Carving Process to Fit Individual Buttocks Shape” Tomohiko Morimo (Gifu Pref. Research Institute for Human Life Technology, Japan)
P13	“The Mechanism and Performance of Cutting with Mado-noko, a Type of Japanese One-man Peg-and-raker Crosscut Saw”, Masahiro Takamura ( Graduate School of Agriculture, Kyoto University, Japan)

## List of participants

1	Rémi	Georges	Laval University	Canada
2	Zeina	Lahlouh	Groupe AXOR inc.	Canada
3	Roger	Hernandez	Laval University	Canada
4	Cleide	Bourscheid	Université Laval	Canada
5	Julie	Cool	University of British Columbia	Canada
6	Gary	Schajer	University of British Columbia	Canada
7	Yao	Du	Beijing Forestry University	China
8	Bin	Luo	Beijing Forestry University	China
9	Li	Li	Beijing Forestry University	China
10	Wei	Zhang	Chinese Academy of Forestry.	China
11	Xiaolei	Guo	Nanjing Forestry University	China
12	Louis	DENAUD	ARTS & METIERS, INSTITUE OF TECHNOLOGY	France
13	Bertrand	Marcon	UBFC, HESAM	France
14	Julius	Hausmann	Technische Universität Dresden	Germany
15	Otto	Eggert	GHEbavaria Maschinen GmbH	Germany
16	André	Jaquemod	Institute for Machine Tools, University of Stuttgart	Germany
17	Karsten	Binninger	Rosenheim Technical University of Applied Sciences	Germany
18	Christian	Kortüm	Rosenheim Technical University of Applied Sciences	Germany
19	Stefan	Böhm	Technical University Rosenheim	Germany
20	Christian	Gottlöber	Technische Universität Dresden	Germany
21	Giacomo	Goli	DAGRI University of Florence	Italy
22	Michele	Brunetti	CNR - Institute of BioEconomy	Italy
23	Michela	Nocetti	CNR - Institute of Bioeconomy	Italy
24	Antonello	Venga		Italy
25	Yifan	Wang	Kyushu University	Japan
26	Satoshi	Fukuta	Aichi Center for Industry and Science Technology	Japan
27	Yosuke	Matsuda	Forestry and Forest Products Research Insitute	Japan
28	Yuji	Ikami	Forestry and Forest Products Research Institute	Japan
29	Kiyohiko	Fujimoto	Forestry and Forest Products Research Institute	Japan
30	Yukari	Matsumura	Forestry and Forest Products Research Institute	Japan
31	Tomohiko	Morimo	Gifu Pref. Research Institute for Human Life Technology	Japan
32	Keiichi	Asaka	Kanefusa corporation	Japan
33	Ken	Takeyama	Kanefusa Corporation	Japan

34	Masahiro	Takamura	Kyoto University	Japan
35	Yoshihisa	Fujii	Kyoto University	Japan
36	Shogo	Okumura	Kyoto University	Japan
37	Koji	Naito	Meinan Machinery Works, Inc.	Japan
38	Wenpeng	Zeng	Nagoya University	Japan
39	Te	Ma	Nagoya University	Japan
40	Satoru	Tsuchikawa	Nagoya University	Japan
41	Tetsuya	Inagaki	Nagoya university	Japan
42	Yohei	Kurata	Nihon University	Japan
43	Ryuichi	Iida	Polytechnic university	Japan
44	Hikaru	Kobori	Shizuoka University	Japan
45	Tadahisa	Iwata	The University of Tokyo	Japan
46	Yuko	Tsunetsugu	The University of Tokyo	Japan
47	Kenji	Aoki	The University of Tokyo	Japan
48	Tadashi	Ohtani	Tokyo Gakugei University	Japan
49	Takumi	Osada	Tokyo Univ. of Agri. and Tech.	Japan
50	Sakura	Ishii	Tokyo University of Agriculture	Japan
51	Hiroya	Ohbayashi	Tokyo University of Agriculture	Japan
52	Nobuaki	Hattori	Tokyo University of Agriculture and Technology	Japan
53	keisuke	ando	Tokyo University of Agriculture and Technology	Japan
54	Kohji	Murata	Wood Technological Association of Japan	Japan
55	Kazimierz	Orlowski	Gdansk University of Technology	Poland
56	Jolanta	Orlowska	Gdansk	Poland
57	Jakub	Sandak	InnoRenew CoE	Slovenia
58	Yunbo	Huang	Luleå University of Technology	Sweden
59	Magnus	Fredriksson	Luleå University of Technology	Sweden
60	Daniel	Mellqvist	Linnaeus University	Sweden

Banner ads and program book ads List of companies/organizations




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