



IEEE Tokyo Section Life Member Affinity Group

This issue includes reports on the IEEE Region 10 LMAG Meet, the Technical Tour hosted by LMAG-Tokyo, the 20th IEEE Towers, the Tokyo Section TPC hosted Lecture, the 14th Career Development Workshop, Japan SYWL 2023 in SINSHU, Metro Area Workshop 2023, IEEE Women in Engineering 2023, and the Lecture Meeting hosted by Kansai Section.

1. IEEE Region 10 LMAG Meet

The third R10 LMAG Meet was held online at 14:30 (JST) on September 30 (Sun), 2023. The participants numbered 23, including Mr. Rajendra Asthana, R10 LMC Chair, Section LMAG chairs, and relevant individuals in R10. From LMAG-Tokyo, three officers participated in this meeting. A variety of R10 LMAG activity information was shared among the participants. Some of the topics are listed below:

- (1) Regarding the new LMAG foundation, Western Australia (26 LMs) and Fukuoka sections (38 LMs) have made substantial progress, and LMAG, India Council was formed on September 14, 2023.
- (2) R10 Awards recipients were introduced for R10 Outstanding Life Member Volunteer and R10 LM Photography Collection Contest.
- (3) All LMAGs were requested to submit R10 budget requests for 2024.
- (4) The activities of all R10 LMAGs were discussed, and it was reported that 6 LMAGs, namely Delhi, New South Wales, South Australia, Tokyo, Taipei, and Kerala, have earned an annual rebate along with a bonus as they have met the target set by MGA-Life Member Committee.

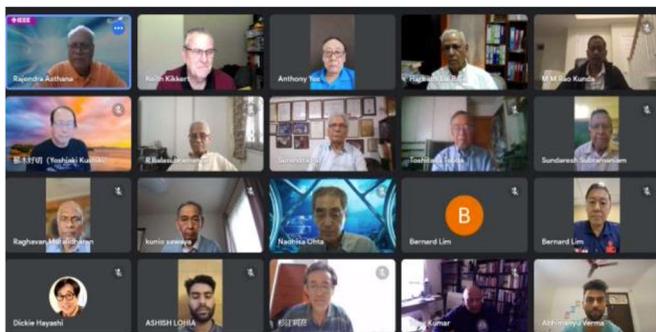


Fig.1 Screenshot of LMAG Meet Participants

2. Technical Tour hosted by LMAG Tokyo

The tour (and lecture) organized by the IEEE Tokyo Section LMAG (Technical Program Committee co-sponsored) took place at the headquarters of JAMSTEC (Japan Agency for Marine-Earth Science

and Technology) in Yokosuka, Kanagawa, on October 4th from 2:00 PM to 5:00 PM. There were 23 participants, with 22 of them being IEEE members. The participants toured the exhibition hall and maintenance facility, where they received explanations about the latest advancements in unmanned marine exploration vehicles and underwater research vessels.



Fig.2 JAMSTEC Exhibition Hall

Additionally, there was a lecture titled "From JAMSTEC's Ocean and Meteorological Research" by Mr. Satoru Yokoi (Group Leader, Earthquake and Tsunami Research Project). The lecture covered intriguing research topics such as "warm water pools" in the surface waters near the equator, seasonal variations, the impact on climate changes between summer and winter, and oceanic meteorological observations conducted by the research vessel "Mirai."

The lecture shed light on JAMSTEC's research and development activities, which directly influence our daily lives through weather forecasts, earthquake information, and more. It was evident that IEEE-related technologies play a significant role in contributing to these meaningful research and development efforts. Overall, the tour was highly informative and valuable.



Fig.3 Unmanned marine exploration vehicle

Poster sessions, discussions, and workshop awards were held with the aim of communicating specialized fields and research content to researchers in different fields in an easy-to-understand manner and helping them understand the technologies, ways of thinking, methods, and cultures of different fields.

The discussion focused on the theme of "The Future of Research Activities Using AI Tools," with Qiushi Ban (CTO, AldeaLab) as the special lecturer, and each group discussed how they can utilize AI technology in their research. They had a lively discussion and some participants said that it was an opportunity to gain a new perspective on their research through communication with participants from different research fields. (<https://young-researchers.net/>)



Fig.4 Group photo of the tour participants and staff



Fig.6 Group photo of participants and staff

3. 20th IEEE TOWERS

The IEEE TOWERS (IEEE Transdisciplinary-Oriented Workshop for Emerging Researchers), an interdisciplinary academic exchange workshop for young researchers, was held at Kanagawa Institute of Technology from 9:30 to 19:00 on Sunday, October 22, 2023, with a total of 83 people participated (including 60 presenters).

4. 14th Career Development Workshop for Students/Young Engineers

The Career Development Workshop for Students/Young Engineers 2023 was held at Meiji University Nakano Campus on Saturday, March 28th from 13:00-16:55, sponsored by IEEE Tokyo Young Professionals (Tokyo YP), Meiji University Student Branch, Tokyo Student Activities Committee (Tokyo SAC). It was held for the first time in seven years since 2016, and there were 28 participants (including 23 IEEE members, and 10 students).

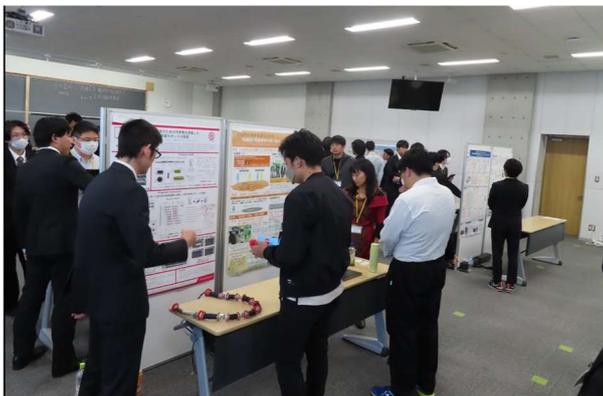


Fig.5 Discussion at poster session

Six researchers and engineers who are active in industry, research, and educational institutions were invited as facilitators, and discussion topics were set based on the experiences of each facilitator and discussed in each group. At the end, each group presented the content and conclusions of their discussion. The theme is as follows. 1) Can university researchers play an active role in companies? 2) What is the path to success as an American (let's enjoy a monthly pension of 1.5 million yen), 3) What is necessary to put "research" to practical use, and 4) What are the factors necessary to form an interdisciplinary community? 5) the significance of sales and marketing experience in developing a

technology career. 6) Can engineers balance their careers with solving social issues?

A lively discussion took place, with participants saying that it was “useful for changing mindsets and planning career.”



Fig.7 Group Presentation



Fig.8 Group photo of participants and staff

5. Lecture Meeting hosted by Tokyo Section (co-hosted by LMAG)

The lecture, organized by the IEEE Tokyo Section Technical Program Committee (TPC) and co-hosted by LMAG Tokyo, took place on October 24, 2023 (Tuesday) at the Kikai-Shinko-Kaikan (on-site) and online. The lecturer was Dr. Hideaki Ishii (Professor, Department of Computer Science, School of Computing, Tokyo Institute of Technology). The lecture was titled "Cooperative Control of Large-Scale Network Systems: Towards Solving Societal Issues through Collaboration of Information, Communication, and Control." A total of 80 participants attended, with 9 on-site participants and 71 online participants, including 65 IEEE members.

During the lecture, Professor Ishii discussed the rapid development of societal systems that deeply intertwine the physical and cyber spaces aimed at by Society 5.0, driven by the proliferation of IoT devices in recent years. Examples such as smart grids and transportation systems, including autonomous vehicles, were cited. These systems are characterized by the collaboration of numerous devices through communication, featuring a

decentralized structure. The presentation provided an overview of recent research on multi-agent cooperative control, which is a control engineering approach to such networked large-scale systems.

Furthermore, there has been a growing concern about cyber attacks on control systems recently. Demands for confidentiality and robustness have become crucial. In this lecture, Professor Ishii introduced the current status and future challenges of this research, incorporating application examples such as wireless sensor networks, power systems, and brain-neural networks.



Fig.9 Dr. Ishii giving his talk

6. Lecture Meeting hosted by Tokyo Section (co-hosted by LMAG)

The lecture, organized by the IEEE Tokyo Section Technical Program Committee (TPC) and co-hosted by LMAG Tokyo, took place on November 21, 2023 (Tuesday) at the Kikai Shinko Kaikan (on-site) and online. The lecturer was Dr. Itsuro Morita (Professor, Department of Computer Science and Communication Engineering, School of Fundamental Science and Engineering, Faculty of Science and Engineering, Waseda University). The lecture was titled "High-Capacity Optical Fiber Communication Technologies Supporting Diverse Communication Services." A total of 81 participants attended, with 15 on-site participants and 66 online participants, including 44 IEEE members.

The outline of the lecture was that the amount of information handled by users continues to increase dramatically due to the development of new communication services such as video distribution via the Internet, fifth-generation (5G) mobile communication services, and the metaverse, but in order to respond to such an increase in the amount of information, it is essential to increase the capacity of the information network. Optical fiber communication technology is the fundamental technology that supports such large-capacity information networks, and the introduction of various innovative technologies has dramatically increased the capacity. In this presentation, the main technologies that have been developed for the

increase in the capacity of optical communication systems were introduced, as well as future technologies for the continuous increase in capacity in the future.



Fig.10 Dr. Morita giving his talk

7. IEEE Japan SYWL 2023 in SINSHU ~ Shin Engineer~

The workshop sponsored by IEEE Japan Council took place on November 24, 2023, from 12:30 to 17:10 at Shinshu University, Nagano Campus (Engineering). This event was attended by 64 participants, including students, young engineers, women, Life Members, and others.

The opening remarks were delivered by Professor Toshio Sato, the Chair of the IEEE SYWL 2023 Organizing Committee and a professor at Shinshu University. Following the opening, Mr. Kazuo Hagimoto, Senior Researcher at the National Institute of Information and Communications Technology, gave a keynote speech. His presentation focused on his achievements leading to the 2023 Japan Prize and shared various episodes, including the key points of the technology he developed and the challenges he faced.



Fig.11 Mr. Hagimoto giving his talk.

As part of the IEEE Volunteer Leadership Training

Program, special lectures were conducted, highlighting examples and experiences of individuals who have made contributions globally through IEEE activities. The speakers were Dr. Akihito Nishihara (IEEE R10 Past-Director, IEEE Life Fellow, Tokyo Institute of Technology) and Ms. Emi Yano (IEEE R10 Humanitarian Technology Activities Committee Chair, Ricoh).

Finally, the participants engaged in group discussions on various themes, allowing them to share their experiences and ideas. This provided an opportunity for exchange and networking across generations and genders.



Fig.12 Group photo after the event

8. IEEE Japan Council Metro Area Workshop 2023

The IEEE Japan Council Metro Area Workshop (MAW) 2023 took place on November 25, 2023, from 13:00 to 17:00 at Shinshu University Nagano Campus (Engineering), Nagano City. MAW aims to broadly introduce technological trends in fields associated with IEEE and provide opportunities for industry-academia collaboration as well as interdisciplinary and cross-industry exchanges. The MAW 2023, held in collaboration with Shinshu University's Research Center for Aerospace Systems and IEEE Japan Council (IEEE Shin-etsu Section), focused on the theme of "Industry-Academia Collaboration in Next-Generation Air Mobility." The workshop also received broad support from academia and industry in the realm of next-generation air mobility, encompassing aspects such as the electrification of aircraft and flying cars.

The series of presentations and discussions covered a wide spectrum of topics, beginning with a special keynote address by Mr. Kiyohiko Nagano, Director of the DX Promotion Section at Nagano Prefectural Planning and Promotion Department. His presentation, titled "Utilizing Next-Generation Air

Mobility in Nagano Prefecture," set the stage for insightful discussions.

Further presentations included research and development in air mobility technology at Shinshu University's Research Center for Aerospace Systems, an introduction to the Akita University's Joint Research Center for Electric Architecture, and research and development in the New Generation Motor Characteristics Evaluation Lab. Tamagawa Seiki Co., Ltd., and Aster Co., Ltd. also shared their relevant initiatives, sparking lively Q&As. The total number of participants for this event was 101, with 27 being affiliated with IEEE.



Fig.14 Group photo after the event



Fig.13 Participants engaged in enthusiastic discussion

9. Future technology pioneered by women (IEEE Women in Engineering 2023)

IEEE Women in Engineering 2023, hosted by IEEE Tokyo/Shin-etsu Joint Section WIE, was held on Saturday, December 2, 2023, from 13:00 to 17:00, in a hybrid format between Aoyama Gakuin University's Aoyama Campus and online. A total of 101 people (35 persons on-site, 66 persons online) including 69 students participated. Women engineers and researchers who are active in the engineering field were invited to introduce the technology development and research that the times demand. Furthermore, they discussed how to share the future technologies pioneered by women, and what kind of technologies they will work on in the future.

Following Kawamoto Chair's greetings, a keynote speech by Dr. Mizuho Kayama, Professor of Shinshu University, titled "Let's talk about Well-being" and, a technical speech by Nancy Min, "eCOLong" Founder and CEO, titled "Convergence of Blockchain and AI/ML and its role in the smart city future" was held. After the lectures, a Q&A and discussion session were held, providing a good opportunity for interaction. Finally, as a closing ceremony, Vice Chair Nagashima gave a greeting and introduced future events.

10. Lecture Meeting hosted by Kansai Section (co-hosted by LMAG-Kansai)

The technical lecture meeting, jointly organized by IEEE LMAG-Kansai and the Kansai Section, took place on December 7, 2023, at the Osaka Institute of Technology Umeda Campus, both in-person and online. The distinguished speaker for the event was Professor Hiroyuki Matsunami, who was awarded the Edison Medal by IEEE earlier this year. Professor Matsunami holds the title of Professor Emeritus at Kyoto University. The title of his lecture was "SiC Power Devices: A New Frontier Toward Carbon Neutrality." A total of 213 participants attended, with 37 on-site participants and 176 online participants, including 87 IEEE members. The Vice-Chair from LMAG-Tokyo also attended the event in person.



Fig.15 Hiroyuki Matsunami

During the lecture, Professor Matsunami provided a comprehensive and accessible overview of his over half-century-long research journey in the field of SiC, a power semiconductor material. He discussed the initiation and development of his research, including breakthroughs and the utilization of national projects, intertwining personal anecdotes. SiC has seen accelerated practical applications in various fields such as railways and electric vehicles, and the lecture

delved into the expanding application areas and future challenges. The content was highly insightful, making the lecture an enriching and meaningful event.

11. IEEE R 10 LM Photography Collection Contest 2023

Professor emeritus Akinori Nishihara, Tokyo Institute of Technology, won the First Prize in the “Category-2: A historical or significant engineering tool or project by the entrant” category of “IEEE R10 LM Photography Collection Contest 2023” for his photo related to 3D YC Separator.

(<https://lm.ieeer10.org/activities/>)

12. Future Events

LMAG-Tokyo is planning to hold the following events.

- December 22nd (Friday) 15:00-16:30, Kikai-Shinko-Kaikan, "A world where high-sensitivity magnetic measurement of electrical activity in living organisms can be performed (focusing on medical applications)", Dr. Akihiko Kandori (Hitachi, Ltd.)

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