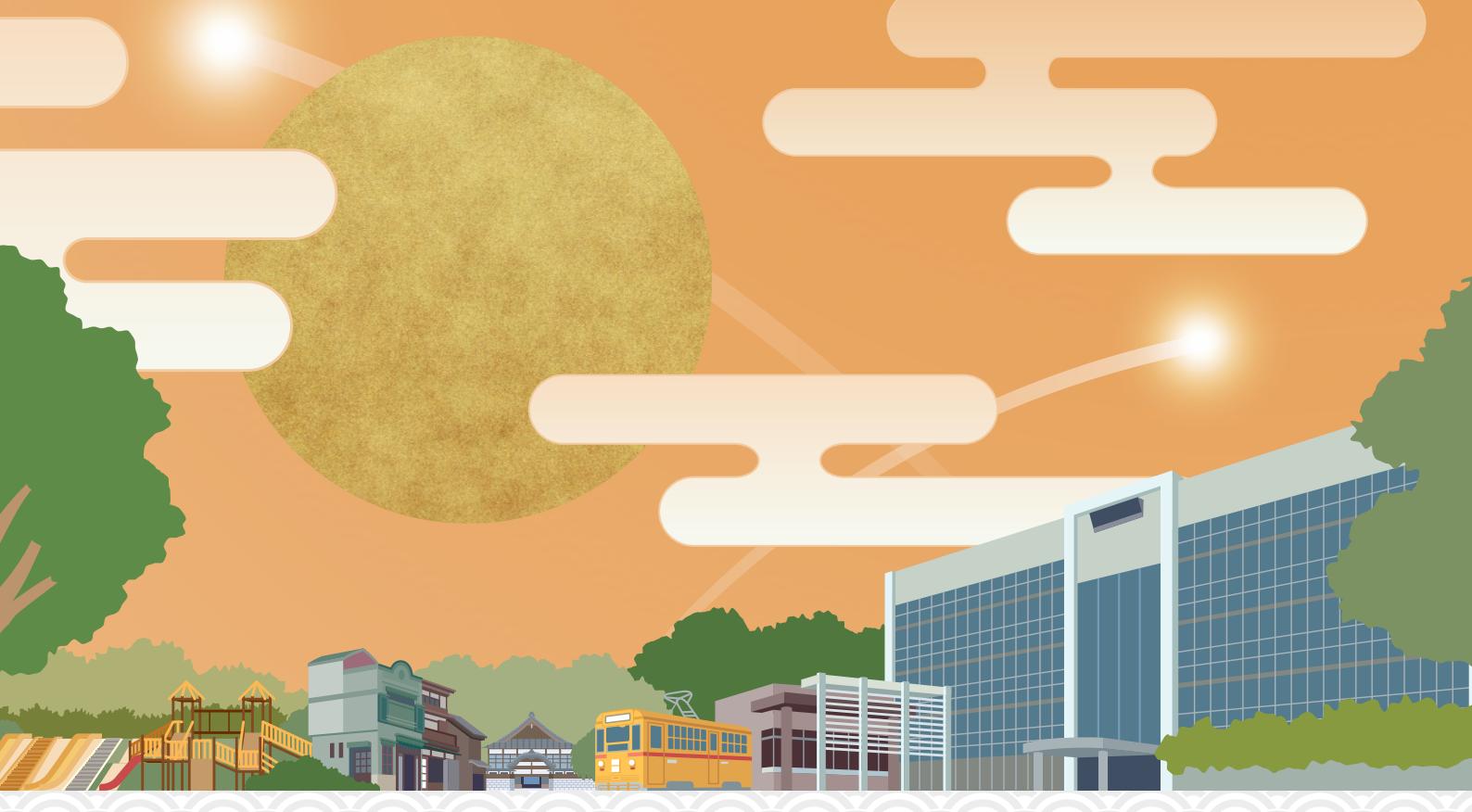
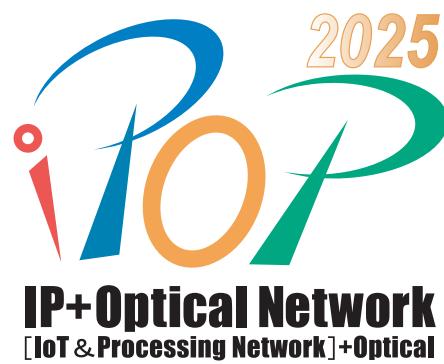


# The 21<sup>st</sup> International Conference on IP / IoT & Processing + Optical Network (iPOP 2025)



NICT Koganei Headquarter,  
Koganei-shi, Tokyo, Japan.

July 17th to 18th, 2025 Japan Standard Time (UTC+9:00)



# Welcome Message

Dear friends, presenters, and supporters of the iPOP Conference, Welcome to iPOP 2025, which will be held for the third time at NICT Koganei. This year marks the 21st anniversary of the iPOP International Conference, sponsored by Photonic Internet Labs (PIL) and ISOCORE. Since its inception, the conference has consistently enjoyed strong attendance, attracting diverse and engaged participants in person.



Naoaki Yamanaka,  
Keio University, Japan



Takeshi Kuwahara,  
NTT, Japan



Bijan Jabbari,  
ISOCORE, USA

iPOP 2025 is planned as a fully in-person conference and will feature showcases and exhibitions. It will be held on July 17-18, 2025, at NICT Koganei. NICT hosting this event is known as one of Japan's leading centers of excellence in research.

For this year's event, we are expanding the central theme of the conference to focus on the development of an all-photonic network (APN) toward 6G networks. In 6G networks, not only massive bandwidth but also ultra-low latency and environmentally friendly technologies will be essential. New breakthroughs are required to support these advancements.

Additionally, we will continue covering network topics related to flexible services such as SDN and NFV, emphasizing reliability, manageability, flexibility, and cost-effectiveness. Data center networks are evolving from standalone centers to distributed architectures. Optical high-bandwidth interconnects among data centers in metro areas will play a crucial role. Cloud-led and edge computing remain key research topics, and an all-optical network serves as the fundamental platform for these data centers and in-network computing.

Generative AI is getting momentum, and next-generation AI-centric network architectures are emerging through IP+Optical technologies. Mobile access network integration, including 5G, remains a hot topic. AI and data analytics will enable reliable and highly efficient network operations. The IOWN initiative, an all-photonic digital twin network architecture led by Intel, Sony, and NTT, has launched its first commercial service.

Additionally, the Japanese government has started an all-photonic network platform project in collaboration with research teams, tower providers, and data center application providers.

This year marks the true starting point for APN development.

We hope you will join us in person at iPOP 2025 and contribute with your presentations. We look forward to your participation and support in making this event a great success!

March, 2025

iPOP 2025 General Co-Chairs

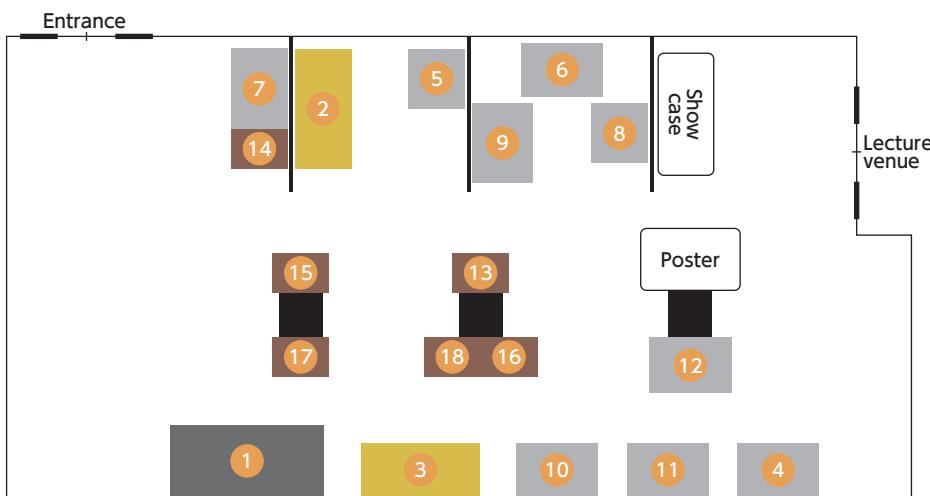
Naoaki Yamanaka

Takeshi Kuwahara

Bijan Jabbari

## EXHIBITION & BOOTH LAYOUT

No.	Participants	Title
1	SHARP CORPORATION, THE UNIVERSITY OF TOKYO	Customizable SoC for UE and Software Defined Radio gNB for Next generation 5G/6G.
2	NTT (1)	Photonic Exchange - A Novel Transport System Utilizing Wavelength Converter for End-to-End Direct Optical Connections in APN
3	Keio University	Keio Future Photonic Network Open Lab and its Related Activities
4	NICT	Multi-Domain/Hybrid Optical Network Orchestration and Autonomic Service Management
5	NTT (2)	Subchannel Circuit eXchange (SCX) technology to realize distributed DC for AI computing
6	KDDI CORPORATION	All-Photonic Network Common Infrastructure Technology ~Photonic Network Federation Technology~
7	TOYO Corporation	Fiber Optics and Ultra Highspeed Ethernet Solutions
8	NEC	Two-Tier Path Design for Federation of Optical Networks Across Different Administrative Domains
9	1FINITY Inc.	•1FINITYseries DWDM Solution •Distributed ROADM Technology for Future Mobile Fronthaul Network
10	Oki Electric Industry Co., Ltd.	A Traffic-Based Energy-Efficient Access Network
11	Furukawa Electric Co., Ltd.	Optical Network Solutions
12	Alaxala	Network Visualization and Control Solution
13	Sevensix Inc.	All-Optical Infrastructure: Filtering, Switching, and Testing
14	Kei-han-na Interoperability Working Group & Open Optical Network (O2N) Working Group	Activities of Interoperability Working Group and Open Optical Network (O2N) Working Group
15	Photonic Internet Forum	Introduction of the PIF Standard Promotion Committee
16	Tohoku University	Coherent optical access system with injection-locking technique
17	OA Laboratory	TBD
18	EpiPhotonics Corp.	Epitaxial PLZT Optical Modulator



# PROGRAM at a Glance

## Day 1: 2025/07/17 (Thursday)

<p>10:00 – 12:30</p>	<b>iPOP Plenary</b> - Presider: Hiroaki Harai, NICT, Japan
	<b>Opening Address</b> - Naoki Yamanaka, General Co-Chair, Keio University, Japan - Bijan Jabbari, General Co-Chair, ISOCORE, US
	<b>Keynote</b> <b>K-1</b> "IOWN Technology promotes Paradigm shift of Communication and Computing" Jhih-Heng Yan, Chunghwa Telecom Labs, Taiwan (R.O.C.) (Online)
	<b>K-2</b> "Optical Space Communication Networks: a resilient and secure space backbone" Guray Acar, European Space Agency (ESA), The Netherlands
	<b>iPOP Exhibition Introduction</b> - iPOP Exhibition Co-Chair: Akihiro Nakamura, Spirent Communications, Japan
	<b>iPOP Showcase Introduction</b> - iPOP Showcase Co-Chair
	<b>Local Arrangement</b> - iPOP Local Arrangement Co-Chair
12:30 – 14:00	<b>Lunch Break &amp; Exhibition</b>
14:00 – 15:30	<b>Technical Session (1):</b> - Chair: Wataru Imajuku, Meijo University, Japan <b>T1-1</b> "Overview of SDN control of multiband over SDM optical networks with physical layer impairments" (Invited) Ramon Casellas, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC), Spain <b>T1-2</b> "Overview of Optical Network Design based on Additive White Gaussian Noise (AWGN) model" (Invited) Toru Mano, NTT Network Innovation Laboratories, Japan <b>T1-3</b> "TBD" (Invited) Robson Assis Colares, University of Campinas, Brazil
15:30 – 16:00	<b>Showcase Presentation</b>
16:00 – 16:30	<b>Break &amp; Exhibition</b>
16:30 – 17:50	<b>Technical Session (2):</b> - Chair: Masaki Tanaka, Mitsubishi Electric, Japan <b>T2-1</b> "Network operation automation through user intent handling with LLM and GenAI" (Invited) Takuya Miyasaka, KDDI Research, Inc., Japan <b>T2-2</b> "Radio-over-fiber technologies for millimeter-wave and terahertz-wave communications in 6G and beyond" (Invited) Pham Tien Dat, NICT, Japan <b>T2-3</b> "Analog-RoF mobile fronthaul networking testbed in Keio future photonic network open lab." Kojo Nishimura, Keio University, Japan
18:10 – 20:00	<b>Reception</b>

## Day 2: 2025/07/18 (Friday)

<p>09:20 – 10:40</p>	<b>Technical Session (3):</b> - Chair: Hideaki Furukawa, NICT, Japan <b>T3-1</b> "All-Photonic Network Common Infrastructure Technology towards Multi-Operator Collaboration" (Invited) Toshihiko Tamura, NTT Network Service Systems Laboratories, Japan <b>T3-2</b> "Distributed ROADM node architecture for wide deployment of all-photonic network" (Invited) Yasuhiro Aoki, 1FINITY Ltd., Japan <b>T3-3</b> "Two Tier Path Design for Federation of Optical Networks Across Different Administrative Domains", Kotaro Inoue, NEC Corporation, Japan
	<b>Break</b>
	<b>Special Session:</b> <b>Theme: "Key breakthrough technology toward All photonic Network/ IOWN"</b> - Organizer & Chair: Naoki Yamanaka, Keio University, Japan <b>S-1</b> "Recent progress of RoF and PWoF using Hollow core fiber" Hiroyuki Tsuda, Keio University, Japan, and Motoharu Matsuura, The University of Electro-Communications, Japan <b>S-2</b> "Hollow Core fiber RoF application for 5G/6G network" Satoru Okamoto, Keio University, Japan <b>S-3</b> "The state-of the art Hollow core fiber research," Kazunori Mukasa (Lightera.Co) Video: Keio future photonic network open research center, Japan
<p>12:00 – 13:30</p>	<b>Lunch Break &amp; Exhibition</b>
	<b>Sponsor Session:</b> - Chair: Yoichi Sato, Open Systems Laboratory, Japan <b>B-1</b> "Photonic Exchange – A Novel Transport System Utilizing Wavelength Converter for End-to-End Direct Optical Connections in APN" Junnosuke Hiyama, NTT, Japan <b>B-2</b> "Keio Future Photonic Network Open Lab and its Related Activities" Satsuki Jimura, Keio University, Japan
	<b>Exhibition &amp; Poster session:</b> <b>P-1</b> "Improvement of Method to Conceal Formula of Network Reliability Computation" Kanata Miki, Tokyo City University, Japan <b>P-2</b> "Improvement of Computing Security Strength of Allocation of Shares in Secret Sharing Schemes" Syuuma Suzuki, Tokyo City University, Japan
<p>15:00 – 16:30</p>	<b>Special Panel Session:</b> <b>Theme: Toward interconnection and collaboration of optical networks</b> <b>Moderator:</b> - Sugang Xu, NICT, Japan <b>Panelists:</b> - Takuya Miyasaka, KDDI Research, Inc., Japan - Takafumi Horiba, AWS, Japan - Satoshi Uda, JAIST, Japan
	<b>Closing:</b> - Satoru Okamoto, Organization Committee Co-Chair, Keio University, Japan

# iPOP 2025 COMMITTEE MEMBERS

- General Co-Chairs:  
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Bijan Jabbari, ISOCORE, USA  
Naoaki Yamanaka, Keio University, Japan
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- Vice Chair:  
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Yuto Iizuka, 1FINITY, Japan
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Takaya Miyazawa, NICT, Japan
- Secretary:  
Takahiro Hirayama, NICT, Japan
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Yusuke Hirota, NICT, Japan
- Member  
Kenichi Baba, Kogakuin Univ., Japan  
Shinichi Akahane, Alaxala Networks, Japan  
Satoshi Yamanou, OA Laboratory, Japan  
Ryotaka Miyamoto, Furukawa Electric, Japan  
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Shigeyuki Yanagimachi, NEC, Japan  
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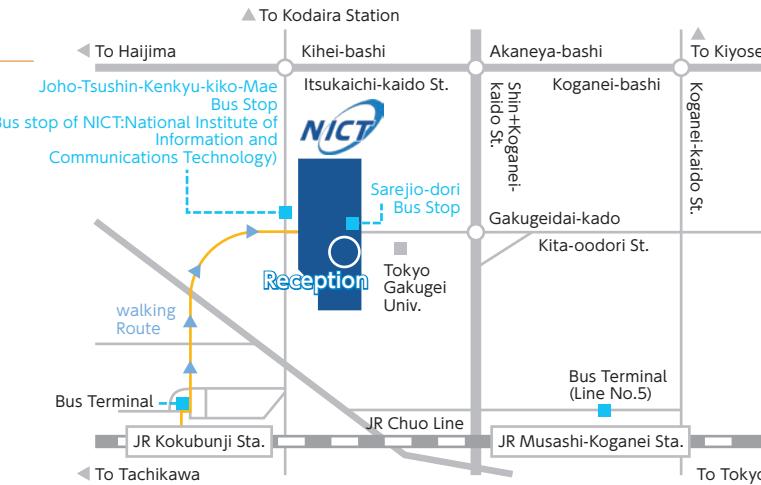
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## LOCATION

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Tokyo 184-8795



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