9th Japanese-German Joint Seminar

Molecular Imaging Technology for Interdisciplinary Research

August 28 - August 30, 2024

FUJI Hall, 2F, EI Building,
Nagoya University,

Furo-cho, Chikusa-ku, Nagoya, 464-8603, JAPAN

https://www.nagoya-u.ac.jp/extra/map/index.html **(C2-1)**

Supported by

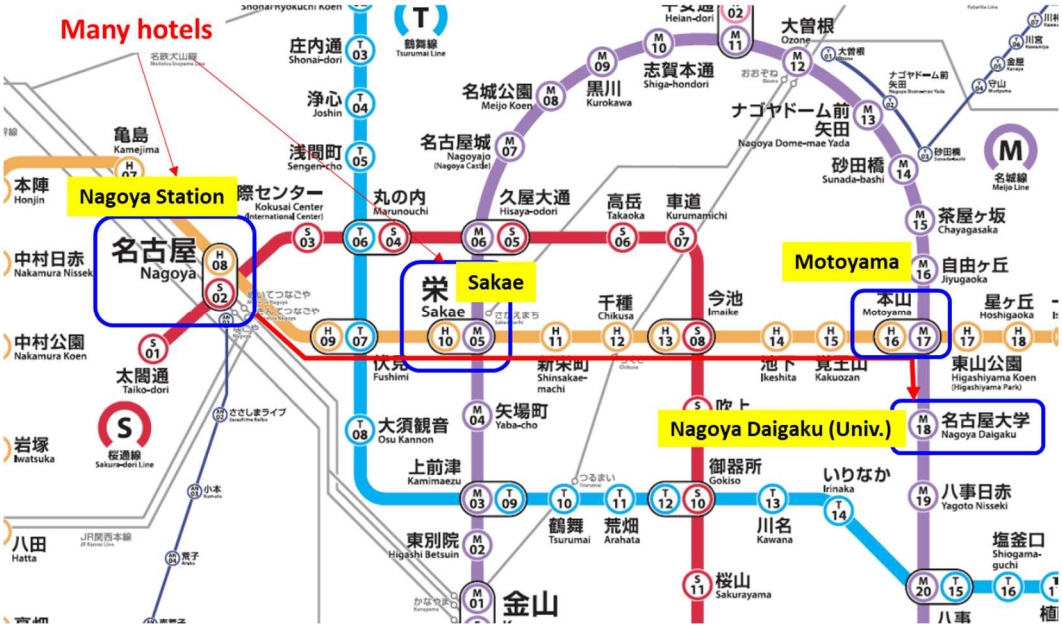
The Nakatsuji Foresight Foundation
and
The Visualization Society of Japan

Access to Nagoya University

Take the *Higashiyama Subway Line,* get off at Motoyama Station (H16),
transfer to the *Meijo Subway Line* (Clockwise), and get off at Nagoya Daigaku (Univ.) Station(M18).

- 25 min from Nagoya Sta.(H08) to Nagoya Daigaku (Univ.) Sta.(M18)
- 20 min from Sakae Sta. (H10) to Nagoya Daigaku (Univ.) Sta. (M18)

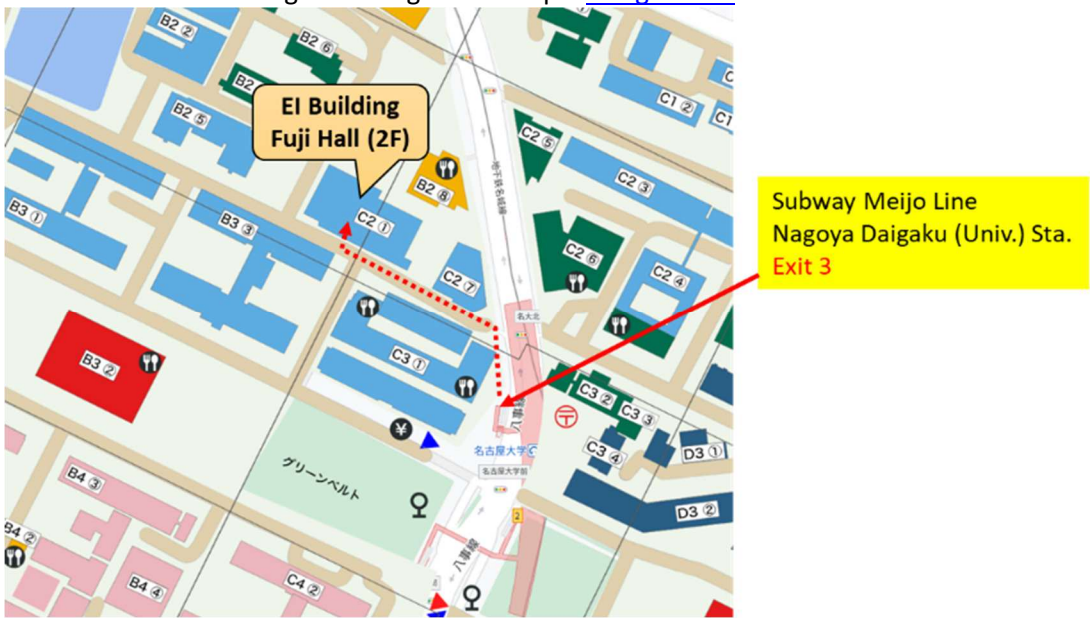
Nagoya City Guide https://www.nagoya-info.jp/en/ (English)
https://www.nagoya-info.jp/ (Japanese)



Subway map in Nagoya

Access to Fuji Hall in the EI Building of Nagoya University

From Nagoya Daigaku (Univ) Sta on the Meijo Subway Line, exit #3 (elevator and escalator available),
2 minutes walk to EI Building according to the map. Google MAP



Access to Fuji Hall (2F) in the EI Building of Nagoya University

Registration

Wednesday, August 28th, 2024

9:00 – 9: 50 at FUJI Hall, 2F, EI Building, Nagoya University

Registration Fee

General: 9,000 JPY
Student: 3,000 JPY
(Cash on-site payment)

Oral Presentations

- **Keynotes**: 45 minutes presentation including discussion
- **General presentations**: 30 minutes presentation including discussion

Poster Session

- **Poster display:** Please display your poster before the start of the poster session.
- **Poster Flash Talk**: 2 minutes for each talk.

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Molecular Imaging Technology for Interdisciplinary Research

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FUJI Hall, 2F, EI Building, Nagoya University, Nagoya, JAPAN

Tuesday, August 27th, 2024

~~18:00 Welcome Reception (Sekai no Yamachan Nishiki San Otsu Branch)~~

Cancelled due to typhoon

Wednesday, August 28th, 2024

9:00 – 9:50	Registration
9:50 – 10:00	Opening Remarks
10:00 – 10:45	Keynote Lecture 1
10:45 – 11:45	Session I TSP measurement 1
11:45 – 12:50	*Lunch Time*
12:50 – 13:20	Poster Flash Talk
13:20 – 14:20	Poster Presentation
14:20 – 14:40	*Coffee Break*
14:40 – 15:25	Keynote Lecture 2
15:25 – 16:25	Session II Lifetime Measurement
16:25 – 16:50	*Coffee Break*
16:50 – 17:50	Session III Unsteady Pressure Measurement

Thursday, August 29th, 2024

9:00 – 9:45	Keynote Lecture 3
9:45 – 10:45	Session IV Sensors
10:45 – 11:10	*Coffee Break*
11:10 – 12:10	Session V TSP measurement 2
12:10 – 13:30	*Lunch Time & Group Photo*
13:30 – 15:00	Session VI Pressure and Oxygen measurement
15:00 – 15:30	*Coffee Break*
15:30 – 16:15	Session VII Round table discussion
16:15 – 16:20	Closing Remarks
16:20 – 17:20	Campus walk & Visiting Nonomura Lab.
From 18:00	Banquet (Koyoen Brewery)

Friday, August 30th, 2024

Networking with PSP/TSP researchers of PSP/TSP molecular imaging laboratories

8:50 – 9:00	Meeting near the exit 4 of Motoyama subway station (H16)
9:10 – 13:00	Visiting Wind tunnels at Oye Plant of Mitsubishi Heavy Industries (MHI) (Dismissal near Nagoya Station)
(After lunch- only if you wish)	Visit Nagoya Castle Honmaru Palace / TOYOTA Commemorative Museum of Industry and Technology

Program

Tuesday, August 27th, 2024

~~**18:00 – Welcome Reception:**~~

~~**Sekai no Yamachan** (Nagoya's famous fried chicken wings restaurant)~~
~~**Nishiki San-Otsu Branch**, 3-15-1 Nishiki, Naka-ku, Nagoya City~~
~~+81-(0)52-971-2276 Google MAP~~ **Cancelled due to typhoon**

Wednesday, August 28th, 2024

9:00 – 9:50 **Registration**

9:50 – 10:00 **Opening Remarks**

Keynote Lecture 1

Chairperson: T. Handa (Toyota Technological Institute)

10:00 – 10:45

Hinako Shiba[1,2], Shotaro Tamaru[1,2], Nanami Fujiwara[1], Kazumasa Oguri[3,4], Yasuhiro Egami[5], Morten Larsen[3], Ronnie N. Glud[3], Katsuhiro Shiono[1]

[1] Fukui Pref. Univ., [2] JSPS research fellow, [3] Univ. South. Denmark, [4] JAMSTEC, [5] Aichi Institute of Technology

Light to open new field for plant science: a study of dynamics of plant acclimation under hypoxic conditions

Session I TSP measurement 1

Chairperson: Y. Egami (Aichi Institute of Technology)

10:45 – 11:15

Tudor-Victor Venenciuc[1], Christian Klein[2], Christian J. Kähler[1]

[1] University of the Bundeswehr Munich

[2] German Aerospace Center (DLR)

Near-wall dynamics of laminar separation bubbles at low inflow turbulence intensities

11:15 – 11:45

Benjamin Dimond[1]

[1] German Aerospace Center (DLR)

Investigation of boundary layer transition at high Reynolds numbers using time-resolved temperature-sensitive paint

11:45 – 12:50 *Lunch time*

Poster Session

Chairperson: Y. Egami (Aichi Institute of Technology)

12:50 – 13:20 **Poster flash talk**

Each presentation is 2 minutes.

13:20 – 14:20 **Poster presentation**

14:20 – 14:40 *Coffee break*

Keynote Lecture 2

Chairperson: T. Nonomura (Nagoya University)

14:40 – 15:25 Christian J. Kähler[1]

[1]*University of the Bundeswehr Munich*

Experimental detection and characterization of the turbulent / non-turbulent interface in air flows using fluorescent particles

Session II Lifetime Measurement

Chairperson: M. Bitter (University of the Bundeswehr Munich)

15:25 – 15:55 Kazuki Uchida[1], Kazuyuki Nakakita[2], Taku Nonomura[3]

[1]*Tohoku University*

[2]*Japan Aerospace Exploration Agency (JAXA)*

[3]*Nagoya University*

Dual-luminophore pressure-sensitive paint measurement of vertical tail model using lifetime-based method with photodegradation correction

15:55 – 16:25 Daisuke Yorita[1]

[1]*German Aerospace Center (DLR)*

Single-shot lifetime PSP measurement in transonic wind tunnel Göttingen

16:25 – 16:50 *Coffee break*

Session III Unsteady Pressure Measurement

Chairperson: M. Costantini (DLR)

16:50 – 17:20 Kota Ogasawara [1], Taro Handa[1]

[1] *Toyota Technological Institute*

Visualization of pressure oscillation field caused by high-frequency flapping jet using pressure-sensitive paint

17:20 – 17:50 Di Kong[1], Eihiro Li[1], Kazuki Uchida[1], Takayuki Nagata[2], and Taku Nonomura[2]

[1] *Tohoku University*

[2] *Nagoya University*

Uniformity of pressure distributions on end wall of resonance tube for frequency response evaluation of pressure sensitive paint up to 10 kHz: tiny pressure fluctuations measurement using fast responding pressure-sensitive paint technology

Thursday, August 29th, 2024

Keynote Lecture 3

Chairperson: Y. Matsuda (Waseda University)

9:00 – 9:45 Massimo Miozzi[1]

[1] *Institute of Marine Engineering (CNR)*

Estimating skin friction based on the propagation celerity of temperature fluctuations: theoretical foundation and applications

Session IV Sensors

Chairperson: M. Obata (University of Yamanashi)

9:45 – 10:15 Shunsuke Odai[1], Hidehiro Ito[1], Toshiaki Kamachi[1],

[1] *Tokyo institute of technology*

Synthesis of phosphorescent dyes with reduced oxidative damage to cell for intracellular oxygen concentration imaging

9:15 – 10:45 Yasuchika Hasegawa[1]

[1] *Hokkaido University*

Soft luminescent lanthanide complexes for molecular imaging sensors

10:45 – 11:10 *Coffee break*

Session V TSP measurement 2

Chairperson: D. Yorita (DLR)

11:10 – 11:40 Marco Costantini[1], Benjamin D. Dimond[1], Christian Klein[1], Stephan Sattler, Massimo Miozzi[2]

[1] *German Aerospace Center (DLR)*[2] *Institute of Marine Engineering (CNR)*

Underwater Investigation of the Flow Dynamics over an Elliptic Profile using Temperature-Sensitive Paint

11:40 – 12:10 Martin Bitter[1]

[1]*University of the Bundeswehr Munich*

Characterization of shock-wave / boundary layer interaction (SBI) on a transonic low-pressure turbine blade using cntTSP

12:10 – 13:30 *Group photo and lunch time*

Session VI Pressure and Oxygen Measurements

Chairperson: Y. Sugioka (JAXA)

13:30 – 14:00 Shotaro Tamaru[1], Nanami Fujiwara[1], Hinako Shiba[1], Katsuhiro Shiono[1]

[1]*Fukui Pref. University*

The application of O_2 imaging to biosensing: Tracking markers of oxygen supply to plant root tip essential for their exploration into hypoxic regions by planar O_2 optode

14:00 – 14:30 Kazuyuki Nakakita[1], Tsutomu Nakajima[1], Yosuke Sugioka[1], Hiroki Iwamoto[2]
[1] *Japan Aerospace Exploration Agency (JAXA)*
[2] *IHI Aerospace Engineering (ISE)*
JAXA's first unsteady PSP application to high-speed rotating propellers

14:30 – 15:00 Yasuhiro Egami[1], Yushi Matsumura[1], Norihiro Yoshii[1], Kento Nagai[1], Yui Kiyota[1]
[1] *Aichi Institute of Technology*
Development of two-color PSP/TSP with less luminophore interference

15:00 – 15:30 *Coffee break*

Session VII Round table discussion

15:30 – 16:15 Navigators:
Marco Costantini (DLR, Germany)
Christian J. Kähler, (University of the Bundeswehr Munich, Germany)
Yasuchika Hasegawa (Hokkaido University, Japan)
Kazuyuki Nakakita (JAXA, Japan)

16:15 – 16:20 **Closing Remarks**
Yasuhiro Egami (Aichi Institute of Technology)

16:20 – 17:20 **Campus walk & Visiting Nonomura Lab. in Nagoya University**

From 18:00 **Banquet** (Koyoen Brewery) Google Map

Friday, August 30th, 2024

Networking with PSP/TSP researchers

8:45 – 9:00 Meeting Time Google Map
9:00 – 10:00 Travel by bus
10:00 – 12:45 Tour of the Oye plant of Mitsubishi Heavy Industry(MHI),
- Wind tunnels
- Oye Clock Tower Aviation History Room

12:45 – 13:30 Travel by bus
Get off the bus at Nagoya Station (End of Tour)

(Optional tour)
13:30-14:30 Lunch
Visiting the Nagoya Castle Honmaru Palace and the Toyota Commemorative Museum of Industry and Technology.

Poster Session Program

Wednesday, August 28th, 2024

1. Poster Flash Talk 12:50-13:20

Presentation time is 2 min.
Use the PC in the conference room. Don't use own PC.
Schedule is below.

2. Poster Presentation 13:20-14:20

P-01. **Measurement of temperature distribution of hot airflow using ultra-thin glass tubes injected with temperature-sensitive phosphors**
Shumpei Funatani[1], Yusaku Tsukamoto[1]
[1] University of Yamanashi

P-02. **Composite dynamic mode decomposition of simultaneous measurements of surface pressure and deformation distributions in transonic flutter**
Masato Imai[1], Kazuyuki Nakakita[2], Kunihiko Taira[3], Masaharu Kameda[1]
[1] Tokyo University of Agriculture and Technology,
[2] Japan Aerospace Exploration Agency (JAXA),
[3] University of California, Los Angeles

P-03. **Pressure distribution measurement in low-speed flow using silica-based P/C-PSP**
Masaki Okawa[1], Yuma Yamagishi[1], Tsubasa Ikami[1], Kanako Watanabe[1], Hiroki Nagai[1]
[1] Tohoku University

P-04. **Cationic Ruthenium complex-loaded reverse polymer micelles for two-color PSP/TSP**
Makoto Obata[1], Wataru Miyaoi[1], Hinano Tanaka[1], Yoshimi Iijima[2], Kazuyuki Nakakita[2]
[1] University of Yamanashi,
[2] Japan Aerospace Exploration Agency (JAXA)

P-05. **Temperature sensitivity of phosphor materials at low temperature - 2nd reports**
Satoshi Someya[1]
[1]Tokyo Denki University

P-06. **Sparse representation of pressure-sensitive paint data**
Yu Matsuda[1], Makoto Takagi[1], Tsubasa Ikami[2], Yasuhiro Egami[3], Hiroki Nagai[2]
[1]Waseda University,
[2]Tohoku University,
[3] Aichi Institute of Technology

P-07. Effect of temperature increase on pressure measurement by using pressure-sensitive paint with relatively large thickness

Hideo Mori[1], Haruka Nishiyama[1], Kodai Tsuji[1], Haruto Yamashita[1], Riku Takemura[1], Yuta Kanda[1], and Ryusuke Hosaka[1]

[1] *Kyushu University*

P-08. Development of dye-painted AA-PSP for measuring unsteady pressure fields induced by shock waves from hypersonic free-flight projectiles

Yuma Kawamata[1], Takeru Kawashima[1] and Daiju Numata[1]

[1] *Tokai University*

P-09. Simultaneous measurement of pressure and temperature by frequency domain lifetime imaging using dual layer PSP/TSP

Riki Ogawa[1], Maito Kakenhiro[1], Mizue Munekata[1], Hiroyuki Yoshikawa[1], and Hideo Mori[2]

[1] *Kumamoto University,*

[2] *Kyushu University*

P-10. The novel sensor to determine the dissolved oxygen in water

Y. Kiyota[1], T. Yagam[1]i, Y. Suzuki[1], Y. Egami[1], H. Shiba[2], S. Shiono[2]

[1] *Aichi Institute of Technology,*

[2] *Fukui Prefecture University*

P-11. Gaseous flow velocimetry using a microscope

Hiroki Yamaguchi[1], Yuto Usui[1]

[1] *Nagoya University*

P-12. Surface heat transfer visualization on hypersonic flat-plate/sharp-fin model by TSP

Masato Taguchi[1], Taichi Itonaga[1], Masashi Kashitani[1]

[1] *National Defense Academy of Japan*

Local Organizing Committee

Prof. Yasuhiro Egami (Aichi Institute of Technology) egami@aitech.ac.jp
Prof. Taro Handa (Toyota Technological Institute) handa@toyota-ti.ac.jp
Prof. Taku Nonomura (Nagoya University) nonomura@nagoya-u.jp
Dr. Takayuki NAGATA (Nagoya University) nagata.takayuki.x7@f.mail.nagoya-u.ac.jp

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