



LMAG Kansai

Newsletter

Contents

Message from the Chair	1
Officer's Feeling	3
Activity Reports	3
Activity Plan 2024	11
Editor's Note	11

Message from the Chair

Take advantage of diversity

Yoshiaki Kushiki, Chair, LMAG Kansai



Life member (LM) is at a stage where he or she can retire from industry, academia, or government organizations and enjoy life from a free position. Its characteristic is diversity itself. Therefore, IEEE's efforts toward LM transcend organizational, specialized, age, and regional barriers. It is important to share empathy with young engineers and convey their passion for how IEEE's innovative technology and application topics are revolutionizing a society.

Exploring the singularity

Singularity in a narrow sense predicts

that AI will surpass humans in 2045. The phenomenal spread of generative AI feels like we are now witnessing the birth of the singularity ahead of schedule. And singularity in a broad sense has been emerging like a large wave from the past.

It is said that electricity developed as electrical engineering, including the invention of the light bulb, in the late 19th century. Since then, electricity has been the Great Singularity that continues to bring about major changes in society. Computers and the Internet are also part of the Great Singularity, stacked on top of electricity.

Accumulation of IEEE milestones

IEEE Milestones can be said to be the best practices of innovative technologies from 25 years ago that revolutionized social life. The achievements of milestones are accumulated and contribute to social innovation. To commemorate the 10th anniversary of the establishment of LMAG Kansai, Dr. Shirakawa gave a lecture on 40 cases acquired by Japan. New key technologies are being added one after another to these achievements, providing new conveniences for social life, and connected by new network technologies, leading to a specific innovation (singularity) in social life.

Planning a singularity technology lecture

Professor Matsunami received the 2023 IEEE Edison Award for inventing a groundbreaking manufacturing method for SiC. Therefore, considering that SiC is at the forefront of causing the singularity in social life, we will hold a keynote lecture at the 1st Singularity Technology Conference in December 2023, and plan to follow up with a conference on new applications of SiC.

Technical contribution to social infrastructure

Because the singularity occurs not only in advanced fields but also in social infrastructure such as disaster prevention, we chose "disaster prevention" as the topic for the local lecture.

In June, during the period of heavy rain, we held a tour and lecture on the phased

array radar at Osaka University's Ushio Laboratory. In November, I toured Kobe's "Humanity and Disaster Prevention Future Center" and listened to a lecture by Professor Iizuka of Kobe University.

Toward smarter hybrid lecture management

Due to the coronavirus pandemic, we have entered an era where face-to-face lectures and online conferences coexist.

LMAG Kansai implemented a series of IT implementations, including application for participation, hybrid conference management using Zoom online, and automatic survey sending and aggregation, in cooperation with the Kansai Section and IEEE-JC.

When it came to IT, we were able to develop it in about 5 months using generation AI such as chat GPT, Bing, and Bard. I experienced the use of singularity using generative AI and was able to experience its effects. I think this will be useful in planning the future Singularity Lecture Series. We would like to thank the LMAG Kansai board members for their great cooperation in functional verification and implementation testing.

Others/Meeting attendance

IEEE Kansai Section: 5 board meetings, 1 general meeting, and 1 25th anniversary meeting.

LMAG Kansai Board meeting: 9 times.

R10 Global Online meeting: 4 times.

Japan LM Chair meeting: 4 times.

Officer's Feeling

Relation to LMAG activities

Kazuo Hirano, Secretary, LMAG Kansai

The Japanese Government reclassified COVID-19 as class 5 from May, most recent events have been held on site. I was in charge of planning the on-site tour and technical meeting at “The Great Hanshin-Awaji Earthquake Memorial Disaster Reduction and Human Renovation Institution“, Kobe-city, and I felt I could

have learned my lessons a lot from this kind of face-to-face event. I enjoyed a talk with young students at the get-together, too.

I'd like to continue to plan a wide variety of events, please do not hesitate to inform me your ideas by e-mail (lmag-kansai@ieee-jp.org).

Activity Reports

Technical Lecture Meetings

On-site tour and Technical Lecture

On June 28th, LMAG Kansai held the “21th On-site Lecture Meeting” at Professor Ushio's Laboratory of Osaka University, jointly with Kansai Section Technical Program Committee (TPC), and nineteen members and four non-members participated.



The Phased Array Rader is installed on top of E3 Building.

Mr. Kushiki gave an opening address, and Professor Tomoo Ushio, School of Engineering, Osaka University, lectured us on his research theme under the title of “Current status and Future of Early Prediction Technique for Linear Precipitation Bands Utilizing Phased Array Radar”.



Professor Ushio, lectured us on his research.

During this lecture, Dr. Wada, Assistant Professor of Ushio's Laboratory, told us "we will have a heavy rain around thirty minutes from now", but at that time we had a calm weather. Just thirty minutes after his declaration, we saw a sudden change of weather, and heavy rain and blasts of wind started. Then, we moved to the Radar site installed on top of E3 building of Suita campus, and Dr. Wada gave us an outline of the system. The changing status of the weather minutes by minute was displayed on a PC screen captured by using the Radar. These series of events were amazing experiences for us. According to Professor Ushio, the "Phased Array Radar" can take much more accurate data of clouds than existing radar system, and by using these data, we can get more accurate weather forecast, at least within three hours before the future weather events. The project was supported by the Ministry of General Affairs and Communications, and the researchers are trying to spread this technology by enhancing the technology and analyzing huge data, to be able to cope with the current weather disasters taken place worldwide.



Twenty-three persons participated.

After the tour, Professor Ushio and the participants had an optional get-together at a restaurant in the campus, and enjoyed a continued discussion on the technology and its impact to society worldwide.

Technical Lecture

On September 14th, we held 22th Technical Lecture Meeting titled "IEEE milestones in Electrical Engineering and Computing" by Dr. Shirakawa, Professor Emeritus Osaka University, at Umeda campus of Osaka Institute of Technology, jointly with Kansai Section and cosponsored by IEEE Japan Committee, JC History Committee, and Osaka Institute of Technology, and 31 persons participated on site and 61persons on line.

Mr. Kushiki, the Chair of LMAG Kansai, made an opening remark about the policy of the lecture meeting.

Professor Shirakawa talked on the historical significance of IEEE milestone and introduced the authorization processes of all 42 milestones developed and industrialized in Japan. The number of milestones is rather large compared with 241 milestones worldwide.



Professor Shirakawa's presentation about IEEE milestones developed in Japan.

He referred to interesting background of those technologies and how the authorization processes and interactions between IEEE History committee and he were carried on. Then, we had a lot of questions and comments by participants and a lively discussion was lasted till the time limit.

After the lecture, we enjoyed a talk about the milestone technologies at a restaurant on top of the campus building.

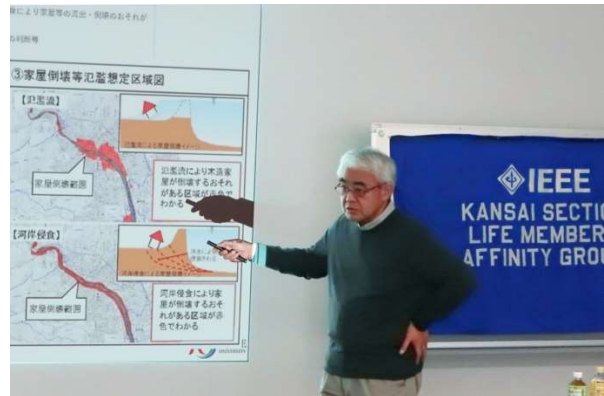


Nineteen people joined the get-together.

On-site tour and Technical Lecture

On November 10th, we held 23rd on-site tour and technical lecture meeting at “The Great Hanshin-Awaji Earthquake Memorial Disaster Reduction and Human Renovation Institution (DRI)”, Kobe-city. Twenty-two persons joined the guided tour

of the Great Hanshin-Awaji Earthquake memorial museum and watched the reproduced displays of the status of various areas at that time. Then, we moved to the hands-on section, where we were reminded of the terrible result of the earthquake, and understood the necessity of disaster prevention measure, again.



Professor Iizuka lectured to the attentive participants about his research.

Professor Atsushi Iizuka, Research Center Urban Safety and Security, Kobe University, gave a lecture under the title “DX: Wholly Digital Transformed City by integration of versatile data in various aspects – How the Digital Transforming of a city Evolve the Technologies to Prevent and Reduce Disasters? –. He talked about his ideas to predict possible impact of disasters by simulating integrated data gathered based on the “City-Model”, which he proposed.



Twenty-five persons participated.

After the lecture meeting, we had a get-together, and sixteen persons enjoyed a

talk about the Hanshin-Awaji Earthquake and Professor's lecture.

The 1st Singularity Technical Lecture Meeting

On December 7th, we sponsored and organized 24th Technical lecture Meeting, in commemoration of "IEEE Edison Medal", which Professor Emeritus Hiroyuki Matsunami, Kyoto University" received, at Umeda campus of Osaka Institute of Technology. The meeting was also sponsored by IEEE Kansai Section, and Kansai Section Technical Program Committee, Japan Council, and co-sponsored by the University, as the "First Singularity Technical Lecture meeting".

At the beginning, Mr. Kushiki, the Chair of LMAG Kansai, gave a remark about the significance of the technology and the impact to global industries brought by the technology. Professor Matsunami lectured about the object of his research under the title "SiC Power Device: Progress towards Carbon Neutrality".

Semiconductor material for power switching that could dramatically reduce the operating loss with faster switching as compared with conventional Silicon (Si). It has already been applied for electric vehicles (EVs) and other power electronics equipment taking advantages of the material's superiority. In this lecture meeting, Professor Matsunami, a winner of 2023 IEEE Edison Medal and a distinguished technical leader in this field, presented technical breakthroughs in the development of SiC materials and devices.

He also presented the expanding applications of SiC power devices including electric vehicles (EVs). In addition, fuel cells will be discussed as a promising application raised in Japan especially in Kansai.



Professor Matsunami gave a lecture about his research on SiC.

The attendees were very impressed by the lecture and the sample of SiC wafer displayed in the lecture room. Active questions and discussions about his research and possible future applications followed.



213 persons attended, on-site and online.

After the lecture meeting, we had a warm talk with Professor Matsunami on his power semiconductor technology at the restaurant on top of the campus building



Twenty-two participated the get-together

On-site Lecture Meeting and hands-on

On December 18th, we held 25th on-site Lecture Meeting, jointly with IEEE Kansai Section and MDC Kansai in a hybrid format under the title of “Visit to the Information Security Engineering Laboratory of Nara Institute of Science and Technology to consider electromagnetic security required for hardware”. Kansai Section TPC co-sponsored and IEEE EMC Society Japan Joint Chapters cooperated in the event, too, and ten IEEE members participated on-site and twenty-one online.

Dr. Kobayashi, the former chair of LMAG Kansai, made an opening remark, and then Professor Yuichi Hayashi, Graduate School of NAIST, gave a lecture under the title “Electromagnetic Waves and Information Security”.



Professor Hayashi is the Chair of MDC Kansai.

As information security becomes more important on a daily basis, physical- and upper-layer security are becoming major concerns. In fact, the ever increasing precision and price drop of measuring devices along with the increasing speed and memory of computers, enables high-level attacks that used to be technically difficult to achieve. Such attacks represent threats not only to the military and diplomatic areas, but also to commerce and industry. With focus on physical-layer security, the ISE (Information Security Engineering) Laboratory conducts research and development concerning information leakage mechanisms and their countermeasures, as well as research on overall system security including the upper hardware-based layer.



Hands-on practice by IEEE members.

After the lecture, we moved to his research laboratory, and experienced impressive hands-on demonstration of the technology. This was the first hands-on experience for us, and we were able to experience the security threats with the help and instruction of the lab's staff! Seeing is believing, and it was a valuable experience.

At the end of the event, Mr. Kushiki, the chair of LMAG Kansai, gave a closing

remark and gratitude to the staffs of ISE Laboratory.

Cooperation with Other Groups

Educational activities

On August 19th, Kansai Section Educational Activities (EA) organized and sponsored “Third IEEE Kansai Section Educational Event” under the title “Talk cutting-edge technologies in English – Basic factors for technical communications - ” at Umeda Campus of Osaka Institute of Technology in a hybrid format, and LMAG Kansai cosponsored this. We have been cooperating in Kansai Section Educational Activities to encourage young researchers and high school students since 2021, and Dr. Kobayashi, the former Chair of LMAG Kansai, attended the event.



Dr. James Cusick, IT Consultant, gave a lecture and supported the discussion.

Support for Student Branch activities

On December 1st, IEEE Ritsumeikan University Student Branch sponsored and organized, and IEEE Student Branch Kansai Section, Young Professionals Affinity Group Kansai Section and LMAG

Kansai co-sponsored “English Presentation Competition 2023”, in a hybrid format, at Ritsumeikan Kusatsu Campus.

Prof. Ryuto Ishibashi, Vice Chair of Ritsumeikan Student Branch, gave an opening speech. Then, thirteen technical presentations were made by students from Ritsumeikan University and Kansai University, Hyogo Institute of Science and Technology. At the end of the event, the closing speech and award ceremony were given by Prof. Ono, the Chair of Ritsumeikan Student Branch, where three distinguished speakers were commended and won “Best presentation Award”, “Excellent Award”, and “LMAG Award”, respectively. Dr. Kobayashi, the former Chair of LMAG Kansai participated and supported the event as one of judges of the awards.



Students presented their researches.

We plan to cultivate cooperation with SB and position the event as one of LMAG Kansai’s original EA activities.

SB/YP Joint Event in 2023

On September 30th, IEEE Kansai Student Branch (SB) and Young Professionals (YP) Affinity Group jointly held “IEEE Kansai Section SB-YP Joint Event in 2023” at Umeda Campus of Osaka Institute of Technology. LMAG Kansai supported the event, too.

The event constitutes two parts, where “Research Presentation by students” promoted by SB and “Mutual Exchange between industrial researchers and students” promoted by YP, respectively. Active discussion after the lectures took place and was meaningful opportunity for both students and young professionals.



Dr. Kobayashi, the Past Chair of LMAG Kansai”, and Professor Oshima, the Secretary of LMAG Kansai, attended and supported the event.

WIE Symposium 2023

On October 21st, IEEE Kansai Section WIE (Women in Engineering) Affinity Group held 10th anniversary symposium under the title of “Enjoy Science,

Technology and your Life!” at Ibaraki Campus of Ritsumeikan University, in a hybrid format. We cosponsored the event, and Mr. Kushiki, the Chair of LMAG Kansa, and Dr. Kobayashi, the past Chair of LMAG Kansai, attended the event.

YP Conference 2023

On November 12th, IEEE Kansai Section YP (Young Professionals Affinity Group), jointly with Hiroshima, Shikoku, and Fukuoka Joint Sections Young Professionals Affinity Group (HSF YP) held “IEEE Japan Council YP Career Lab 2023 in Himeji” in a hybrid format at “Arcrea Himeji” in Himeji city. We supported the event and Dr. Kobayashi, the former Chair of LMAG Kansai, attended the event.

SYWL2023 in SHINSHU

IEEE Japan SYWL2023 (Students, Young Professionals, Women in Engineering, Life Members) in SHISHU ~Shin Engineer~ was held on November 24th at Shinshu University in Nagano-city. It was sponsored by IEEE JAPAN Council and organized by IEEE Shin-etsu Section, and supported by LMAG Kansai

Other activities

LMAG Officers’ Meeting

We held officers’ meetings online.

- On February 24th, we held 1st officers’ meeting and Professor Ariki, Kobe

University, was introduced as a new Vice Chair of LMAG Kansai.

- On March 24th, we held 2nd officers’ meeting, and discussed about the plan.

- On April 24th, we held 3rd officers' meeting, and discussed about the better management of an event.
- On May 25th, we held 4th officers' meeting, and discussed about the planned lectures.
- On July 6th, we held 5th officers' meeting and discussed about coming lecture events.
- On August 30th, we held 6th officers' meeting and discussed about the management process.
- On September 11th, we held 7th officers' meeting and discussed about the detailed plan of the management of the lecture on September 14th.
- On September 28th, we held 8th officers' meeting and discussed about the coming events and their management process.
- On December 24th, we held 9th officers' meeting and discussed about 2024 plan.

Certificates of Appreciation

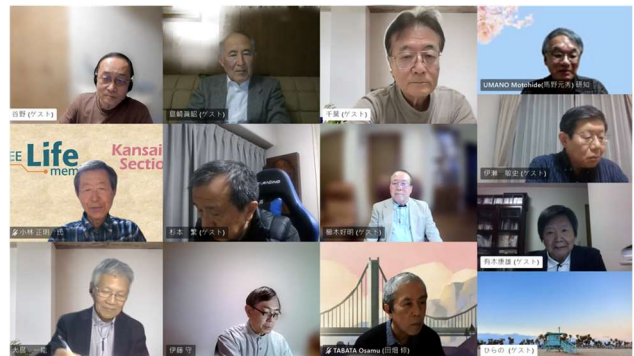
Jointly with Kansai Section, Japan Council, and Japan Council Life Member Coordinator, we presented Certifications of Appreciation to Professor Shirakawa and Professor Matsunami, for Dr. Shirakawa's long years contribution to made to the promotion of IEEE milestones qualification process of Japanese engineers technological and industrial achievements, and for Dr. Matsunami's pioneering contributions to the development of silicon carbide material and its applications to electronic power devices, respectively.



Plaques of the certificate of appreciation.

LMAG Welcome party

On March 24th, we held an online welcome party for new Life Members. Six persons out of twenty-one new members and seven LMAG Kansai officers participated. Mr. Kushiki, the Chair of LMAG Kansai, gave a welcoming address, and all participants enjoyed talks about wide range of topics.



Screenshot of the online party.

R10 LMAG Meetings

Four R10 meetings were held online and Mr. Kushiki, the Chair of LMAG Kansai, participated in all of them.

Kansai Section held five officer's meetings and a general meeting, and Mr. Kushiki, the Chair of LMAG Kansai, attended most of them.

Kansai Section Officer's Meetings

Activity Plan 2024

The last year was our 10th anniversary, and 2023 year is a kind of starting point for us to step in the next decade. Under a board officers newly appointed this year, we hold five technical lectures in a hybrid format, after three years COVID-19 pandemic. We would like to further strengthen LMAG Kansai activities, and the following are the current plan for 2024:

- 1) ExCom meetings: monthly or bimonthly.
- 2) Technical Lecture meetings: over three times in a hybrid format. Other goals of this activity are to encourage new LMAG Kansai Members to join our community and to transcend regional

limitations among LMAGs to collaborate with other LMAG members of geographically distant areas. These ideas were derived from our experiences during the COVID-19 pandemic.

- 3) We will co-sponsor YP, WIE and SB AG's events.
- 4) We will continue to support Educational Activities (EA) and English Presentation Competition.
- 5) All activities based on the plan above will be published in the LMAG Kansai Newsletter once a year to call for broad participation in our activities and report them to our members.

Editor's Note

For these three years, due to the continuing COVID-19 pandemic, we have had difficulties to continue our activities as before. However, this year, under the leadership of Mr. Kushiki, the Chair of LMAG Kansai, we held five technical lecture meetings on-site and cosponsored nine events jointly with other affinity

groups, chapters, and other sections in Japan. And, for the first time, we honor two LMAG Kansai members in their academic contributions and significant influences on industry and society.

I thank all officers of LMAG Kansai including Dr. Kobayashi, the former chair of LMAG Kansai, and the IEEE members,

who participated and supported the events, for their efforts to realize these results.

Next year, the officers are going to expand and improve LMAG Kansai's

activities for the members, which I'll report to LMAG members timely. And I'd like to ask you to participate in these activities and support LMAG, as always.

Toru Chiba
Vice-Chair, LMAG Kansai

Submitting Articles

We welcome articles for this newsletter, such as tales of your IEEE activity, essays on novel or interesting technical issues, and so on. Manuscripts should be written in English or Japanese. Please include your

Contact Us

lmag-kansai@ieee-jp.org

Life Grade, Member Number, and email address with your submission.

2023LMAG Kansai Officers

Chair: Yoshiaki Kushiki
Vice Chair: Yasuo Arika
Toru Chiba
Secretary: Kazuo Hirano
Shigeru Sugimoto
Kazuyoshi Oshima
Past Chair: Masaaki Kobayashi

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