





First Announcement

Power transmission and distribution systems in the next generation

The 18th IERE General Meeting & Japan Forum



Kyoto, Japan

May 21 (Monday) – May 24 (Thursday), 2018 Kyoto, Japan

Organized by IERE, CRIEPI and The Kansai Electric Power Co., Inc.







Message from IERE Chair

In reviewing IERE's objectives and mission in moving from the past into the future, what has become apparent over the last decade is that global electricity utilities are constantly exposed to change in an ever increasingly uncertain world. However, what is clearly certain is that the IERE role is to continuously and consistently seek new innovative pathways to meet the many challenges we face, as we move into the future. The impact of electricity generation, transmission, distribution and end-use has the ability to play a significant role with respect to the future sustainability of our industry.

It is my firm belief that the IERE, with one of its prime objectives being "to promote global cooperation through the application of applied technology solution sharing in solving problems to the electricity service industry is taking an important step forward in realizing its role with respect to the changing future for its members.

The IERE was established in 1968, five decades ago, its founding members CEA (Canada), UNIPEDE (Europe), Japan the IERE Council and EPRI (USA) have taken the leadership of promoting information exchange on research and development issues. However, due to the changes in the global electricity business during the 1990s the IERE decided to review its then mandate to meet the needs of the IERE members. In 2000, a strategic meeting held in Hiroshima saw the rebirth of the IERE. Strategic changes and re-engineering was introduced to meet the challenges of the new decade.

Today IERE is celebrating its 50th Anniversary and the renewed IERE is very different from the previous IERE, with a more focused approach. This approach has had significant buy-in from our members and we have established an excellent foundation to develop further and ensure value added benefits to our members.

Electricity and in particular technology development, innovation and leadership around electricity, is playing a profound role in assisting society in grasping the opportunities ("more electricity") and managing the threats ("climate change") emerging in the new century. The pace and scope of technological change in the electricity industry is greater today than ever before and, as such, the need to appropriately position electricity utilities from a technological perspective is an imperative.

It is with this in mind that the General Forum theme: "Power Transmission and distribution systems in the next generation" is totally appropriate. The need to understand the challenges that face our business over the next decades is an imperative and, as such, the sharing of knowledge, experiences, successes and failures will indeed go a long way in understanding which technology roadmap of the future. With this in mind, I hope that you will join me at the 18th IERE General Meeting to be held in the beautiful city of Kyoto, Japan. I believe it will truly be a significant forum and I trust that you will participate, share opinions, challenge each another in order to find the technological solutions that would assist us in the future of a sustainable electricity future.

It is with a great sense of honour that I am able to serve the ideals and values of the IERE in its 50th Anniversary year. We have accomplished a great deal and I believe the sound foundation the IERE has created over the last 50 years has paved a clear and robust path for our future.

Finally, my deepest thanks and appreciation to IERE, CRIEPI and the Kansai Electric Power Co., Inc. for hosting and organizing this the 50th Anniversary of IERE.

I welcome you all to our 50th Anniversary General Forum!



Gregory Tosen

IERE Chair
PIESA, South Africa







Message from CRIEPI

CRIEPI is delighted to co-host the 18th IERE General Meeting and Japan Forum and sincerely welcomes all participants to Kyoto, Japan.

The electric power industry is currently encountering many challenges. The introduction of a large amount of intermittent renewable generations and the rapid advancement of digital technology are significantly impacting the planning, operation, and maintenance of power systems. Moreover, the change in lifestyle and the requirement from society would lead to the change in the business model of the electric power industry. The role of electric power systems in the future would be different from what it is at present. Therefore, the IERE General Meeting and Japan Forum has selected the theme, "Power transmission and distribution system in the next generation." This forum will be a great opportunity to share and exchange in-depth thoughts and knowledge among the participants on the topic, and we are looking forward to having fruitful discussions with everyone.

We hope that you can join us in May, and spend valuable and enjoyable time with us.



Yoshiaki Mino Vice President CRIEPI, Japan

Message from The Kansai Electric Power Co., Inc.

On behalf of The Kansai Electric Power Co., Inc., co-host of the 18th IERE General Meeting and Japan Forum, it is our pleasure to welcome you to this international meeting in Kyoto, Japan.

While the underlying conditions surrounding the power industry may vary by country, many challenges such as the rapid increase in renewable generation and the recent advances in ICT and AI as supporting technologies are common. Further, these challenges require innovative approaches. Therefore, I am confident that this international meeting is an excellent opportunity for experts worldwide to share their experiences about these challenges in the transmission and distribution systems.

As you may already know, Kyoto, the "thousand-year capital," is the ancient capital of Japan, and is internationally famous for its scenic beauty. I am looking forward to having fruitful discussions on the new trends in research and development in this beautiful old city.



Tomihiko Oishi

Director, Managing Executive Officer
The Kansai Electric Power Co., Inc., Japan







Power transmission and distribution systems in the next generation

About the theme

Renewable energy has immense potential for wider implementation in future as it is an effective way to reduce carbon dioxide emissions and its generation costs are falling around the world. However, mass implementation of variable power supplies may impact power transmission and distribution systems. For example, in Japan, home solar power conditioners are causing a flicker effect. There are also concerns that other issues may occur in future, such as voltage fluctuations in distribution line, adverse effects on the power system stability and generation of surplus power.

On the other hand, rapid advances in IoT and AI in recent years have led to a wave of digitalization. The digital transformation has seen the creation of new products and services using digital technology, and companies have adopted new business models to gain a competitive edge. The electric power industry is no exception, with new forms of business arising in unregulated fields. These mainly use demand-side equipment connected to power distribution systems, such as virtual power plants and a smart meter service allowing people to check in on elderly family members. It is also predicted that many customers will have generators installed, resulting in more complex distribution systems and more active electricity transactions on the demand side. To handle this, operation departments of power distribution system (the regulated sector) will need to develop a function for running a platform for electricity transactions that targets power distribution systems in addition to the existing functions for electrical control, planning and maintenance.

For this reason, the Japan Forum will center on the theme of power transmission and distribution systems in the next generation, with a focus on distribution systems and comparatively low-voltage transmission systems, which are setting the scene for the creation of new electrical businesses in future.

About this event

IERE General Meeting is a platform for interactions among IERE members, recommended nonmember experts and invited guests to discuss global energy issues focusing primarily on electricity. It provides the audience with opportunities not only to express their views on the ongoing IERE programs but also to discuss strategic approach to the controversial energy issues of the moment.

Who should attend?

This meeting should be attended by IERE members' representatives, as well as those interested in power industries as a whole, specifically in the related future R&D technologies and policies on generation, transmission, distribution, storage, environmental and regulatory issues, etc. Non-members are encouraged to attend and to share and learn about this highly potential but controversial energy issues. Experts on technical sessions, IERE members and non-members alike engaged in the session topics, should attend the event.







Outline Schedule: This schedule may be changed.

Monday May 21, 2018 Welcome Reception [in the evening]

Tuesday May 22, 2018 The 18th IERE General Meeting/Japan Forum

Wednesday May 23, 2018 The 18th IERE General Meeting/Japan Forum

Thursday May 24, 2018 Technical Tour (Optional)

Session themes:

Plenary Session

Opening Address: Mr. Gregory Tosen, IERE Chair, PIESA, South Africa

Welcome Speech: Dr. Shirabe Akita, Executive Vice President, CRIEPI, Japan

Keynote Speech: Mr. Lawrence Orsini, CEO, LO3 Energy, USA

Title: "Energy of the New Inspires the Venerable"

Mr. Michel Derdevet, Secretary General, Enedis, France

Title: "The electricity distribution networks, vectors and actors of the

energy transition"

IERE General Session [I]

The report of IERE activities by IERE chair and IERE central office

IERE General Session [II]

The report of in-depth research on AI (Artificial Intelligence) by young engineers/researchers as part of IERE Technology Foresight project

Technical Session

Session 1

Theme: New trends and requirements in the field of transmission and distribution systems

In future, power distribution systems are expected to connect various forms of distributed energy resources such as solar power. This will require the development of a platform and cooperation between the demand side and the supply side to maintain the quality of electric power. The collection of fixed costs of equipment and the design of the electric power market will also become issues. This section will cover the following points:

- The role of power transmission and distribution system operators (management of distributed power supplies, etc.)
- · Virtual Power Plant
- Modeling of networks







- Economic viability of platforms
- · Measures to mass PV implementation and improvement of hosting capacity
- · Power trading
- Handling customers' shift to prosumers (acting as both producers and consumers)

Session 2

Theme: Technology for power transmission and distribution systems in the next generation

Attendees will discuss the next generation of technology that will be required for power transmission and distribution systems. This session will mainly focus on hardware, and will cover the following points:

- · Technology for automation of power distribution system
- Power quality (voltage control, interference between devices, anti-flicker measures, high harmonics)
- Smart inverters
- · Linking technology and control technology for distributed power supplies

Session 3

Theme: Use of ICT (including AI and IoT) and its impact on power transmission and distribution systems

Attendees will discuss the next generation of technology that will be required for power transmission and distribution systems. This session will mainly focus on communication technology and software, and will cover the following points:

- Use of big data
- · Use of smart meter data
- Use of IoT in the power transmission and distribution system
- Use of AI for electric power industry
- Cyber security
- Assessment of the state of power supply and distribution systems (e.g. assessment of actual demand when using systems that link distributed power supplies)
- ICT for communication between devices

Poster Session

The Poster of each session will be presented in the main hall.

Poster Session is intended to lead more detailed discussions in front of the poster in the conference (Coffee break, Lunch time etc.).







Technical Tour (optional)

(tentative) Visiting Keage Power Station, Japan's first commercial hydroelectric plant and recognized as IEEE Milestone, with lunch

Details of the tour, fee and how to book it will be announced later.

IERE 50th Anniversary Session

IERE is an international organization for the exchange of information on electric utility research and development established in October 1968 under the strong support and encouragement extended by leaders of electric utility industries of North America, Europe and Japan.

During the 1990s, IERE experienced the big change of the needs of members which arose from changes in the global electricity business. At a meeting held in Hiroshima in 2000, IERE decided to change strategically and introduced re-engineering to meet the challenges of the 21st century.

At the 50th anniversary of establishment, IERE invites seniors deeply involved in IERE to give lectures on IERE's past activities, transformation and future prospects.







Tentative Program (subject to change)

May 21, 2018

18:00 - 20:30 Registration and Welcome Reception

May 22, 2018

The 18th IERE General Meeting/Japan Forum (Day 1)

08:30 - 09:00	Registration
09:00 - 11:45	Opening and Forenoon Sessions
11:45 - 13:00	Lunch
13:00 - 17:20	Afternoon Sessions
17:20 - 18:30	IERE 50th Anniversary Session
19:00 - 21:00	Conference Dinner

May 23, 2018

The 18th IERE General Meeting/Japan Forum (Day 2)

08:30 - 09:00	IERE General Session [I]
09:00 - 09:30	IERE General Session [II]
09:30 - 11:55	Forenoon Sessions
11:55 - 13:15	Lunch
13:15 - 16:40	Afternoon Sessions and Plenary Conclusion Session

Social Event (optional)

17:00 - 21:30 Social event

- (tentative) Enjoy Japanese traditional performing arts and dinner
- Details of the tour, fee and how to book it will be announced later.

May 24, 2018

Technical Tour (optional)

- (tentative) Visiting Keage Power Station, Japan's first commercial hydroelectric plant and recognized as IEEE Milestone, with lunch
- Details of the tour, fee and how to book it will be announced later.







Conference Venue

Venue

Welcome Reception:

Kyoto Hotel Okura, 3F 'Ballroom -Suiun - '

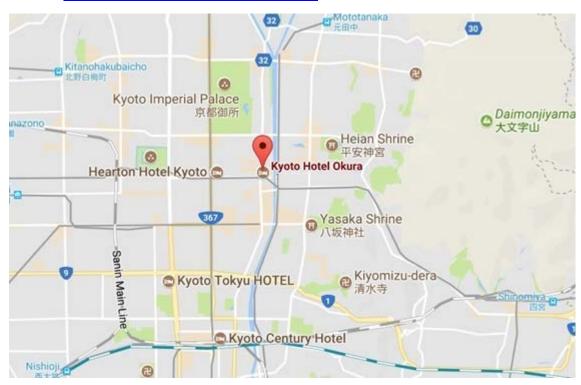
General Meeting & Japan Forum:

Kyoto Hotel Okura, 3F 'Ballroom -Gyoun - '

< Kyoto Hotel Okura >

Kawaramachi-Oike, Nakagyo-ku, Kyoto 604-8558, Japan

URL: http://okura.kyotohotel.co.jp/english/



Map URL: https://goo.gl/maps/jZX6c32oLer







Call for Papers

<< Abstract Submission: No later than March 1, 2018 >>

You are kindly invited to submit abstract for Oral Session or Poster Session of General Meeting and Japan Forum by e-mail by March 1, 2018

- S-1: New trends and requirements in the field of transmission and distribution systems
- S-2: Technology for power transmission and distribution systems in the next generation
- S-3: Use of ICT (including AI and IoT) and its impact on power transmission and distribution systems

to: register (at) iere.jp [Please substitute "(at)" with "@"]

IERE Central Office

2-11-1 Iwado Kita, Komae-shi, Tokyo 201-8511, Japan Phone: +81-3-5438-1717 Fax: +81-3-3488-5100

As for a format of abstract, please refer to the 'Activities' page on IERE website.

URL: https://www.iere.jp/events/forum/2018-japan/forspeakers.html

- * Session structure is subject to change according to the submission of contributions.
- * There is a possibility we ask you to change from Oral Session to Poster Session in accordance with the number of submission of abstracts.
- * Abstract and presentation file are uploaded IERE's website and open to the public after the forum.
- * The official language is English.







Submission Items & Deadlines

For Participants [including speakers]

Items	Format No.	Deadline	Submit To:
Registration Form (Page 15)	1	April 24, 2018	Dr. Takao Watanabe register(at)iere.jp [Please substitute (at) with @]
Form for Visa Application Documents (If necessary, Page 16)	5	April 6, 2018 (Strict deadline) *	Ditto
Registration Fee	_	April 24, 2018	Please refer to Page 11
Social Event [optional] Application and Fee	_	(TBD)	A travel agency will handle application and fee. Details to be announced.
Technical Tour [optional] Application and Fee	_	(TBD)	A travel agency will handle application and fee. Details to be announced.

^{*} Submission received <u>after April 6, 2018 CAN NOT</u> be processed because of internal processes in CRIEPI.

For Speakers

Items	Format No.	Deadline	Submit To:
Abstract	2	March 1, 2018	
Speaker's Information	3	April 24, 2018	Dr. Takao Watanabe
Copyright Permission	4	April 24, 2018	register(at)iere.jp [Please substitute (at) with @.]
Presentation Slides (PowerPoint file)	_	May 7, 2018	

The formats (No.1 to 5) can be downloaded from

URL: https://www.iere.jp/events/forum/2018-japan/forspeakers.html

Speakers are requested to submit their Speaker's Information and Copyright Permission <u>by</u> <u>April 24, 2018</u> and their Presentation Slides (PowerPoint file) <u>by May 7, 2018</u>.

- * Abstract and presentation file are uploaded IERE's website and open to the public after the forum.
- * The official language is English.







Registration

(a) On-line Registration
URL: https://www.iere.jp/cgi-bin/event form/18GM/event form entry.cgi
or

(b) Please submit a registration form (Format 1, Page 15) to IERE Central Office by e-mail. **Deadline: April 24, 2018**

Registration Fee

Please make payment of following fee **No later than April 24, 2018** by credit card payment or bank transfer.

The Registration fee will cover attendance at both conference days (include lunches & refreshments at coffee breaks), welcome reception on May 21, dinner on May22 and conference package:

IERE members: US\$ 550 (or JPY 60,709) Non-members: US\$ 650 (or JPY 71,747) Academia: US\$ 350 (or JPY 38,633)

Social Event (optional): (TBD)

Technical Tour (optional): (TBD)

Accompanying Person

If your family accompanies you on reception/dinner, following fees are requested.

Welcome Reception on May 21: US\$ 50 (or JPY 5,519) Dinner on May 22: US\$ 75 (or JPY 8,279)

* Only one accompanying person is permitted because of limited capacity.







Payment

On-line Credit Card Payment and Bank Transfer are available.

Deadline: April 24, 2018

(a) On-line Credit Card Payment

If you prefer using your credit card for the payment of registration fee, please contact to following website (US\$ only);

URL: https://www.iere.jp/Payment/paypal_18GM.html

(b) Bank Transfer*

Name of the Bank**: The Bank of Tokyo-Mitsubishi UFJ, Ltd. (until March 31, 2018)

MUFG Bank, Ltd.(from April 1, 2018)

Name of the Branch: Seijo branch

Name of the account: IERE
Account Number: 1204581

Bank address: 15-1 Seijo 6-chome, Setagaya-ku, Tokyo, 157-0066 JAPAN

SWIFT code:

BOTKDIPDID

Visa (Please do not forget!)

For participants from some countries needing a Visa to enter Japan, please consult with travel agent in your own country for the details.

If you need Visa application documents (include invitation letter)*, please fill and send 'Submission Form for Visa Application Documents' on Page 16 to IERE Central Office. Be sure to submit it by April 6, 2018.

- * CRIEPI may be able to issue Visa application documents (include invitation letter) for participants who need to apply for Visa. It may take a few weeks to complete the procedures in CRIEPI, so please submit the form to IERE Central Office as soon as possible.
- * Submission received <u>after April 6, 2018 CAN NOT</u> be processed because of internal processes in CRIEPI.
- * Disclaimer: CRIEPI reserves the right to fulfill or decline, at CRIEPI's discretion, requests for documents for visa application support purpose.

[Reference information]

Ministry of Foreign Affairs of Japan 'VISA / Residing in Japan'

URL: www.mofa.go.jp/j_info/visit/visa/index.html

^{*} Remittance charge, Lifting charge, Correspondent charge and other charges should be paid by participants.

^{**} Name of the Bank will be changed on April 1, 2018.







Accommodations [A block of rooms at special rates]

- Kyoto Hotel Okura

A block of rooms at special rates has been reserved for conference participants.

How to book at special rates?

1) Visit the following website

URL: http://rsv.ihonex.com/cgi-bin/ihonex3/plan_shokai.cgi?hid=KHO&plan_groupcd=IERE&c=1&form=en

- 2) At the part of the site, please click the 'View all rooms' then 'Calendar' of your selected room category and proceed in accordance with your stay.
- * As the number of rooms blocked at the special rate is limited, please make reservations as early as possible.
- * To book at "Special Rates", reservation should be completed by May 5, 2018 (Japan time).
- * "Special Rates" reservation may be terminated earlier than that in the event of becoming full.











- Recommended Hotels and information about Kyoto

Please visit website of 'Kyoto City Official Travel Guide' shown below.

https://kyoto.travel/en



You can find recommended hotels from 'Accommodations'.

URL: https://kyoto.travel/en/planyourvisit/accommodations







REGISTRATION FORM

Format 1

Power transmission and distribution systems in the next generation

The 18th IERE General Meeting & Japan Forum May 21-24, 2018, Kyoto, Japan

Please type \(\) at appropriate boxes, then return this form by email \(\) NO LATER THAN April 24, 2018 to: IERE Central Office at Email: register(at)iere in [Please substitute (at) with \(\@1/\) Fax: +81-3-3488-5100

1. Name	First Name	Mr. ☐ Ms. ☐ Other, Please specify: Family Name		
	Thist Name	ranny Name		
2. Position,		1		
Department				
3. Company/ Organization etc.				
Organization etc.				
4. Address	Zip Code Country/Region			
5 Cantant	E-mail			
5. Contact Information	Phone Number			
шоппаноп	Fax Number			
6. I will contribute to	□ Yes □ N	No		
a presentation	<u>Title:</u>			
7. Registration Fee [May 21-23]	☐ US\$ 550 (or J☐ US\$ 650 (or J☐ US\$ 350 (or J☐ Note: When parti	[Participants including speakers should pay registration fees.] PY 60,709): IERE Member PY 71,747): Non-IERE Member PY 38,633): Academic Participant cipation is canceled irrespective of the reason after May 7, 2018, in Fee might be charged or not be reimbursed.		
8. Social Event (Optional) [May 23]	A travel agency v	vill handle application and fee. Details to be announced.		
9. Technical Tour (Optional) [May 24]	A travel agency v	vill handle application and fee. Details to be announced.		
10. Reception/Dinner attendance	22 & 23). For rese	ervations, please let us know your attendance.		
not mandatory	☐ Welcome Re	ception on May 21 □ Dinner on May 22 □ None		
	If your family accountitle (Mr./Ms./			
not mandatory 11. Accompanying Person	If your family accountitle (Mr./Ms./	ompanies you on reception/dinner, please write her or his name and Y 5,519): Welcome Reception on May 21		
not mandatory 11. Accompanying Person (One person only)	If your family accountitle (Mr./Ms./ US\$ 50 (or JF) US\$ 75 (or JF) Total: US\$ Credit Card: https://www.iere. Bank Transfer	ompanies you on reception/dinner, please write her or his name and PY 5,519): Welcome Reception on May 21 PY 8,279): Dinner on May 22 URL for On-line Credit Card Payment (in US\$): ip/Payment/paypal_18GM.html		
not mandatory 11. Accompanying Person (One person only) 12. Payment Amount 13. Payment Method [no later than]	If your family accountitle (Mr./Ms./ □ US\$ 50 (or JF) □ US\$ 75 (or JF) Total: US\$ □ Credit Card: https://www.iere. □ Bank Transfer * IERE Centra	ompanies you on reception/dinner, please write her or his name and PY 5,519): Welcome Reception on May 21 PY 8,279): Dinner on May 22 URL for On-line Credit Card Payment (in US\$): ip/Payment/paypal_18GM.html		

If you DON'T want to open these information, please type '✓' at appropriate boxes shown below.

 \square 2. Position, Department \square 4. e-mail address







Format 5

Submission Form for Visa Application Documents

If participants need Visa application documents (include invitation letter), please type \square and fill out the form and send to: IERE Central Office at Email: register(at)iere.jp [Please substitute (at) with @]. Be sure to submit it by April 6, 2018.

Submission received after April 6, 2018 CAN NOT be processed because of internal processes in CRIEPI.

☐ I need Visa Application Documents (include invitation letter) for participation of the 18th IERE General Meeting & Japan Forum. * CRIEPI may be able to issue Visa application documents (include invitation letter) for participants who need to apply for Visa. It may take a few weeks to complete the procedures in CRIEPI, so please submit the form as soon as possible.					
Disclaimer: CRIEPI reserves the right to fulfill or decline, at CRIEPI's discretion, requests for letters of invitation for Visa application support purposes.					
Name on passport	First Name:	Middle Name:	Family Name:		
Gender	☐ Male ☐ Female				
Date of birth					
Nationality					
Occupation					
Company/ Organization etc.					
Expected date of entry					
Flight information of entry					
Expected date of departure					
Flight information of departure					
Accommodation/ Hotel					
Contact information (Mobile phone number)					
Colloquium Participation	☐ May 21, Welcome Reception				
	☐ May 22, The 18th IERE General Meeting & Japan Forum (Day 1)				
	☐ May 23, The 18th IERE General Meeting & Japan Forum (Day 2)				
	☐ May 24, Technical Tour				







IERE Members List (as of February 1, 2018)

Australia CS Energy Ltd. **CSIRO**

Canada Powertech Labs Inc.

China **CEPRI GPG NARI**

France Enedis **ENGIE**

Germany **RWE TI EnBW** innogy SE

Hong Kong **CLPRI** Indonesia **PLN** Iran NRI

Japan Chubu EPCO Chugoku EPCO **CRIEPI**

FEPC Fuji Electric Co., Ltd. Hitachi Hokkaido EPCO Hokuriku EPCO IHI

J-POWER **JAPC** Kansai EPCO

Kyushu EPCO **MHPS** Mitsubishi Electric Shikoku EPCO NGK Sumitomo Electric

Tohoku EPCO **TEPCO TOSHIBA KERI**

Korea KEPCO E&C **KEPCO**

Malaysia **TNB**

Mexico **INEEL** Prolec GE Philippines **APC MERALCO**

Singapore **SPPG**

South Africa Eskom **PIESA** Spain Gas Natural Fenosa **REE**

Taiwan **TPC**

Thailand **EGAT EURC***

U.S.A. **EPRI**

*: Academia







Organizers

Central Research Institute of Electric Power Industry (CRIEPI)

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The Kansai Electric Power Co., Inc. (Kansai EPCO)

3-6-16 Nakanoshima, Kita-ku,Osaka http://www.kepco.co.jp/

IERE:

IERE Central Office 2-11-1 Iwado Kita, Komae-shi, Tokyo 201-8511, JAPAN https://www.iere.jp

> IERE Central Office 2-11-1 Iwado Kita, Komae-shi Tokyo 201-8511 JAPAN

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https://www.iere.jp

1st issue: Feb. 7, 2018

2nd issue: Feb. 11, 2018, Presentation title of Keynote Speech is added

3rd issue: Feb. 22, 2018, Registration fee in JPY is added