ICLP2026

38th International Conference on Lighting Protection

Sapporo, Japan
31st May – 5th June, 2026

Programme

https://iclp2026.org/


ICLP2026
38th International Conference
on Lightning Protection
Welcome to Sapporo, Japan
31st May
- 5th June
BOYS BE AMBITIOUS

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Organized by

THE INSTITUTE OF ELECTRICAL INSTALLARION ENGINEERS OF JAPAN

In Cooperation with

Japan Lightning Protection System Industry Association

The Illuminating Engineering Institute of Japan

The Japan Electric Association

Japan Federation of Construction Contractors

THE JAPAN ARCHITECTURAL EDUCATION AND INFORMATION CENTER

Association of Building Engineering and Equipment

Japan Electrical Construction Association

Electrical Engineering Instruction Center

Tokyo Electrical Management Engineer Association

Association of Japan Instrumentation Industry

Japan Electrical Safety & Environment Technology Laboratories

Institute of Administrative Studies

Japan Switchboard & Control System Industries Association

Japan Lighting Manufacturers Association

Japan Fire Alarms Manufacturers' Association

The Kensetsu Tsushin Shimbun

The Denki Shimbun

Society of Atmospheric Electricity of Japan

The Society of Heating, Air-Conditioning and Sanitary Engineers of Japan

The Institute of Electrical Engineers of Japan

The Institute of Electronics, Information and Communication Engineers, Hokkaido

The Public Building Association

The Building Center of Japan

Japanese Association of Building Mechanical and Electrical Engineers

Japan Federation of Mechanical & Electrical Consulting Firms Association

The Federation of Electrical Engineering Contractors Cooperatives of Japan

National Liaison Council of Electrical Safety Inspection Associations

Building and Equipment Long-life Cycle Association

The Japan Electrical Manufacturers' Association

Japanese Standards Association

Institute of International Harmonization for Building and Housing

Nippon Engine Generator Association

JAPAN ELECTRICAL WIRING SYSTEM INDUSTRIES ASSOCIATION

Japan Electronics and Information Technology Industries Association

The Nikkan Kensetsu-Kogyo Shimbun, Ltd.

The Institute of Engineers on Electrical Discharges

The Institute of Electrostatics Japan

IEEE Sapporo Section

Welcome to ICLP 2026 – 38th International Conference on Lightning Protection

Welcome Message from ICLP President: Prof. Carlo Alberto Nucci, Italy

Dear Colleagues and Friends,

On behalf of the ICLP Scientific Committee and its Executive Board, I am delighted to invite you to take part in the 38th International Conference on Lightning Protection (ICLP 2026), which will be held in Sapporo, Japan.

ICLP has long been the leading international forum for the exchange of knowledge and progress in the field of lightning research and lightning protection. The upcoming edition in Sapporo will continue this tradition by bringing together scientists, engineers, and professionals from around the world.

We warmly encourage you to submit your papers and share your latest research, practical experiences, and innovative ideas. Your contributions are essential to advancing our community's knowledge and ensuring the continued impact of ICLP on both science and society.

I would also like to express my gratitude to the Local Organizing Committee of ICLP 2026 for their commitment and dedication. Their efforts in preparing the venue, technical programme, and social activities will ensure a memorable and fruitful event for all participants.

We are confident that ICLP 2026 in Sapporo will provide a stimulating environment for scientific exchange, collaboration, and friendship. We very much look forward to receiving your submissions and to welcoming you to Japan in 2026.

Yours sincerely,

Carlo Alberto Nucci

ICLP President

Welcome Message from ICLP2026 LOC Chairperson: Prof. Koji Michishita, Japan

Dear Colleagues and Friends,

The 38th ICLP2026 will be held in the world-famous tourist city of Sapporo. We are very excited that this prestigious international conference will be held in Japan again. This will be the first time it has been held in Japan in 20 years, since the 28th ICLP2006, held in Kanazawa.

Sapporo is a modern city with many tourist attractions in the surrounding area, including Otaru. It also boasts a wide variety of delicious foods, including sashimi, “Genghis Khan” (a local lamb barbecue), and ramen, and its beer and whiskey are also highly acclaimed. We hope that you will enjoy lively lightning-related discussions at ICLP during the day and then enjoy the city of Sapporo in the evening. The dinner will be held at the Sapporo Grand Hotel, a long-established hotel in Sapporo. We hope that this will be a fond memory for all participants.

We very much look forward to welcoming all of you to Japan in 2026.

Yours sincerely,

Koji Michishita

ICLP2026 LOC Chairperson

Conference Organization

ICLP Scientific Committee (SC):

Executive Board

President:	Prof. C.A. Nucci
Vice President:	Prof. Fridolin Heidler
Technical Secretary:	Dr. Susana Naranjo-Villamil
Scientific Secretary:	Dr. Wolfgang Schulz

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Prof. Maria Teresa Correia de Barros
Prof. Mahendra Fernando
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Prof. Vladimir Rakov
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Dr. Wolfgang Schulz

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Prof. Christian Bouquegneau
Prof. Vernon Cooray
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Dr. Wolfgang Hadrian
Dr. Jostein Huse
Dr. Marek Loboda
Prof. Carlo Mazzetti
Mr. Eric Montandon
Prof. Aage E. Pedersen
Prof. J. Wiesinger

Honorary Member of Memoriam

Prof. Shigeru Yokoyama (Chairperson of ICLP 2006 Kanazawa, Japan)

ICLP 2026 Technical Committee (TC):

TC Chairs

Susana Naranjo Villamil (France)

Lukas Schwalt (Austria)

TC Members

Alberto de Conti (Brazil)

Amedeo Andreotti (Italy)

Amitabh Nag (USA)

André Lobato (Sweden)

Andreia Leiria (Portugal)

Bo Zhang (China)

Carina Schumann (South Africa)

Carlos Mata (USA)

Chandima Gomes (South Africa)

Davide Pavanello (Switzerland)

Eleftheria Pyrgioti (Greece)

Fabio Napolitano (Italy)

Farhad Rachidi (Switzerland)

Felicitas Modlinger (Germany)

Gerhard Diendorfer (Austria)

György Kalecz (Hungary)

István Kiss (Hungary)

Kazuyuki Ishimoto (Japan)

Konrad Sobolewski (Poland)

Luana Batista Moraes (Brazil)

Marcelo Sousa Arcanjo (Spain)

Maria Eduarda Almeida (Portugal)

Masahito Shimizu (Japan)

Oscar Diaz (Sweden)

Rafael Alipio (Brazil / Switzerland)

Shanqiang Gu (China)

Thomas Tsovilis (Greece)

Local Organizing Committee (LOC):

Executive Board

Chairperson:	Koji Michishita
Vice :	Yoshihiro Baba
Chief Secretaries:	Masahito Shimizu
	Akiyoshi Tatematsu
Secretaries:	Toru Miki
	Susumu Matsuura

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(The University of Tokyo)

Masayoshi Ito
(Sankosha Corporation)

Osamu Yoshida
(OTOWA ELECTRIC CO., LTD.)

Shimizu Hirotaka
(THE INSTITUTE OF ELECTRICAL INSTALLATION ENGINEERS OF JAPAN)

Nobuyuki Honjo
(J-Wind Service Co.,Ltd.)

Masahiko Murakami (former: Mitsunari Tamura)
(Tohoku Electric Power Network Co., Inc.)

Tomotaka Saito
(Chubu Electric Power Grid Co, Inc.)

Yasuhiro Inoue (former: Kazuaki Takaichi)
(KANSAI TRANSMISSION AND DISTRIBUTION, INC.)

Toshiyuki Imaizumi (former: Shou Tanaka)
(Kyushu Electric Power Co., Inc.)

Hideki Arai
(Railway Technical Research Institute (RTRI))

Masanobu Mizutani (former: Hisashi Taguchi)
(Central Japan Railway Company)

Yoshihiro Haga (former: Masayuki Ushida)
(Hokkaido Railway Company)

Kiyoji Kitajima
(Japan Lightning Protection System Industrial Association (JLPA))

Mitsuaki Ota
(SHODEN CORPORATION)

Shigeo Masukawa
(THE INSTITUTE OF ELECTRICAL INSTALLATION ENGINEERS OF JAPAN)

Koki Sato
(THE INSTITUTE OF ELECTRICAL INSTALLATION ENGINEERS OF JAPAN)

Kunihiro Sato
(Hokkaido Electric Power Network,Inc.)

Jun Takami
(Tokyo Electric Power Company Holdings, Inc. (TEPCO))

Minoru Doi
(Hokuriku Electric Power Transmission & Distribution Company)

Akihisa Takahashi
(Chugoku Electric Power Transmission & Distribution Co., Inc.)

Hideki Motoyama
(Central Research Institute of Electric Power Industry (CRIEPI))

Satoru Amari (former: Hitoshi Hayashiya)
(East Japan Railway Company)

Kazuhiko Itou
(West Japan Railway Company)

Hiroki Tanaka
(Mitsubishi Electric Corporation)

Local Chair's Executive Force:

Chair

Koji Michishita (Shizuoka University)

Members:

Ayaka Nakamura (Shizuoka University)
Kaname Yonezawa (Sankosha Corporation)
Michihiro Matsui (Franklin Japan Corporation)
Toru Miki (Central Research Institute of Electric Power Industry (CRIEPI))
Yasuhiro Miyama (SHODEN CORPORATION)
Yoshiyasu Koga (OTOWA ELECTRIC CO., LTD.)
Yoshio Suzuki (THE INSTITUTE OF ELECTRICAL INSTALLATION ENGINEERS OF JAPAN)

REVOLUTIONIZING INSTALLATION

We support lightning protection systems (LPS)
with safe, easy-to-use solutions and short lead times.

GOOD DESIGN AWARD 2025

Our Compact Pole and T-shaped Clamp
have been honored with
the Good Design Award 2025.

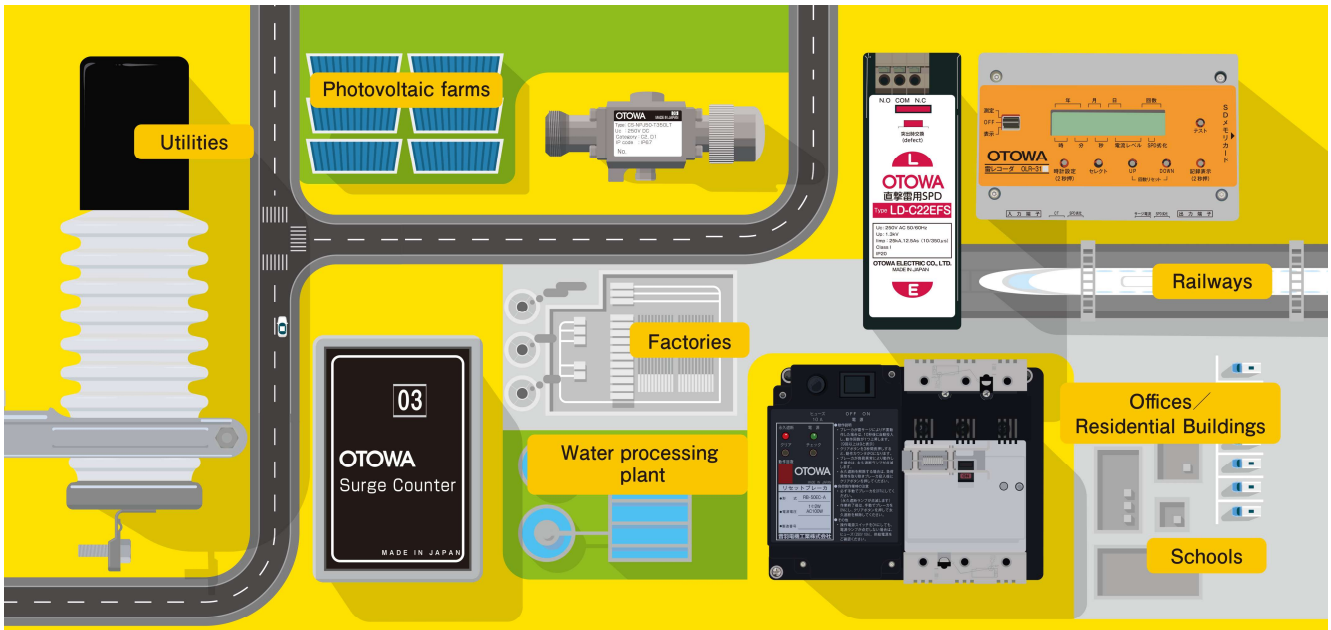
Compact Pole

- No crane needed!
- Elevator transportable.
- Lightweight & compact.

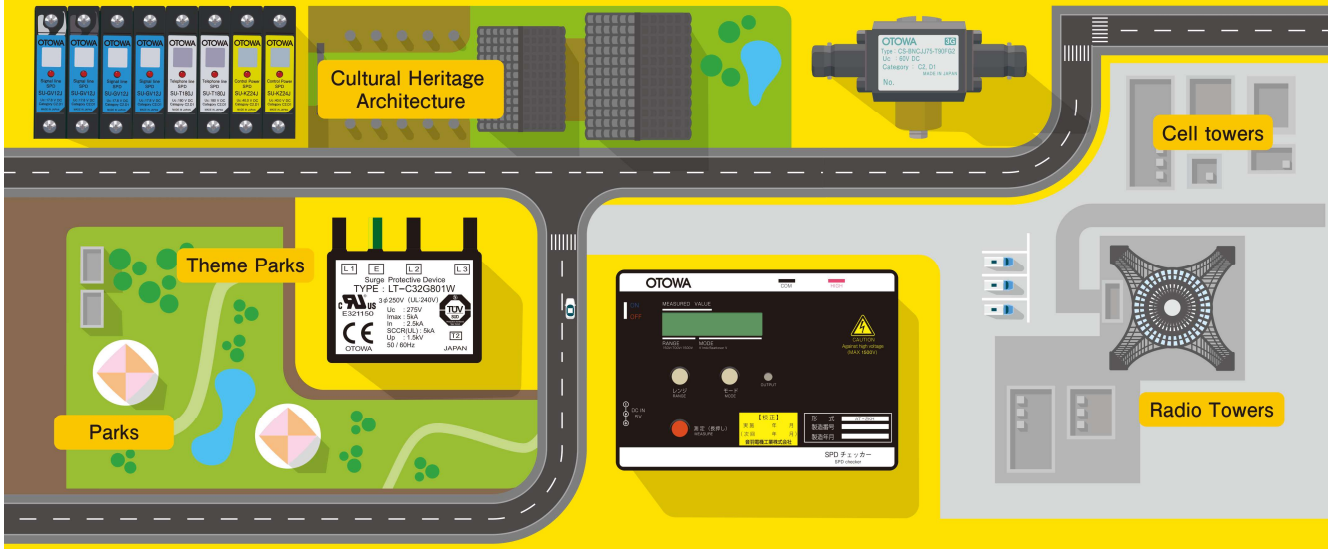
T-shaped Clamp

- A bolt drop-prevention design!
- No special tools needed.
- Quick & easy setup.

OSAKA HIRAISHIN KOGYO



Protecting cities from lightnings



As Japan's only dedicated lightning-protection manufacturer, and one recognized globally, it is our mission at OTOWA to safeguard essential equipment and data from lightnings.

OTOWA ELECTRIC CO., LTD.

Head office 5-6-20, Shioe, Amagasaki-city, Hyogo Japan. tel.+81 6 6429 5951 https://www.otowadenki.com/

80TH
OTOWA ELECTRIC CO., LTD.
Since 1946 JAPAN

Sankosha Corporation

Since our founding in 1930, we have faced the natural disaster of lightning, refining our lightning protection technology for over 95 years. During this time, we have provided numerous lightning protection products and related products to telecommunications carriers, railway companies, power companies, and others, protecting social infrastructure from lightning.

While maintaining lightning protection as our core business—the development, manufacturing, and sales of lightning arresters and safety devices, we have also been working on new businesses such as the development of weather observation equipment, optical communications, and weather information services. Currently, we have established an unshakeable position as a "comprehensive lightning protection company," capable of offering total solutions from observation and surveys to product provision and installation. Centered around our core lightning protection business, we also develop information and communication-related businesses and energy-related businesses, protecting our advanced information society from natural disasters like lightning and delivering "peace of mind and safety."

In our lightning protection business, since developing and commercializing the then-groundbreaking bimetallic self-propelled lightning arrester in 1948 (Showa 23), lightning protection has been our central business. Today, our products are widely used in critical infrastructure facilities such as railways, from Southeast Asia (including Thailand and Vietnam) to the United States, South America, and the EU. Furthermore, expanding from our initial parts sales, we now offer a comprehensive range of lightning protection services, including proposals for lightning protection systems (LPS) for buildings and human life, proposals for lightning protection (SPM) for electrical and electronic systems, provision of lightning observation systems, and provision of lightning strike information (Franklin Japan). Based on the expertise we have accumulated over the years, we provide comprehensive consulting services, from on-site surveys and countermeasure proposals to product provision and maintenance.

In our information and communication-related business, we support the construction of information and communication networks by utilizing the technical know-how we have cultivated since our founding and our cutting-edge proprietary technologies. We provide essential products for next-generation networks, ranging from metal communication equipment and facilities to optical devices, couplers, and other optical communication equipment and various control devices.

In our energy-related business, we provide renewable energy equipment and systems by combining the know-how we have cultivated in infrastructure construction with the latest technologies. Furthermore, we customize energy storage systems and generators to meet customer needs as emergency power sources necessary in the event of a disaster.

"To ensure that what is taken for granted today remains the same tomorrow."
We are a comprehensive manufacturer that continues to support various infrastructures through lightning protection technology and telecommunications equipment.

website : https://www.sankosha.co.jp/

Safeguarding Information at the Summit of Technology

Katsushika Hokusai is said to have created some 30,000 works in his lifetime. Among his most celebrated masterpieces is *Rainstorm Beneath the Summit*, a striking head-on view of Mount Fuji. The lightning racing across the foothills leaves a vivid impression on the viewer. From ancient times, thunder and lightning were seen as the work of thunder gods and mythical beasts, and even in Hokusai's Edo period they were feared for causing devastating fires when lightning struck.

In today's information-driven society, lightning remains a serious threat. It can cause not only direct damage to buildings and facilities, but also major harm to sensitive equipment such as network and security devices.

SHODEN harnesses advanced lightning protection technologies, including lightning protection systems that prevent damage to buildings and people from direct strikes, and a full range of SPDs that protect information equipment and other devices from lightning surges entering buildings. By protecting the critical facilities, equipment, and information that support society from lightning, SHODEN helps safeguard the safety and security of society

Lightning Protection

AFD-T Series
–surge protective device (SPD) for low-voltage power systems

TBP Series
–surge protective device (SPD)

SHODEN

SHODEN CORPORATION www.sdn.co.jp

DEHNdetect

Real-time Lightning Monitoring System

- Impulse current [kA]
- Long stroke [A]
- Charge [C]
- Specific energy [MJ/Ω]
- Rise time [kA/µs]

Integrator and Rogowski Coil

Integrator processes the measuring signals and transmission to the data logger.

Rogowski coil for measuring long stroke and impulse currents. Measuring range 60 A to 250 kA.

Data Logger

Data logger with different interfaces for integration into IT systems - LTE (MQTT) and Ethernet (Modbus TCP/IP).

Blade Detection Unit

Wireless detection of lightning current in the rotor

Learn more about **DEHNdetect**

Latest SPD Technologies

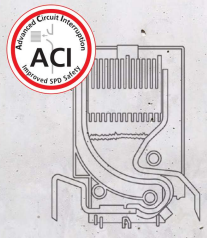
RAC (Rapid Arc Control) spark gap technology

- Low voltage protection level
- Let-through energy of < 1J
- Protects upstream and downstream of arrester
- Effective limiting of mains follow currents

ACI (Advanced Circuit Interruption) technology

Surge protection without external backup fuse

- Eliminate use of OCPD (Overcurrent Protective Device)
- Extremely long life
- Zero leakage current
- Space and cost saving



Learn more about **RAC Technology**

Learn more about **ACI Technology**

Visit DEHN at Booth J

Tridelta Meidensha GmbH
Metal-Oxide Surge Arresters for Advanced Power System Applications

Company Profile

Tridelta Meidensha GmbH is a Germany-based manufacturer of metal-oxide surge arresters for high and medium voltage systems. The company provides engineered solutions for demanding applications, including multi-column high-energy arrester designs for HVAC and HVDC systems, as well as installations in AIS and dry air GIS environments.

Technical Background and Expertise

The increasing complexity of modern power systems, combined with higher demands on reliability and asset protection, places significant emphasis on the performance of surge arresters under both lightning and switching overvoltage conditions. In particular, applications involving high energy stress, non-uniform current distribution, and system-specific constraints require carefully engineered solutions. Tridelta Meidensha combines long-standing experience in ZnO varistor technology with in-depth knowledge of materials science and high-voltage engineering. This integrated approach enables the design of surge arresters that maintain stable protective characteristics while withstanding high-energy impulses and repeated stress conditions over extended service lifetimes.

Applications and Design Considerations

Surge arresters from Tridelta Meidensha are applied in transmission and distribution systems, railway electrification, and renewable energy installations. Particular attention is given to applications requiring high energy capability, such as multi-column arrester configurations used in HVAC and HVDC systems.
In addition to electrical performance, mechanical design and environmental robustness are key factors. The product range includes both porcelain- and polymer-housed arresters. Porcelain designs offer proven mechanical strength and long-term reliability, while silicone housings provide advantages in polluted or harsh environments due to their hydrophobic properties and reduced maintenance requirements.

Engineering Approach

Beyond product supply, Tridelta Meidensha supports utilities, OEMs, and EPC contractors in the selection and application of surge arresters. This includes insulation coordination, arrester dimensioning, and the evaluation of system-specific operating conditions, particularly in lightning-prone environments or applications with elevated energy demands.

Contact

www.tridelta-meidensha.com sales@tridelta-meidensha.de



Japan Lightning Protection System Industrial Association

Corporate Introduction

The Japan Lightning Protection System Industry Association (JLPA), established in 2006, is dedicated to protecting our ICT-driven society from lightning-related risks. As digitalization continues to expand, lightning poses increasing threats to buildings, social infrastructure, and household electronics. JLPA promotes technologies that contribute to a safe, secure, and reliable society.

Our core activities include the promotion and dissemination of Lightning Protection Systems (LPS) based on IEC and JIS standards. We conduct research, provide technical information, develop standards, and organize seminars and training programs. By sharing the latest developments in LPS and Surge Protective Devices (SPD), we help enhance lightning protection measures throughout Japan.

JLPA also contributes to international standardization by participating in IEC TC81, SC37A/B, and the International Conference on Lightning Protection (ICLP), actively promoting Japanese technologies on a global stage.

Membership in JLPA provides access to valuable technical resources, opportunities to participate in committees, engineer certification programs, and product certification systems. These initiatives help improve credibility and support the advancement of high-quality lightning protection technologies.

As a central platform for the lightning protection industry, JLPA fosters collaboration among stakeholders and drives technological innovation to safeguard the foundations of our information society.

Address: 1-1-4 Hatchobori, Chuo-ku, Tokyo
Phone: 81-3-5541-8281
Mail: jlpa-staff@snow.ocn.ne.jp
URL: https://jlpa.jp

HEPCO Network

History

Hokkaido Electric Power Network, Inc. supports the power infrastructure across the entire Hokkaido region, contributing to the safety and development of local communities. We work to ensure a stable supply through advanced transmission and distribution operations and the formation of resilient facilities.

With ICLP 2026, we look forward to the exchange of cutting-edge knowledge on lightning and electromagnetic phenomena. Moving forward, we will continue strengthening a safe and reliable power network and supporting the foundation of Hokkaido's future energy society.

Activities

- Strengthening grid control technologies for large-scale renewable energy integration
- Enhancing monitoring and maintenance systems using advanced ICT
- Developing resilient transmission and distribution facilities capable of withstanding natural disasters
- Promoting innovation and collaboration toward a carbon-neutral society

thttps://www.hepco.co.jp/network/

https://www.youtube.com/c/HEPCONETWORKofficial - YouTube

MEIDENSHA CORPORATION

MEIDEN
Quality connecting the next

MEIDENSHA CORPORATION is a Japanese electrical infrastructure and systems company with a history spanning more than 125 years. Founded in **1897** by **Hosui Shigemune**, Meidensha began as a pioneer in electric motor manufacturing at a time when Japan relied heavily on imported electrical equipment. Since then, the company has played a vital role in the development of power and social infrastructure in Japan and beyond.

Throughout the 20th century, Meidensha expanded its technological base from motors to generators, transformers, and substation equipment, supporting Japan's industrialization and post-war economic growth. In the 1970s and 1980s, the company shifted its focus from mass production to high-quality, high-reliability electrical systems, establishing a strong reputation in power transmission, railway electrification, water treatment, and industrial systems.

Today, Meidensha operates as a **global infrastructure partner**, providing solutions that support electricity generation, transmission and distribution, renewable energy integration, industrial automation, mobility electrification, and long-term maintenance services. Its business areas include **Power Infrastructure**, **Public and Industrial Systems**, **Mobility and Industrial Electronics**, and **Field Engineering Services**, ensuring stable operation of mission-critical facilities over decades.

With consolidated annual sales of approximately **JPY 300 billion** and an overseas sales ratio of around **30%**, Meidensha has steadily expanded its global footprint across **Asia, Europe, and North America**, supported by local subsidiaries and service networks. The company is also listed on the **Tokyo Stock Exchange** and is a constituent of the **Nikkei 225**, reflecting its long-term stability and credibility.

Guided by the corporate philosophy of *"Illuminating a more affluent tomorrow,"* Meidensha continues to invest in advanced electrical technologies that enable decarbonization, renewable energy utilization, and resilient infrastructure.

By combining proven engineering expertise with a long-term commitment to quality and lifecycle support, Meidensha positions itself as a reliable partner for utilities, infrastructure operators, and industrial customers worldwide.

https://www.meidensha.com/

KYUDEN GROUP

Creating Tomorrow through Energy – Rooted in Kyushu, Reaching New Heights

The Kyuden Group is a corporate group rooted in Kyushu, aiming to support people's lives and the regional economy through energy. Guided by the Group's philosophy, "Enlighten Our Future," it seeks to contribute to a sustainable society while enhancing corporate value by generating both social and economic value through its businesses.

Since the announcement of the Kyuden Group Management Vision 2030, initiatives across key areas have progressed steadily. Building on these achievements, the Group has formulated the Kyuden Group Strategic Vision 2035, which incorporates long-term perspectives on the value it aims to provide society by 2050. This vision reflects the rapidly transforming business environment, including climate change, progress toward carbon neutrality, technological innovations such as generative AI, and the diversification of customer and societal needs. Under the slogan "Creating Tomorrow through Energy – Rooted in Kyushu, Reaching New Heights," the Kyuden Group is committed to supporting the growth and development of the region while continuing to provide value from Kyushu to Japan and beyond.

The Group's business domains include power generation, power transmission and distribution, and retail electricity services, which together ensure the safe and stable supply of electricity. In addition, the Kyuden Group is expanding growth businesses such as renewable energy, overseas energy projects, ICT services, and urban development. Through these diversified businesses, the Group addresses issues such as the realization of a decarbonized society, responses to intensifying natural disasters, and the creation of comfortable and environmentally friendly lifestyles.

A key strategy of the Kyuden Group is "Becoming Carbon Minus," aiming to achieve a state in which greenhouse gas emission reduction contributions across society exceed the Group's own emissions. This is pursued through the decarbonization of power sources—including nuclear power, renewable energy, low-carbon thermal power, and storage batteries—along with the promotion of electrification on the demand side. By strengthening human capital, advancing digital transformation, and reinforcing governance, the Kyuden Group strives to evolve into a corporate group that continues to create a new tomorrow through energy.

https://www.kyuden.co.jp/english.html

Phoenix Contact K. K.

Profile

Phoenix Contact K.K., the tenth subsidiary of Phoenix Contact GmbH & Co. KG, was established in Japan in December 1987. Since then, we have continuously expanded our nationwide sales and technical support network to serve engineering and infrastructure projects throughout Japan.

We are highly regarded for providing a comprehensive portfolio of industrial connection technology, control and communication products, and electronic devices such as power supplies, all designed and manufactured in compliance with relevant international standards.

As a subsidiary of a global leader in surge protection devices (SPDs), Phoenix Contact contributes to the implementation of effective lightning and surge protection concepts for telecommunications, factory automation, electrical infrastructure, and process industries worldwide, working closely with customers and system integrators in Japan.

Highlight – Triggered multi-carbon spark gap technology

Spark gaps are the core of our Class I lightning arresters. They make it possible to dissipate the high energies and impulse currents generated by lightning strikes to ground in a fraction of a second. To provide you with the optimum protection for your systems, our development team is constantly working on new and advanced solutions.

The new triggered multi-carbon spark gap significantly exceeds current market standards. With this new technology, all lightning currents are managed equally without affecting neighboring devices. Even the high energies of several pulse trains in a short time are safely dissipated. The triggered multi-carbon spark gap provides reliable and durable protection against lightning currents and surges of any kind.

https://www.phoenixcontact.com/

HOKKEI INDUSTRIES CO., LTD.

"We are a team of engineers who refine our technology together with the KAMINARI SAMA."

Philosophy

Our company's core philosophy is to "produce better products, faster, at lower cost, and in greater quantities." By continually taking on new challenges and delivering high-quality products quickly, we aim to achieve customer satisfaction and contribute to society.

Company Overview

Since our founding, we have taken on the challenge of developing a wide range of products, experiencing numerous failures and setbacks along the way. Among these experiences, our efforts in the field of lightning surge measurement, which began with our "encounter with KAMINARI SAMA," have allowed us to accumulate a wealth of knowledge and technical expertise, which is the foundation of our current growth.

Lightning surge measurement data is used as fundamental data for lightning-resistant design of power transmission facilities, contributing to the improvement of safety in power transmission networks, which are vital social infrastructure.

Today, leveraging the expertise gained from lightning surge measurement, we provide maintenance products that support power transmission networks essential for energy supply.

Main Products

- Power Transmission Line Fault Location System (FAST)
  Enables highly accurate identification of fault locations on transmission lines
  Provides various information related to maintenance operations through waveform analysis
- Fault Section Detector (HFS Type)
  Identifies the section of a fault on transmission lines
  Distinguishes between overhead line sections and underground cable sections
- Surge Impedance Tester (PET-7 Type)
  Measures transient grounding resistance of lightning protection systems such as transmission towers
  Allows measurement without disconnecting the ground wire

Future

Since our founding, we have steadily transformed customer needs and ideas into reality, based on our expertise in electronics and microcontroller control technologies. Specializing in embedded systems and microcontroller control, we serve a wide range of fields beyond power-related products, including OEM development and manufacturing of hemodialysis machines, development of optional equipment for machine tools, tester equipment for component manufacturers, and welfare devices.

As society continues to change rapidly and customer demands become increasingly sophisticated, we will continue to explore solutions and take on new challenges.

NIHON SEKKEI

Cherish the Individual, Respect Nature and Innovate the Future

Since its founding in 1967, Nihon Sekkei has been one of Japan' s leading design firms, offering comprehensive services in architecture, urban and regional planning, landscape design, infrastructure, renovation, and consulting. Our work spans a wide range of sectors, including office buildings, cultural and educational facilities, public spaces, and large-scale urban developments.
Guided by the philosophy "Cherish the Individual, Respect Nature, and Innovate the Future," we approach design with deep respect for the knowledge rooted in Japanese daily life and regional traditions, and with sensitivity to the ways people have long engaged with nature. We aim to create environments that are both human-oriented and environmentally conscious, while addressing global challenges such as climate change and urban sustainability.

Head Office: Tokyo
Offices: Sapporo / Nagoya / Osaka / Fukuoka / Yokohama / Tohoku
Affiliated Companies: Shanghai / Hanoi

FRANKLIN JAPAN

Franklin Japan Corporation

Since 1998, Franklin Japan Corporation has operated the Japanese Lightning Detection Network (JLDN), dedicating more than a quarter century to safeguarding lives, property, and critical infrastructure. By leveraging our continuously monitored and refined proprietary lightning data, we have become a trusted partner in lightning-damage prevention across a wide range of industries—from golf courses and manufacturing to railways, power utilities, and even space exploration. Our commitment to accuracy, innovation, and public safety remains the foundation of our mission.

https://www.franklinjapan.jp/

Ace Lion Co., Ltd.

Ace Lion Co., Ltd. is a Tokyo-based leader in lightning protection systems since 1938. Partnering with Germany's DEHN SE, they offer advanced external and internal solutions, including SPD and maintenance, to ensure safety for infrastructure and lives.

https://www.acelion.co.jp/

General Information

Conference Venue

1. Venue

Kaderu 2.7

〒060-0002

Citizens' Activity Center Building, Kita 2-jo Nishi 7-chome, Chuo-ku, Sapporo, Hokkaido

2. Lunch

TKP Sapporo Business Center Akarenga-mae

〒060-0004

5th floor, 6 Chome−1, Kita 4 Jonishi, Chuo Ward, Sapporo, Hokkaido

3. Welcome Reception

Hotel Polestar Sapporo

〒060-0004

2, North 4 West 6, Chuo-ku,Sapporo, Hokkaido

4. Banquet

Sapporo Grand Hotel

〒060-0001

North 1, West 4, Chuo-ku, Sapporo, Hokkaido

5. Public smoking spot

Access for Venue

JR Train

- Sapporo Station / South Exit:13 minutes walk

Sapporo Municipal Subway

- Sapporo Station / Exit 10:9 minutes walk
- Odori Station / Exit 2:11 minutes walk
- Nishi (=West) 11-chome Station / Exit 4:11 minutes walk

Bus stop

- [JR Bus], [Chuo Bus] Kita (=North) 1-jo Nishi (=West) 7-chome:4 minutes walk
- [Chuo Bus], [Hokuto Kotsu] Docho Seimon-mae:5 minutes walk

Public underground walkway

South of JR Sapporo, there is a public underground walkway that forms a cross shape as shown in left figure.

Contact

Local Organizing Committee

Secretaries

Email: iclp2026@ieiej.or.jp

Registration Desk Opens

The ICLP 2026 registration desks are located at the following locations.

Please note that the location of the registration desks varies depending on the time of day.

Time	May 31 (Sun)	June 1 (Mon)	June 2 (Tue)	June 3 (Wed)	June 4 (Thu)	June 5 (Fri)
at	**Hotel Polestar Sapporo**	**Kaderu 2.7**	**Kaderu 2.7**	**Kaderu 2.7**	**Kaderu 2.7/ Sapporo Grand Hotel**	**Close**
09:15			from 9:15 at Kaderu 2.7 to 14:00	from 9:15 at Kaderu 2.7 to16:30	from 9:15 at Kaderu2.7 to16:30	
09:30		from 9:30 at Kaderu 2.7 to 16:30				
14:00						
15:00	from 15:00 at Hotel Polestar Sapporo to 19:00					
16:30						
18:00					from 18:00 at Sapporo Grand Hotel to 19:00	
19:00						

Quick Tips

- Credit cards alone may limit what you can do in Japan. You may also need cash.
- Free Wi-Fi access is limited in Japan, even in urban areas.
- There are very few public waste bins in Japan.
- Smoking in public places is prohibited in most urban areas except for limited smoking areas.
- Emergency Calls: Police 110 / Ambulance and Fire service 119

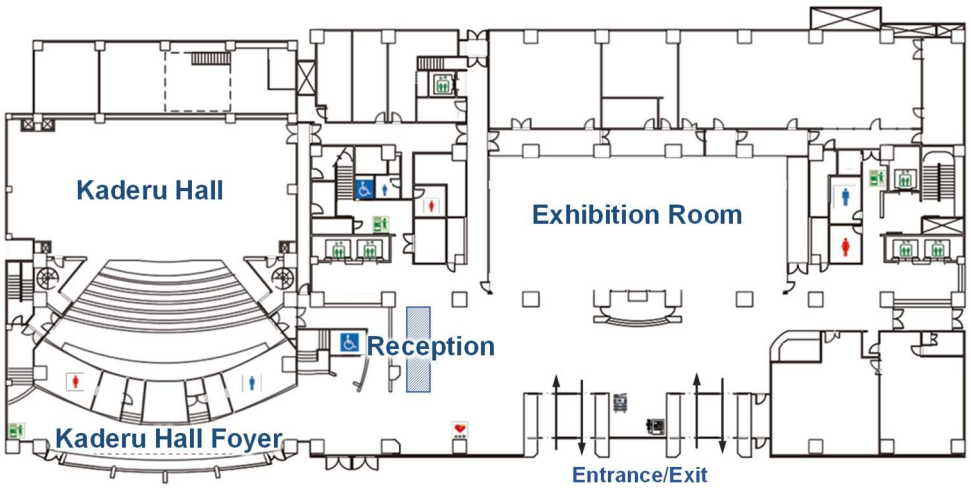
More Information

For more detailed information, please see below.

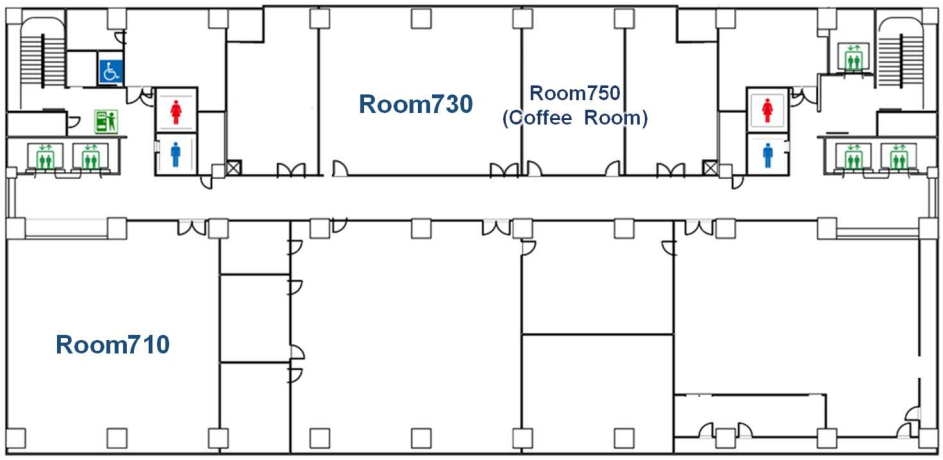
https://iclp2026.org/venue.html

Venue Floor Map – Kaderu 2.7

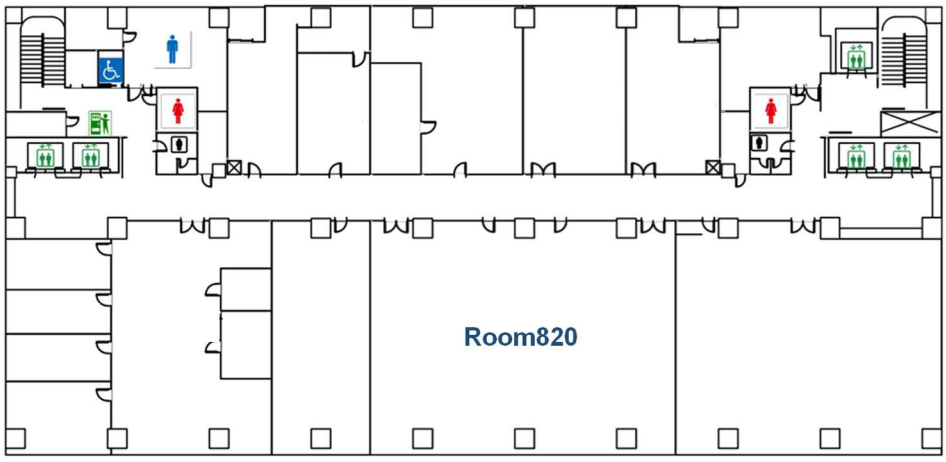
1F



7F



8F



Elevator
Men's restroom
Accessible restroom
Vending machine
Women's restroom

Programme Overview

Keynote Speaker

- **The importance of LEMP effects on the lightning response of overhead distribution lines - from first studies to recent advancements**
  Prof. Carlo Alberto Nucci
  University of Bologna, Italy

- **Current and electric field measurement for lightning protection design of electrical power facilities**
  Prof. Koji Michishita
  Shizuoka University, Japan

- **Aspects of Lightning Damage Caused by Winter Lightning in Japan**
  Prof. Tomoyuki Sato
  Tohoku Institute of Technology, Japan

Techncal Programme (Timetable)

Time	May 31 (Sun)
18:00 - 20:00	Welcome Reception at Hotel PoleStar Sapporo

Time	June 1 (Mon)		
	1F (Kaderu Hall)	7F (Room 710)	8F (Room 820)
10:00	Opening Session		
10:30 - 12:30	Invited Lectures		
12:30 - 14:00	Lunch at TKP SAPPORO Business Center Akarenga-mae		
14:00 - 15:30	Oral Session #1-1 Lightning physics and phenomenology -1	Oral Session #15 Lightning experiments for simulation of lightning effects	Oral Session #3-1 Lightning discharge characteristics -1
15:30	Coffee Break		
16:00 - 18:00	Oral Session #2-1 Lightning occurrence characteristics -1	Oral Session #13 Lightning protection of transportation systems	Oral Session #9-1 Lightning protection of renewable energy systems -1

Time	June 2 (Tue)		
	1F (Kaderu Hall)	7F (Room 710)	8F (Room 820)
9:30 - 11:00	Oral Session #9-2 Lightning protection of renewable energy systems -2	Orla Session #6 Lightning down-conductors and earthing / grounding	Oral Session #1-2 Lightning physics and phenomenology -2
11:00 - 12:30	**[Kaderu Hall Foyer]** Poster Session #A	**[Room 730]** Poster Session #B	
12:30 - 14:00	Lunch at TKP SAPPORO Business Center Akarenga-mae		
14:00 - 18:00	Conference tour		
18:00 - 20:30	Conference dinner BBQ at ASAHI BEER Garden Hamanasu		

Time	June 3 (Wed)		
	1F (Kaderu Hall)	7F (Room 710)	8F (Room 820)
9:30 - 11:00	Oral Session #3-2 Lightning discharge characteristics -2	Oral Session #2-2 Lightning occurrence characteristics -2	Oral Session #8-1 Lightning protection of power systems -1
11:00 - 12:30	**[Kaderu Hall Foyer]** Poster Session #C	**[Room 730]** Poster Session #D	
12:30 - 14:00	Lunch at TKP SAPPORO Business Center Akarenga-mae		
14:00 - 15:30	Oral Session #4-1 Lightning electromagnetic impulse (LEMP) and lightning-induced effects -1	Oral Session #11 & #12 Lightning protection of telecommunication systems & electronic systems	Oral Session #8-2 Lightning protection of power systems -2
15:30	Coffee Break		
16:00 - 18:00	Oral Session #4-2 Lightning electromagnetic impulse (LEMP) and lightning-induced effects -2	Oral Session #7 Lightning protection of buildings	Oral Session #8-3 Lightning protection of power systems -3

Time	June 4 (Thu)		
	1F (Kaderu Hall)	7F (Room 710)	8F (Room 820)
9:30 - 11:00	Online Session #8-4 Lightning protection of power systems -4	Online Session #2-3 Lightning occurrence characteristics -3	Online Session #1-3 Lightning physics and phenomenology -3
11:00 - 12:30	**[Kaderu Hall Foyer]** Poster Session #E	**[Room 730]** Poster Session #F	
12:30 - 14:00	Lunch at TKP SAPPORO Business Center Akarenga-mae		
14:00 - 15:30	Oral Session #8-5 Lightning protection of power systems -5	Oral Session #4-3 Lightning electromagnetic impulse (LEMP) and lightning-induced effects -3	Oral Session #5 Lightning attachment and shielding against lightning
15:30	Coffee Break		
16:00 - 18:00	Oral Session #S/S-1 Lightning Monitoring and its Application for Disaster Resilience -1	Oral Session #14 Lightning deleterious effects	Oral Session #16 Lightning protection and lightning testing standards
19:00 - 21:00	Banquet at SAPPORO GRAND HOTEL		

Time	June 5 (Fri)		
	1F (Kaderu Hall)	7F (Room 710)	8F (Room 820)
9:30 - 10:30	Oral Session #1-4 Lightning physics and phenomenology -4	Online Session #17 Lightning safety, medicine and education	
10:30	Coffee Break		
11:00 - 12:30	Oral Session #S/S-2 Lightning Monitoring and its Application for Disaster Resilience -2		
13:00 - 14:00	Closing Session		

■ Sunday, May 31

May 31 (Sun)	18:00 - 20:00 Hotel Polestar Sapporo

Welcome Reception

■ Monday, June 1

June 1 (Mon)	10:00 - 12:30 1F Kaderu Hall (Kaderu 2.7)

Opening session /
Invited lecture & Special session

Chairs: Prof. Marcos Rubinstein, Dr. Wolfgang Schulz

10:00 Welcome

10:30 **The importance of LEMP effects on the lightning response of overhead distribution lines - from first studies to recent advancements**
Prof. Carlo Alberto Nucci (University of Bologna, Italy)

11:30 **Current and electric field measurement for lightning protection design of electrical power facilities**
Prof. Koji Michishita (Shizuoka University, Japan)

12:10 **Aspects of Lightning Damage Caused by Winter Lightning in Japan**
Prof. Tomoyuki Sato (Tohoku Institute of Technology, Japan)

June 1 (Mon)	12:30 - 14:00 TKP SAPPORO Business Center Akarenga-mae

Lunch

June 1 (Mon)	14:00 - 15:30 1F Kaderu Hall (Kaderu 2.7)

Lightning physics and phenomenology -1

Chairs: Marcelo Arcanjo, Daohong Wang

14:00 **15 Years of Direct Strike Lightning Data at Launch Complex 39B: Lightning Current Statistics & Monte Carlo Simulation Striking Distance Comparison**
Hill Dustin (Scientific Lightning Solutions, USA); Mata Carlos (LLC, USA)

14:15 **Charge Transferred by Upward Lightning**
Watanabe Naomi(Florida Gulf Coast University & Florida Institute of Technology, USA); Nag Amitabh(Florida Institute of Technology & Los Alamos National Laboratory, USA); Gerhard *Diendorfer, Hannes Pichler and Wolfgang Schulz (Austrian Lightning Detection and Information System, OVE Service GmbH, Austria); Hamid Rassoul (Florida Institute of Technology, USA)*

14:30 **Fair-Weather Electric Field Measurements under the Influence of Aerosols**
Julia Maier and Lukas Schwalt (Austrian Power Grid AG, Austria); Sebastian Schatz (OVE Service Gmbh, Austria); Stephan Pack (Graz University of Technology, Institute of High Voltage Engineering and System Performance, Austria)

14:45 **Spectral Observation of Canton Tower Flashes during 2020-2024**
Weitao Lyu and Weiqun Xu (Chinese Academy of Meteorological Sciences, China); Xuejuan Wang (School of Emergency Management, Nanjing University of Information Science and Technology, China); Qi Qi, Bin Wu and Ying Ma (Chinese Academy of Meteorological Sciences, China)

15:00 **Studying Cloud Microphysics Through Optical Emissions from Cloud-Top Discharges**
Dongshuai Li (Eindhoven University of Technology (TU/e) ,The Netherlands & Technical University of Denmark (DTU

Space), Denmark); Alejandro Luque (Instituto de Astrofísica de Andalucía (IAA), Spain); Eric Bruning (Texas Tech University, USA); Olivier Chanrion (Technical University of Denmark (DTU Space), Denmark); Yanan Zhu (Earth Networks, USA); Torsten Neubert (Technical University of Denmark (DTU Space), Denmark); Francisco. J. Gordillo-Vazquez (Instituto de Astrofísica de Andalucía (IAA), Spain); Nikolai Østgaard (University of Bergen, Norway)

15:15 **Integrated Observations of Lightning and Atmospheric Electricity in the Unique Environment of Mt. Fuji**
Masashi Kamogawa and Tomoyuki Suzuki (University of Shizuoka, Japan & Mount Fuji Research Station, Japan); David Smith (University of California Santa Cruz, USA); Masaru Yasumoto (Mount Fuji Research Station, Japan); Hironobu Fujiwara (University of Shizuoka, Japan & Mount Fuji Research Station, Japan);
Koji Ito (K.I.Tech International Co.,Ltd., Japan); Syugo Hayashi (Meteorological Research Institut, Japan Meteological Agency, japan);
Namiko Sakurai (National Research Institute for Earth Science and Disaster Resilience, Japan)

June 1 (Mon) | 14:00 - 15:30 | 7F Room 710 (Kaderu 2.7)

Lightning experiments for simulation of lightning effects

Chairs: Carlos Mata, Ralph Brocke

14:00 **New Generator for Producing Long-Duration Currents in Accordance with the Standards IEC 62305-1, IEC 61400-24 and EUROCAE ED-84A**
Felicitas Modlinger, Fridolin Heidler and Christian Paul (University of the Federal Armed Forces, Germany)

14:15 **Melting effects due to long-duration currents on coated and uncoated aluminum plates – IEC 62305-1 revisited**
Felicitas Modlinger (The Bundeswehr Technical Center for Information Technology and Electronics (WTD 81 GF 410), Germany); Fridolin Heidler (University of the Federal Armed Forces, Germany); Christian Karch (Airbus Defence and Space, Germany); Christian Paul (University of the Federal Armed Forces, Germany)

14:30 **Influence of Current Attenuation Effects in Engineering Return Stroke Models on the Lightning Performance of Distribution Networks**
Carlo Alberto Nucci, Alberto Borghetti, Fabio Napolitano and Fabio Tossani (University of Bologna, Italy)

14:45 **Breakdown characteristics of short rod-rod air gaps under negative standard lightning impulse voltages**
Petros Tsouris and Pantelis Mikropoulos (Aristotle University of Thessaloniki, Greece)

15:00 **Modeling the Transient Behaviour of Gas Discharge Tubes under Impulse Voltages**
Alexandros Y. Hadjicostas, Katerina C. Zaifi, Nikolelis, Konstantinos S. Nikolelis and Georgios D. Peppas (Technical University of Crete, Greece); Thomas Tsovilis (Aristotle University of Thessaloniki, Greece)

June 1 (Mon) | 14:00 - 15:30 | 8F Room 820 (Kaderu 2.7)

Lightning discharge characteristics -1

Chairs: Amitabh Nag, Toru Miki

14:00 **Shifting of Lightning Channel and Movement of Ground Flash Continuing Component Root Point on Photovoltaic Arrays**
Kamila Costa and Sven Wolfram (*Technische Universität Ilmenau, Germany*); Armando Heilmann (*Universidade Federal do Paraná, Brazil*); Michael Rock (*Technische Universität Ilmenau, Germany*)

14:15 **Performance Evaluation of the Colombian Total Lightning Detection System**
Daniel Aranguren (*Keraunos SAS, Colombia*); Steven Ardila, Jesus Lopez and Joan Montanya (*Technical University of Catalonia, Spain*)

14:30 **Winter Lightning Observation Results for Six Seasons at Oyabe Wind Power Plant**
Minowa, Masayuki, Nakamura, Akira and Sato, Ryota (*Aichi Institute of Techology, Japan*)

14:45 **Observation of Lightning Discharge to Wind Turbines in Kyushu, Japan**
Takano, Koji, Nakata, Hidehiro (*Kyushu electric power company, Japan*); Michishita, Koji (*Shizuoka University, Japan*)

15:00 **New generation of lightning counters driven by Artificial Intelligence**
Gabriel Ferreira (*Federal University of Para, Brazil*); Adonis Leal (*Federal University of Para, Brazil & New Mexico Institute of Mining and Technology, USA*)

June 1 (Mon) | **15:30 - 16:00** | **1F & 7F (Kaderu 2.7)**

Coffee Break

June 1 (Mon) | **16:00 - 18:00** | **1F Kaderu Hall (Kaderu 2.7)**

Lightning occurrence characteristics -1

Chairs: Lukas Schwalt, Adonis Leal

16:00 **Evaluating EUCLID's location accuracy using lightning strikes to towers**
Dieter Poelman (Royal Meteorological Institute of Belgium, Belgium); Hannes Kohlmann and Wolfgang Schulz (Austrian Lighnting Detection and Information System (ALDIS), Austria)

16:15 **From Japan to Austria: Meteorological Insights into Upward Lightning and Cross-Continental Comparisons**
Isabell Stucke and Georg J. Mayr (University of Innsbruck, Austria); Wolfgang Schulz (OVE Service GmbH, Austria); Michihiro Matsui (Franklin Japan Corporation, Japan); Koji Michishita (Shizuoka University, Japan)

16:30 **Reconstructing Lightning Ground Strike Point Density from Flash-Level Parameters Through Regression-Based Models**
Sanele Trevor Gcaba and Hugh Hunt (University of the Witwatersrand, South Africa)

16:45 **A Preliminary Study on Ground Strike Point Characteristics over Eastern South Africa, Lesotho and Eswatini**
Andrew Britz, Hugh Hunt, and Ken Nixon (University of the Witwatersrand, South Africa)

17:00 **Spatio-Temporal Evolution of Lightning Activity in France (2000–2025): Orographic Contrasts, Seasonal Shifts, and Implications for Warning Systems**
Stéphane Schmitt, Stéphane Pedeboy and Joris Royet (Meteorage, France)

17:15 **Optimal Placement of Magnetic Direction Finders for Locating Lightning-Struck Wind Turbines**
Loriane Schafer (EPFL, Switzerland); Hannes Kohlmann (ALDIS-OVE, Austria); Farhad Rachidi (EPFL, Switzerland)

17:30 **Comparison of lightning flash density at three wind farms along the coast of the Sea of Japan in winter in 2021**
Koji Michishita and Shigeru Yokoyama (Shizuoka university, Japan); Michihiro Matsui (Franklin Japan); Yasuhiro Miyama (Shoden, Japan); Koji Takano (Kyusyu electric power co., japan); Nobuyuki Honjo (J-Wind service, Japan); Takashi Usui (Electric power development, Japan)

17:45 **Meteosat Lightning Imager (LI) performance evaluation using the total lightning Ebro Lightning Mapping Array**
Joan Montanyà, Jesús López, David Romero, Marcelo Arcanjo, Glòria Solà,

Cristina Arcanjo, Oscar van der Velde, Nicolau Pineda Ruegg, Marta Balagué, Ferran Fabró, Bartolomeo Viticchie and Sven-Erik Enno (Universitat Politecnica de Catalunya, Spain)

June 1 (Mon) | 16:00 - 18:00 | 7F Room 710 (Kaderu 2.7)

Lightning protection of transportation systems

Chairs: Stephan Pack, Christian Karch

16:00 **Verification of Lightning Trouble through Field Measurements of Grounding System in Traction Substation**
Hiroto Amata, Masaki Uchita, Naoki Haginiwa, Satoru Amari (East Japan Railway Company, Japan); Hajime Hirose and Shoda, Takahito (Nippon Chiko co.,Ltd, Japan)

16:15 **FDTD Analysis of Lightning Surges Invading a Sensor Installed Beside Rails in a DC Electric Railway**
Akinori Hori and Kazuhiko Ito (West Japan Railway Company, Japan); Nagaoka, Naoto Nagaoka, Yohei Tanaka and Yoshihiro Baba (Doshisha University, Japan)

16:30 **A Study of a malfunction in the traction electric system caused by a lightning on the Takasaki Line in June 2022**
Yuki Shinozaki, Toshiya Akama, Hiroto Amata, Takashi Suzuki, Masayuki Fukazawa and Hideki Anamizu (East Japan Railway Company, Japan); Hideyuki Harada and Kohji Ajiki (Sankosha, Japan)

16:45 **Comparative Study on the Impulse Performance of Two Surge Isolation Transformers**
Alberto De Conti, Pedro Henrique S. Miranda, Gustavo R. S. Reis and Filipe S. Souza (Universidade Federal de Minas Gerais,Brazil); Kazuo Yamamoto (Chubu University, Japan)

17:00 **Enhancing the DEGM aiming the lightning performance of underground pipelines**
Ludwig Herrnböck, Martin Hannig and Ralph Brocke (DEHN SE, Germany)

17:15 **Evaluation of Lightning surge Protection and Ground-fault Protection Performance of the 64P Relay in DC Traction Substations**
Masakazu Taguchi and Satoshi Abe (Eiraku Electric Co., Ltd., Japan); Kenji Suzuki and Toru Iwao (Tokyo City Univercity, Japan); Hiroto Amata and Hitoshi Hayashiya (East Japan Railway Company, Japn)

17:30 **Experimental Evaluation of Minimum Separation between Substation Earthing Grids and Signalling and Telecommunication Equipment Houses in Shinkansen**
Gaku Morita, Keiichi Takeuchi, Koki Iwamoto and Takuro Shindo (Railway Technical Research Institute, Japan); Shinichiro Sekizawa and Takahisa Shirakawa (Japan Railway Construction, Transport and Technology Agency, Japan)

June 1 (Mon) | 16:00 - 18:00 | 8F Room 820 (Kaderu 2.7)

Lightning protection of renewable energy systems -1

Chairs: Zacharias G. Datsios, Nobuyuki Honjo

16:00 **A Electrothermal Model of 280Ah LFP Energy Storage Battery Cell under Lightning-Induced Surge Overcurrent**
Siyuan Shen, Wei Hao, Yujun Li, Donghuang Luo, Junjian Zhao and Yakun Liu (Shanghai Jiao Tong University,China)

16:15 **Verification of Blade LPS for wind turbine blades beyond IEC standard**
Victor March, Olaf Götting, João Martinho, Purim Ladpli and Tiago Campos (Siemens Gamesa Renewable Energy, Spain)

16:30 **Lightning Attachment Probability Model for Wind Turbines for First and Subsequent Strokes**

Victor March, Purim Ladpli, José Gonçalves, João Martinho, Olaf Götting and Tiago Campos (Siemens Gamesa Renewable Energy, Spain)

16:45 **Developing a Down Conductor Disconnection Detector and its Application for Wind Turbines**
Kazuki Obayashi and Shunichi Yanagawa (Shoden Corporation, Japan); Isao Imai and Masafumi Owa (iSA Electronic Systems, Japan); Koichi Yamabuki (National Institute of Technology, Japan)

17:00 **Hidden Correlation between Horizontal Wind Speed and Lightning Activity? - A Global-Scale Perspective**
Peixuan Gan, Yakun Liu and Yibo Zhang (Shanghai Jiao Tong University, China)

17:15 **Assessing MTG-LI Detection of Upward Lightning: Evidence from Rogowski-Coil Current Measurements and High-Speed Imaging**
Franjo Vukovic (University of Zagreb, Croatia); Joan Montanya and Marcelo Arcanjo (Polytechnic University of Catalonia, Spain); Bozidar Filipovic-Grcic (University of Zagreb, Croatia)

17:30 **Transient Voltage Analysis of DC Cables in a Photovoltaic System Under a Nearby Rocket-Triggered Lightning Flash**
Yiyu Lin, Mi Zhou, Yucheng Huang, Jianguo Wang, Li Cai and Yadong Fan (Wuhan University, China)

■ Tuesday, June 2

June 2 (Tue) | 9:30 - 11:00 | 1F Kaderu Hall (Kaderu 2.7)

Lightning protection of renewable energy systems -2

Chairs: Thomas Tsovilis, Franjo Vukovic

9:30 **The Latest Research Findings on Lightning Protection Measures for Wind Turbines in Japan**
Nobuyuki Honjo (J-Wind Service, Japan); Yoh Yasuda (University of Strathclyde, United Kingdom(Great Britain)); Kazuo Yamamoto (Chubu University, Japan); Yoki Ikeda (National Institute of Technology (KOSEN) Nara College,Japan); Yuta Yoshida (Electric Power Development Co.,Ltd, Japan)

9:45 **Determination of the voltage distribution across a metal-oxide arrester using IEC 60099-4 guidelines**
Aderibigbe Adekitan (Tridelta Meidensha, Germany)

10:00 **High Speed Imaging of Streamer-Leader Interaction on Wind Turbine Blade Composites**
Marcelo Arcanjo, Joan Montanya, David Romero, Guillermo Recuero and Cristina Ales (Polytechnic University of Catalonia, Spain); Guillem Tobella (Labelec Lightning Labs, Spain); Shanfeng Yuan (Chinese Academy of Sciences, China); Yaru Mendez (Universidad Simón Bolívar, Venezuela); Victor March (Siemens Gamesa Renewable Energy, Spain)

10:15 **Optical observations of corona discharges at the tip of the rotating blades in a wind turbine**
Tagianne da Silva (INPE, Brazil); Marcelo Arcanjo (Polytechnic University of Catalonia, Spain); Marcelo Saba (INPE, Brazil); Tom Warner (ZT Research, USA); Oscar Van Der Velde, Joan Montanya (Polytechnic University of Catalonia, Spain); Ivan Cruz (INPE, Brazil); Fumiyoshi Kajino (Konan University, Japan); Rasha Abbasi (Loyola University of Chicago, USA)

10:30 **Visual Anomaly Detection Method for Wind Turbine Blades Using PatchCore**
Takuto Matsui, Chikara Asada, Kazuki Matsuoka, Kazuo Yamamoto and Takayoshi Yamashita (Chubu University, Japan)

10:45 **Estimation of frequently struck wind turbine based on measurement of lightning current along the coast of the Sea of Japan for 9 years**
Koji Michishita and Yokoyama, Shigeru (Shizuoka University, Japan); Michihiro

Matsui (Franklin Japan, Japan); Yasuhiro Miyama (Shoden, Japan); Koji Takano (Kyusyu electric power co., japan); Nobuyuki Honjo (J-Wind service, Japan); Takashi Usui (Electric power development, Japan)

June 2 (Tue) 9:30 - 11:00 7F Room 710 (Kaderu 2.7)

Lightning down-conductors and earthing / grounding

Chairs: Alberto De Conti, Eleftheria Pyrgioti

9:30 **Seasonal and Long-Term Climatic Influences on Soil Resistivity and Their Implications for Earthing and Lightning Protection Design**
Omar Kherif, Denis Baudin and Mark Davies (RINA Tech UK Limited, United Kingdom); Salah Mousa (Sabratha University, Libya); Zakaria Mansouri (Nottingham Trent University, United Kingdom); Noureddine Harid (Khalifa University, United Arab Emirates); Abderrahmane Manu Haddad (Cardiff University, United Kingdom)

9:45 **Measurement of the Tower Ground Impedance of the 150 kV Overhead Lines of Crete**
Zacharias G. Datsios (University of Western Macedonia, Greece); Pantelis Grigoriadis (SEleNe-CC, Greece); Dimitrios A. Tsiamitros and Dimitrios Stimoniaris (Hellenic Electricity Distribution Network Operator S.A., Greece); Kiriakos Siderakis (Hellenic Electricity Distribution Network Operator S.A. & Hellenic Mediterranean University, Greece)

10:00 **Prospecting the effect of aerial conductors for distributing currents to the grounding grid of PV power plants on their lightning response**
Silverio Visacro, Aléxia Penna, and Barbara Pereira (Federal University of Minas Gerais, Brazil)

10:15 **Performance Assessment of Ground Electrodes with Conductive Concrete Using the Three-Dimensional FDTD Method**
Kaname Yonezawa (Sankosha Corporation, Japan); Akiyoshi Tatematsu (Central Research Institute of Electric Power Industry, Japan)

10:30 **Effects of the Position of a Buried Grounding Electrode on the Ground Surface Potential When a Fault Current Flows Through the Grounding of an Electric Power Distribution Steel Pole**
Tomohiro Maeda, Ryota Mori, Kazuyuki Ishimoto (Central Research Institute of Electric Power Industry, Japan); Katsunori Fujii, Satoshi Takemoto, Kenji Furumoto (Chugoku Electric Power Transmission & Distribution Company, Japan)

June 2 (Tue) 9:30 - 11:00 8F Room 820 (Kaderu 2.7)

Lightning physics and phenomenology -2

Chairs: Liliana Arevalo, Naomi Watanabe

9:30 **Initial Development Modeling of Positive Cloud-to-Ground Lightning Using an Adaptive Lightning Progressing Stochastic Model Approach**
Zhipeng Wang, Jianguo Wang, Li Zhang, Jinxin Cao, Quanxin Li and Yijun Huang (Wuhan University, China)

9:45 **Total-Frame Luminosity Derived Features from High-Speed Video as Linear Predictors of Return-Stroke Peak Current**
Yaseen Essa, Hugh Hunt, Carina Schumann and Turgay Çelik (University of the Witwatersrand, South Africa), Marcelo Saba (National Institute for Space Research, Brazil), Tom Warner (ZTResearch, USA)

10:00 **Closed-Form 2-D Green's Function for a Hemispheroidal Relief: Hankel-Functions as a Reference Solution for FDTD Calibration**
Ernesto Aguilera, Edinson Fabian Adarme and Edison Soto (Universidad Industrial de Santander, Colombia)

10:15 **Electric Field Due To Lightning Return-Stroke in Mountainous Terrain**
Rupam Pal and Udaya Kumar (Indian Institute of Science, India)

10:30 **Comparative Performance Analysis of a Rogowski Coil-Based Lightning Measurement System and a Lightning Detection Network**
Martin Hannig, Ralph Brocke, Thomas Böhm and Florian Weixelbaum (DEHN SE, Germany); Wolfgang Schulz (OVE Service GmbH, Austria)

10:45 **Two Basic Leader Connection Scenarios Observed in the Cloud-to-Ground Lightning Attachment Process**
Qi Qi, Weitao Lyu, Bin Wu and Ying Ma (Chinese Academy of Meteorological Sciences, China); Lyuwen Chen (Institute of Tropical and Marine Meteorology, China); Fanchao Lyu (Nanjing Joint Institute for Atmospheric Sciences, China); Xiaochi Liu (Science and Technology Research Institute China Three Gorges Corporation Beijing, China)

June 2 (Tue) | **11:00 - 12:30** | **1F Kaderu Hall Foyer (Kaderu 2.7)**

Poster Session #A

Chairs: Dmitry Kuklin

P-A1 **Analysis of Lightning Faults on the 250 kV HVDC Return Line: Regional Characteristics from LLS and Locator Positioning**
Akira Sakai and Kyohei Konishi (Hokkaido Electric Power NetworkCo.,Ltd., Japan); Hideaki Ariya and Yoshiyuki Kubouchi (Hokkei Industries Co., Ltd., Japan)

P-A2 **Development of LPS Blade Zoning Concept for offshore blades based on IEC 61400-24:2019**
Olaf Lennard Götting (Siemens Gamesa Renewable Energy, Denmark); Joao Martinho (Siemens Gamesa Renewable Energy, Portugal); Victor March Nomen (Siemens Gamesa Renewable Energy, Spain); Purim Ladpli (Siemens Gamesa Renewable Energy, Thailand)

P-A3 **Surge Resilience of Photovoltaic Inverters: Analysis of Internal Protection vs. External SPDs**
Gustavo Oliveira Cavalcanti, Marcíio A. Félix Feitosa, Claudio André R. A. de Oliveira, Filipe N. de Lima and Sóstines T. da Silva (Universidade de Pernambuco, Brazil); Douglas T. M. Lara, Renato J. Teixeira and Wagner Almeida Barbosa (CLAMPER Industria e Comércio S.A., Brazil)

P-A4 **Preliminary assessment of MTG-LI for Thunderstorm Warning Systems in engineering applications**
Cristina Alés, Jesús Alberto López, Glòria Solà, Joan Montanyà, Marcelo Arcanjo, David Romero and Michele Urbani (Polytechnic University of Catalonia, Spain); Oscar van der Velde (Polytechnic University of Catalonia, Spain); Nicolau Pineda and Marta Balagué (Remote Sensing Catalan Weather Service, Spain)

P-A5 **Lightning Immunity Tests of a New Composite Materials Using Current Impulse Generators**
Grzegorz Maslowski, Grzegorz Karnas, Kamil Filik, Mariusz Oleksy and Katarzyna Bulanda (Rzeszow University of Technology, Poland)

P-A6 **Development of a Modular Impulse Current Generator for Surge Protection Applications**
Konstantinos Gektidis, Ilia Zarka and Thomas Tsovilis (Aristotle University of Thessaloniki, Greece)

P-A7 **Study on countermeasures against backflow lightning from wireless communication facilities based on winter lightning observation results**
Yasuhiro Miyama and Kazuki Oobayashi (shoden, Japan); Tomoyuki Sato (Tohoku Institute of Technology); Nobuyuki Honjo (J-Wind service); Takashi Usui (Electric power development); Michihiro Matsui (Franklin Japan); Shigeru Yokoyama and

Koji Michishita (Shizuoka University)

P-A8 **The History of the Japanese Lightning Detection Network (JLDN)**
Akiko Sugita and Michihiro Matsui (Franklin Japan Corporation, Japan)

June 2 (Tue) | 11:00 - 12:30 | 7F Room 730 (Kaderu 2.7)

Poster Session #B

Chairs: Davide Pavanello

P-B1 **A Phase-Preserving Noise-Aware Denoising Method and Its Application to 3-D Lightning Localization over the Plateau**
Jie Shi and Xiangpeng Fan (Chinese Academy of Sciences, China)

P-B2 **Quality Control of Lightning Data over the Korean Peninsula Using Radar and Satellite Observations**
Woomi Jung, Sun-Woo Chu and Kyung-Yeub Nam (Korea Meteorological Administration, Korea, Republic of (South Korea))

P-B3 **Distribution of winter lightning around the world using Blitzortung**
Tomomi narita (Shonan Institute of Technology, Japan)

P-B4 **Multiscale Physical Modeling and Mechanism Study of Streamer Discharge Based on Smoothed Particle Hydrodynamics**
Yingge Liu, Nianwen Xiang, Kejie Li, Yu Huang and Shulai Wang (Hefei University of Technology, China); Chaoqun Wang (Hefei Comprehensive National Science Center, China)

P-B5 **Observation on the Relationship Between Winter Positive Lightning 3D Progressions and Hydrometeor Distributions**
Honoka Aiba, Daohong Wang, Yusuke Nishigaki and Ting Wu (Gifu University, Japan); Taro Shinoda (Nagoya University, Japan)

P-B6 **Characterization of VLF Electric Field Parameters From Negative Cloud-to-Ground Flashes at Different Distances in Eastern China**
Yu Huang, Nianwen Xiang, Shulai Wang, Yu Yang, Yuxiang Li and Yingge Liu (Hefei University of Technology, China)

P-B7 **Closing the Loop on Lightning Protection Compliance: Reliable Ground-Truth Strike Detection with the Jupiter SLR**
Carlos Mata, Dustin Hill, Matthew Raines, Charles Lafleur, Angel Alayon, Chase Dye and Carlos Miguel Mata (Scientific Lightning Solutions, LLC, USA)

P-B8 **Calibration of Electric Field Mills Using Parallel Metallic Plates**
Moacir Lacerda, Renan Silva and Eugenio Lacerda (YANSA Science Research and Development & EPL, Brazil); Nishant Parus and Carina Schumann (University of the Witewatersrand Johannesburg); Carlos Rodrigues and Welson Bassi (Universidade de São Paulo); Clovis Fritzen (Universidade Federal de Mato Grosso do Sul UFMS); Cardoso, Antonio (University of Porto);

P-B9 **Initial Performance of a Five-Station Boltek LRX-1 Lightning Location Network Deployed in Japan**
Masashi Kamogawa, Tomoyuki Suzuki and Hironobu Fujiwara(University of Shizuoka, Japan); Yui Oyaizu (Aoyama Civil Engineering co.,Ltd., Japan); Masaru Yasumoto (Mount Fuji Research Station, Japan)

P-B10 **Study on the Comparison of Lightning Activity Statistical and Dynamic Parameters in Coastal and Inland Wind Farms**
Yuzhe Chen, Yeqiang Deng, Yu Wang, Haochen Zhang, Zhenbang Hu, Lei Lan and Xishan Wen (State Key Laboratory of Power Grid Environmental Protection, School of Electrical Engineering and Automation, Wuhan University Wuhan, China); Tingyan Lv and Rongmin Chen (China Three Gorges Corporation)

June 2 (Tue)	12:30 - 14:00 TKP SAPPORO Business Center Akarenga-mae

Lunch

June 2 (Tue)	14:00 - 18:00 Meeting Point: Kaderu Hall (Kaderu 2.7)

Conference tour

June 2 (Tue)	18:00 - 20:30 ASAHI BEER Garden Hamanasu

Conference dinner BBQ

■ Wednesday, June 3

June 3 (Wed)	9:30 - 11:00 1F Kaderu Hall (Kaderu 2.7)

Lightning discharge characteristics -2

Chairs: Christian Paul, Dustin Hill

9:30 **Recent Update on Lightning Observations for Downward and Upward Flashes at Tokyo Skytree**
Toru Miki, Ami Kudo and Mikihisa Saito (Central Research Institute of Electric Power Industry (CRIEPI), Japan)

9:45 **The Occurrence of Recoil Leader During Rocket-Triggered Lightning in Winter Thunderstorms in Japan**
Muhammad Haziq Mohammad Sabri (Kindai University, Japan), Muhammad Zuhair Bolqiah Edris (Universiti Teknikal Malaysia Melaka, Malaysia); Mohd Anif Akhmal Abu Bakar, Yuji Takayanagi And Takeshi Morimoto (Kindai University, Japan); Mohd Riduan Ahmad (Universiti Teknikal Malaysia Melaka, Malaysia); Mohd Zafri Baharuddin (Universiti Tenaga Nasional, Malaysia); Kazuo Yamamoto (Chubu University, Japan)

10:00 **Preliminary Breakdown Characteristics of Inverted-Polarity Intracloud Lightning Observed in Northwestern China**
Junchen Yang and Panliang Gao (China Science Skyline, China); Dongdong Shi (Yangzhou University, China); Ting Wu and Daohong Wang (Gifu University, Japan)

10:15 **Multiple Types of Discharge Processes in the Initial Continuous Current Stage in a Rocket Triggered Lightning**
Li Cai, Yu Feng, Haohao Jin, Yadong Fan, Mi Zhou and Jianguo Wang (Wuhan University, China)

June 3 (Wed)	9:30 - 11:00 7F Room710 (Kaderu 2.7)

Lightning occurrence characteristics -2

Chairs: Ian Jandrell, Davide Pavanello

9:30 **Development Speed and Direction characteristics of Upward Leaders in Classical Triggered Lightning**
Chenxuan Zhang, Jianguo Wang, Yadong Fan, Rui Su, Jinxin Cao and Quanxin Li (Wuhan University, China)

9:45 **Using E-field to Estimate Continuing Current Charge as Validated by Triggered Lightning Data**
Broden Jepson-LaTurner, Adonis Leal, Susanna Lanucara, Richard Sonnenfeld and Caitano da Silva (New Mexico Institute for Mining and Technology,, USA); Jeff Lapierre (Earth Networks Incorporated, USA)

10:00 **Statistical Method to Downscale Ground Strike-Point Density Based on Terrain Features Using XGBoost Regression**
Han Yang, Han Li and Sufan Liu (School of Electrical Engineering and Automation of Wuhan University, China); Weixiang Huang and Wei Zhang (Electric Power Research Institute of Guangxi Power Grid Co., Ltd, China); Lihua Zhang (Beijing Meteorological Bureau, China)

10:15 **Monitoring Comparision of Total Lightning Tracks with Cloud-to-ground Lightning**
Yijun Huang, Jianguo Wang, Jinxin Cao, Li

Cai, Quanxin Li and Muzi Li (Wuhan University, China)

10:30 **Localized Thunderstorm Warning in Austria – A comparison of LLS and Field Meter Network Data**
Sebastian Schatz, Hannes Kohlmann and Wolfgang Schulz (OVE Service Gmbh, Dept. ALDIS, Austria): Stephan Pack (Graz University of Technology, Institute of High Voltage Engineering and System Performance, Austria); Lukas Schwalt (Austrian Power Grid AG, Austria)

10:45 **Characteristics of Continuing Currents in Multiple Termination Cloud-to-Ground Strokes Observed by FALMA and VHF Interferometer System**
Muhammad Uwais Farihin Fauzi , Muhammad Haziq Mohammad Sabri, Yuji Takayanagi and Takeshi Morimoto (Kindai University, Japan); Mohd Riduan Ahmad (Fakulti Teknologi dan Kejuruteraan Elektronik dan Komputer (FTKEK), Centre of Technology for Disaster Risk Reduction (CDR), Universiti Teknikal Malaysia Melaka, Malaysia); Mohd Zafri Baharuddin (Institute of Energy Infrastructure (IEI), Universiti Tenaga Nasional, Malaysia)

June 3 (Wed) | 9:30 - 11:00 | 8F Room820 (Kaderu 2.7)

Lightning protection of power systems -1

Chairs: Christiaan Engelbrecht, Hideki Honda

9:30 **Development of Polymer-housed Distribution Surge Arrester**
Shigehiko Goto, Tomikazu Anjiki, Tomoki Chiba, Tomohiro Suzuki, Takumi Horiguchi and Horiguchi Horiguchi (Toshiba Energy Systems & Solutions Corporation, Japan)

9:45 **Innovative Use of Surge Arresters for Lightning Protection of Unshielded Transmission Lines**
SILVERIO VISACRO FILHO, VISACRO FILHO SILVEIRA and BARBARA BARBARA (UFMG - Federal University of Minas Gerais, Brazil)

10:15 **Synthesis and Characterization of ZnO@SiO2@Bi2O3 nanopowder for enhance electrical properties of ZnO varistors**
Zhi ye, li song, sibo mao and junjia he (Huazhong University of Science and Technology, China)

10:30 **Lightning Risk Assessment and Validation for Multiple Wind Turbines Considering Terrain Influence**
Haochen Zhang, Yeqiang Deng and Yu Wang (Wuhan University, China); Tingyan Lv (China Three Gorges Corporation, China); Zeliang Wu and Yuzhe Yuzhe (Wuhan University, China)

10:45 **Multi-physics simulation of a gas-based arc-quenching lightning protection arrester for 220kV same-tower double-circuit transmission lines**
Honglin Qin (Wuhan University, China); Shanqiang Gu (China Electric Power Research Institute, China), Li Cai (Wuhan University, China); Wei Cao (China Electric Power Research Institute, China); Tao Li and Nengxing Guo (Wuhan University, China)

June 3 (Wed) | 11:00 - 12:30 | 1F Kaderu Hall Foyer (Kaderu 2.7)

Poster Session #C

Chairs: Hannes Kohlmann

P-C1 **Charge Structure and Polarimetric Radar Echo of Winter Lightning Flashes with Negative Energetic Compact Strokes**
Shunsuke tsuge, daohong daohong and ting ting (Gifu University, Japan)

P-C2 **Circularly Arranged Winter Sprites Observed over the Hokuriku Region of Japan**
Tomoyuki Suzuki (Shonan Institute of Technology & University of Shizuoka, Japan); Masashi Kamogawa (University of Shizuoka, Japan); Koji Ito (K.I.Tech International

Co.,Ltd, Japan); Tsutomu Minami (Kobe High School, Japan); Akira Aoshima (Iwata Minami High School, Japan); Hiroharu Tanaka (Seikei High School, Japan); Tin Wu and Daohong Wang (Gifu University, Japan); Syugo Hayashi (Meteorological Research Institute, Japan)

P-C3 **Fitting Method of Cumulative Probability Distribution of Lightning Current Magnitude and Application to High Altitude Area**
Mengfei Lei and Liangliang Tang (Wuhan NARI Limited Liability Company, China); Tao Feng (State Key Laboratory of Disaster Prevention & Reduction for Power Grid & State Key Laboratory of Disaster Prevention & Reduction for Power Grid); Pei Wang, Yan Li and Xiaoqin Zhang (Wuhan NARI Limited Liability Company, State Grid Electric Power Research Institute & National Energy Key Laboratory of Lightning Disaster Detection, Early Warning and Safety Protection & Hubei Key Laboratory of Lightning Risk Prevention for Power Grids & Hubei Field Observation and Scientific Research Station for Lightning Fundamental Parameters in Wuhan, China)

P-C4 **3D Characterization of In-Cloud Discharge Processes During Lightning Continuing Current**
Ryuki Hirai, Hirai Wang and Ting Wu (Gifu University, Japan)

P-C5 **Estimation of the Electric Charges Neutralized by Winter Lightning Flashes with Negative Energetic Compact Strokes**
Kazuma Yoshinaga, Daohong Wang and Ting Wu (Gifu University, Japan); Kozo Yamashita (Komatsu University, Japan)

P-C6 **Breakdown Process in Negative Cloud-to-Ground Flash with Continuing Current Observed by Interferometer**
Takahiro Tajiri (Chubu Electric Power Co., Inc & Kindai University); Masahito Shimizu (Chubu Electric Power Co., Inc); Megumu Miki (Central Research Institute of Electric Power Industry); Yuji Takayanagi and Takeshi Morimoto (Kindai University)

P-C7 **Charge Estimation From Lightning Discharges using LF Sensors in Peninsular Malaysia**
Mohamed Elmustafa GarElnabi, Farah Hani Nordin, Muhammad Nabil Ehsan Ali, Mohd Zafri Baharuddin, Azrul Mohd Ariffin, Chai Phing Chen and Nur Badariah Ahmad Mustafa (Universiti Tenaga Nasional (UNITEN), Malaysia); Yuji Takayanagi, Muhammad Haziq Mohammad Sabri and Takeshi Morimoto (Kindai University, Japan); Zen Kawasaki (Osaka University, Japan); Mohd Riduan Ahmad (Universiti Teknikal Malaysia Melaka, Malaysia)

P-C8 **Detecting Positive Leaders of Winter Lightning Using Interferometers: Effects of Signal Amplification and Window Length**
Yuki Hamajima, Daohong Wang, Qingliu Yang and Ting Wu (Gifu University, Japan)

June 3 (Wed) 11:00 - 12:30 7F Room 730 (Kaderu 2.7)

Poster Session #D

Chairs: Ehsan Mansouri

P-D1 **Lightning Overvoltage Protection for the Primary Electrical System of an Offshore Wind Turbine**
Jianfeng Shi and Haojun Lin (South China University of Technology, China); Lei Jia and HanSheng Cai (China Southern Power Grid, China); Kaiyuan Liu (China Three Gorges Corporation, China); Minchuan Liao, Huaifei Chen and Lu Qu (China Southern Power Grid, China); Yongxia Han (South China University of Technology, China)

P-D2 **Lightning Risk Assessment for 110kV Outgoing Line of Wind Farms in Complex Hilly Areas**
Yao Yao, Xiaopeng Liu, Xueming Zhou and Xiankang Wang (State Grid Hubei Electric Power Co., Ltd., China); Hua Ren and Mengfei Lei (State Grid Electric Power Research Institute, China)

P-D3 **A Study on Rational Grounding Resistance of Lightning Protection Devices for Pole-Mounted Transformers in Hokuriku Region of Japan**
Shun Otomi, Susumu Matsuura and Koji Michishita (Shizuoka University, Japan); Kenichi Kanatani (Hokuriku Electric Power Transmission & Distribution Company, Japan)

P-D4 **LLS-based Thunderstorm Warning Systems for Overhead Transmission Lines, Part 1: Defining a Danger Zone**
Christiaan Engelbrecht (Engelbrecht Consulting B.V., The Netherlands); Hannes Kohlmann (OVE Service GmbH, Austria); Anders Dall'osso Teigset (Statnett, Norway); Wolfgang Schulz (OVE Service GmbH, Austria)

P-D5 **Lightning Performance Evaluation of Transmission Lines Considering Strikes on Tower Tops and Spans**
Rodolfo Antônio Ribeiro de Moura (Federal University of São João del-Rei (UFSJ), Brazil); Rafael Alipio (Federal Center of Technological Education of Minas Gerais (CEFET-MG), Brazil); Daniele Mestriner and Alice La Fata (University of Genoa, Italy); Andre Tiso Lobato (Uppsala University, Sweden); Renato Procopio (University of Genoa, Italy)

P-D6 **FDTD Analysis of Collinear Array Configurations in Calculations of Apparent Soil Properties**
Evgeniya Borozdina and Dmitry Kuklin (Kola Science Centre of the Russian Academy of Sciences, Russian Federation)

P-D7 **Measurements and experiments for lightning damage countermeasures at railway substations**
Kazuya Yoneda and Kazuhiko Ito (West Japan Railway Company, Japan); Hiroki Tanaka (MITSUBISHI ELECTRIC CORPORATION, Japan); Kenji Hayashi (Kanden Engineering Corporation, Japan)

June 3 (Wed) 12:30 - 14:00 TKP SAPPORO Business Center Akarenga-mae

Lunch

June 3 (Wed) 14:00 - 15:30 1F Kaderu Hall (Kaderu 2.7)

Lightning electromagnetic impulse (LEMP) and lightning-induced effects -1

Chairs: Carlo Alberto Nucci, Shozo Sekioka

14:00 **FDTD Computation of Ground-level Electric Fields Produced by Lightning Return Strokes Including Ionospheric Reflections**
Shuta Furutani and Yoshihiro Baba (Doshisha University, Japan), Si Chen and Vladimir A Rakov (University of Florida, USA)

14:15 **Development of Circuit-Theory-based Analysis Tool LiCAT Considering LEMP for Direct Lightning**
Akifumi Yamanaka, Kazuyuki Ishimoto and Akiyoshi Tatematsu (Central Research Institute of Electric Power Industry (CRIEPI), Japan)

14:30 **An Efficient Algorithm for Calculating Lightning-Induced Voltages in EMT-Type Programs**
Daniele Mestriner (University of Genoa, Italy); Osis Leal (Universidade Federal dos Vales do Jequitinhonha e Mucuri, Brazil); Alberto De Conti (Universidade Federal de Minas Gerais, Brazil); Renato Procopio(University of Genoa, Italy)

14:45 **An Alternative Formulation for Incorporating Tortuosity Effects into Return Stroke Electromagnetic Fields**
Daniele Mestriner, Riccardo Aramini, Massimo Brignone, Martino Nicora, Renato Procopio and Andrea Randazzo (University of Genoa, Italy)

15:00 **Impact of Soil-Resistivity Uncertainty on EMTR-Based Fault Location in Overhead Transmission Lines**
Tamara Do Nascimento, Naiara Duarte and

Rafael Alipio (Federal Center for Technological Education of Minas Gerais (CEFET-MG), Brazil); Farhad Rachidi (Swiss Federal Institute of Technology *(EPFL), Switzerland)*

June 3 (Wed)	14:00 - 15:30
	7F Room 710 (Kaderu 2.7)

Lightning protection of telecommunication systems & Lightning protection of electronic systems

Chairs: Alexander Kern, Vladimir Djurica

14:00 **Influence of Gas Composition and Electrode Conditions on the Follow-Current Behavior of Gas Discharge Tubes**
Yosuke Mimura and Yingxin He (Sankosha Corporation, Japan)

14:15 **Comparative Assessment of Tower Geometries for Simulated Effective Height: The Gaisberg Tower Case**
André T. Lobato (Uppsala University, Sweden); Liliana Arevalo (Hitachi Energy Sweden, Sweden); Vernon Cooray(Uppsala University, Sweden)

14:30 **Comprehensive Lightning Protection for Radar Systems in Lightning-Prone Region**
Weisheng Liao (Defence Science and Technology Agency (DSTA), Singapore); Wai Hong Wong (DEHN Asia Pacific Pte Ltd, Singapore); Siaw Peng The and Hian Koon Chua (Defence Science and Technology Agency (DSTA), Singapore)

14:45 **Effects of Secondary-Circuit Layout of GIS on Surges Induced on Protection Relay by Intruding Lightning Surges**
Daiki Tashiro and Akiyoshi Tatematsu (Central Research Institute of Electric Power Industry, Japan)

June 3 (Wed)	14:00 - 15:30
	8F Room 820 (Kaderu 2.7)

Lightning protection of power systems -2

Chairs: Fernando Silveira, Toshihiro Tsuboi

14:00 **A Study of Effective Lightning Protection Countermeasures Using Regression Analysis**
Hideki HONDA and Takuya Shoji (Toyo University, Japan)

14:15 **Dielectric Strength of the Jacket of Medium Voltage Cables**
Michail Pitsikalis, Georgios Peppas (Technical University of Crete, Greece); Athina-Konstantina Antoniou (Elemko S.A, Greece); Georgios Messaritakis(Technical University of Crete, Greece); Eleftheria Pyrgioti (University of Patras, Greece); Lucian-Viorel Taranu and Andreas Chrysochos (Hellenic Cables, Greece); Thomas Tsovilis (Aristotle University of Thessaloniki, Greece)

14:30 **Modeling of Overhead Lines Using ATPDraw for Lightning Transient Studies**
Zacharias G. Datsios and Theofilos A. Papadopoulos (Aristotle University of Thessaloniki, Greece); Jesus E. Guevara Asorza (University of Campinas, Brazil); Amauri G. Martins-Britto (KU Leuven, Belgium)

14:45 **Temporal-Spatial Clustering Analysis of Cloud-to-Ground Lightning for 500kV Transmission Line Trips**
Li Zhang, Jianguo Wang, Jinxin Cao, Mi Zhou, Quanxin Li and Yijun Huang (Wuhan University, China)

15:00 **Impact of Subsequent Strokes on Direct Lightning Performance of 6.6-kV Distribution Lines**
Kazuyuki Ishimoto and Akifumi Yamanaka (Central Research Institute of Electric Power Industry, Japan)

15:15 **Lightning Impulse Breakdown and Post-Discharge Dielectric Performance in Insulating Fluids forPower Transformer Applications**
Antonio Cardoso and Matias Fabricius

(Faculty of Engineering of the University of Porto (FEUP), Portugal); Bernardo Silva (Faculty of Engineering of the University of Porto (FEUP) & INESC-TEC, Portugal); José Ferreira (Faculty of Engineering of the University of Porto (FEUP), Portugal); André dos Santos (Rede Elétrica Nacional (REN), Portugal); Marcus Nunes (Federal University of Pará, Brazil); Welson Bassi (University of São Paulo, Brazil)

June 3 (Wed)	15:30 - 16:00 1F & 7F (Kaderu 2.7)

Coffee Break

June 3 (Wed)	16:00 - 18:00 1F Kaderu Hall (Kaderu 2.7)

Lightning electromagnetic impulse (LEMP) and lightning-induced effects -2

Chairs: Yoshihiro Baba, Alexandre Piantini

16:00 **Low-Frequency Three-Dimensional Lightning Mapping via Cross-Correlation and Hybrid Least-Squares Optimization in Peninsular Malaysia**
Muhammad Nabil Ehsan Ali, Farah Hani Nordin, Mohd Zafri Baharuddin, Ahmad Wafi Mahmood Zuhdi, Mohd Hazli Mohamed Zabil, Ungku Anisa Ungku Amirulddin, Iszmir Nazmi Ismail, Syed Zainal Abidin Syed Kamarul Bahrin, Nur Badariah Ahmad Mustafa and Mohamed Elmustafa GarElnabi (Universiti Tenaga Nasional, Selangor, Malaysia)
Takeshi Morimoto, Yuji Takayanagi and Muhammad Haziq Mohammad Sabri (Kindai University, Japan);
Mohd Riduan Ahmad (Universiti Teknikal Malaysia Melaka, Malaysia)

16:15 **Lightning Overvoltages at the Consumer Installation of Hybrid Overhead Lines: Influence of Tower and Consumer Grounding Impedances**
Luana Batista Moraes and Alexandre Piantini (University of São Paulo, Brazil)

16:30 **Electromagnetic Fields of Cloud-to-Ground Lightning Strikes in Heterogeneous Soil Regions**
Mohsen Nazari, Mojtaba Dehmollaian, Rouzbeh Moini, Simon Fortin and Farid Dawalibi (SES & technologies ltd., Canada)

16:45 **Transition from Near-Field to TEM Propagation in Lightning-Struck Shield Wires and Its Impact on Induced Voltages**
Vernon Cooray (Uppsala University, Sweden); Gerald Cooray (Karolinska Institute, Sweden); Farhad Rachidi (EPFL, Switzerland)

17:00 **GPU-Accelerated 3-D FDTD Simulation of Lightning Surge Phenomena in Substation Primary and Secondary Circuits**
Akiyoshi Tatematsu and Akifumi Yamanaka (Central Research Institute of Electric Power Industry (CRIEPI), Japan)

17:15 **A Study on Lightning Overvoltages on Overhead Line Connected to Windfarm Caused by Direct Lightning Strike to Wind Tower**
Shozo Sekioka (Shonan Institute of Technology, Japan); Ken-ichi Seki and Takashi Tsuchida (KANDENKO CO.,LTD., Japan)

June 3 (Wed)	16:00 - 18:00 7F Room 710 (Kaderu 2.7)

Lightning protection of buildings

Chairs: Grzegorz Masłowski, Erika Stracqualursi

16:00 **A study of surge coordination between surge protective device and surge absorber**
Takashi Tsuchida (KANDENKO Co., Ltd., Japan); Nawakun Triruttanapiruk (King Mongkut's University of Technology North Bankok, Thailand); Shinji Yasui (Nagoya Institute of Technology, Japan)

16:15 **Over-Voltage Mitigation of Grounding Electrodes Buried Outside a Structure**
Masayoshi Ando, Hiroyuki Sakakibara and Akira Higano (Kandenko Co.,Ltd, Japan); Atsushi Fujiwara and Takahito Shoda (Nippon Chiko Co.,Ltd, Japan); Kazuo Yamamoto (Chubu University, Japan)

16:30 **Current Distribution in Structure and Lightning Attachment System following Lightning Strikes on Buildings**
Kazuya Koketsu, Yuta Niwa and Shinji Yasui (Nagoya Institute of Technology, Japan); Tatsuya Yamamoto and Masaya Nakagawa (Toenec Corporation, Japan)

16:45 **FDTD Analysis of Electric Field and Step Voltage in a Clay-brick Building Struck by Lightning**
Harumasa Idei and Yoshihiro Baba (Doshisha University, Japan); Takeshi Kudo (Otowa Electric Co., Ltd, Japan)

17:00 **Lightning Overvoltage Occurring in Low-Voltage DC Wiring System**
Kengo Mori, Seungcheol Baek and Shinji Yasui (Nagoya Institute of Technology, Japan); Yasuhiro Matsumura, Masaki Funakubo, Hiroyuki Sakakibara and Koichi Mori (Kandenko Co., Ltd., Japan)

17:15 **Transient Overvoltages and Ground Potential Rise in Interconnected Buildings Due to Direct Lightning Strikes**
Anandu Gopan, Nandu Gopan and Chandima Gomes (University of the Witwatersrand, South Africa)

June 3 (Wed) | 16:00 - 18:00 | 8F Room 820 (Kaderu 2.7)

Lightning protection of power systems -3

Chairs: Silverio Visacro, György Kalecz

16:00 **Numerical Analysis of Overvoltages Caused by Lightning at Power Cable Joints in Wind Farm under Low Grounding Resistance Conditions**
Tatsuya Okazaki and Hiroshi Morita (Kinden Corporation, Japan); Naoto Nagaoka (Doshisha University, Japan)

16:15 **Research on Error Analysis and Positioning Correction of Lightning Electromagnetic Field Propagation in Complex Mountainous Terrain**
Zhang Ziyi (China Three Gorges Renewables,Center for Technological Economics, China); Hu Zhenbang (WuHan University, China); Yang Yongkuan and Yang Benjun (China Three Gorges Renewables,Center for Technological Economics, China); Chen Jintian (WuHan University, China); Song Yungui (China Three Gorges Renewables,Center for Technological Economics, China)

16:30 **Earthing System Evaluation: A Case Study comparing Low- and High-Frequency Methodologies with Digital Twin Validation**
Jurjen Couperus Cabadag (DNV Energy systems, Germany); Pjotr Stoevelaar, Peter van den Hurk, Jan Peter van Bolhuis, Leo Lagendijk, Ebbo de Meulemeester, Jiayang Wu, Jeroen Alberts and Mostafa Ahmed (DNV Energy systems, the Netherlands); Stefan Dietze (DNV Energy systems, Germany); Erik Evertz (DNV Energy systems, the Netherlands); Nasar Hidar (DNV Energy systems, Germany); Jan Kingma, Taha Kucukcelebi, Ed Tap, Deeksha Venkatesh, Ben-Paul Zondagh, André Rauwerda (DNV Energy systems, the Netherlands)

16:45 **Lightning Performance of High-SIL Overhead Transmission Lines Considering Asymmetries**
Luiz Neto (CEPEL & Federal University of Rio de Janeiro, Brazil); Antonio Lima (Federal University of Rio de Janeiro, Brazil); Carlos Arruda (CEPEL, Brazil); Mayara Cagido (CEPEL, Brazil)

17:00 **Assessing the quality of deterministic approaches to represent the effect of power-frequency voltage on the calculation of the lightning performance of transmission lines**
Giovanna M. P. Zago, Laura C. S. Pires and Fernando H. Silveira (Universidade Federal

de Minas Gerais, Brazil); Frederico S. Almeida (CEMIG – Power Utility of Minas Gerais, Brazil)

17:15 **Full-Range Current Impulse Testing of a Lightning Current Arrester in Low-Voltage Power Systems**
Jan Philipp Höpker, Thomas Meyer, Hannes Sagebiel, Moritz Munzel, Markus Philipp and Gernot Finis (Phoenix Contact GmbH & Co. KG, Germany)

■ Thursday, June 4

June 4 (Thu) | 9:30 - 11:00 | 1F Kaderu Hall (Kaderu 2.7)

Lightning protection of power systems -4

Chairs: Luana Batista Moares, Akifumi Yamanaka

9:30 **Lightning Protection Design and Lightning Accident Statistics for Substations in Japan**
Hirokazu Matsumoto, Hiroyuki Shinkai and Kensuke Teramoto (Central Research Institute of Electric Power Industry (CRIEPI))

9:45 **Techno-Economic Analysis of Line Lightning Protection Devices in Mitigating Lightning Overvoltages**
Nagananthini Ravichandran and Amedeo Andreotti (University of Naples Federico II, Italy); Luigi D'Orazio (ENEL Group, Utilities, Italy); Jean-Baptiste Frain (Streamer Electric AG, Switzerland);
Santolo Meo (University of Naples Federico II, Italy); Alfredo Vaccaro (University of Sannio, Italy)

10:00 **Evaluation of Surge Arrester Energy in Transmission Systems Under Positive Lightning Strikes**
Rodolfo Antônio Ribeiro de Moura (Federal University of São João del-Rei (UFSJ), Brazil);
Rafael Alipio (Federal Center of Technological Education of Minas Gerais (CEFET-MG), Brazil);
Daniele Mestriner, Martino Nicora and Renato Procopio (University of Genoa, Italy)

10:15 **Lightning Overvoltages on the 138 kV Circuit of a Hybrid Overhead Line**
Wendler Matos and Alexandre Piantini (University of São Paulo, Brazil)

10:30 **Insulation Coordination and Bonding Optimization for Lightning Protection of MV Siphon Systems**
Michail Pitsikalis (Technical University of Crete, Greece); Thomas Tsovilis (Aristotle University of Thessaloniki, Greece); Georgios Peppas (Technical University of Crete, Greece)

10:45 **A Mixed Poisson Approach to Account for Ground Flash Density Variability in Transmission Line Lightning Performance**
Rafael Alipio (Federal Center of Tech. Educ. of Minas Gerais (CEFET-MG), Brazil); Marco Aurélio Schroeder (Federal Univ. of São João del-Rei (UFSJ), Brazil); Fernando Diniz (ARGO Energia, Brazil)

June 4 (Thu) | 9:30 - 11:00 | 7F Room 710 (Kaderu 2.7)

Lightning occurrence characteristics -3

Chairs: Joan Montanya, Marcos Rubinstein

9:30 **LLS-based Thunderstorm Warning Systems for Overhead Transmission Lines, Part 2: TWS performance in different regions in Norway**
Hannes Kohlmann and Wolfgang Schulz (OVE Service GmbH, Austria); Christiaan Engelbrecht (Engelbrecht Consulting B.V., The Netherlands); Anders Dall'osso Teigset (Statnett SF, Norway)

9:45 **Simulation of lake effects on the development of a thunderstorm and its charge structure**
Liangtao Xu, Hengyi Liu and Wen Yao (Chinese Academy of Meteorological Sciences, China); Renqiang Wen (China Three Gorges Corporation, China)

10:00 **Self-Evaluation of Lightning Nowcasting Products Based on Multi-Source Data**
Zhilu Chen, Hai Yu and Kongzheng Wang (Key Laboratory of South China Sea Meteorological Disaster Prevention and Mitigation of Hainan Province, China)

10:15 **Estimation of Charge Transfer from Lightning Electric Field Measurement Results**
Koji Takano and Hidehiro Nakata (Kyushu electric power company, Japan); Koji Michishita (Shizuoka University, Japan)

10:30 **Characteristics of Pulses Superimposed on Winter Bipolar Upward Lightning and Properties of Positive Upward Flashes**
Mizuki Suzuki, Koji Michishita and Shigeru Yokoyama (Shizuoka University, Japan); Michihiro Matsui (Franklin Japan Co., Japan); Yasuhiro Miyama (Shoden Co., Japan); Koji Takano (Kyushu Electric Power Co., Japan); Nobuyuki Honjo (J-Wind Service Co., Japan); Takashi Usui (Electric Power Development Co., Japan)

June 4 (Thu) | **9:30 - 11:00** | **8F Room 820 (Kaderu 2.7)**

Lightning physics and phenomenology -3

Chairs: Hugh Hunt, Wolfgang Schulz

9:30 **Characteristics Analysis of Ice-Phase Hydrometeors and Lightning Activity During the Landfall Process of Super Typhoon Yagi (No.2411)**
Hai Yu (Key Laboratory of South China Sea Meteorological Disaster Prevention and Mitigation of Hainan Province, China); Zhe Li (Lanzhou University,China); Zhilu Chen and Kongzheng Wang (Key Laboratory of South China Sea Meteorological Disaster Prevention and Mitigation of Hainan Province, China)

9:45 **Optical and Magnetic Field Pulses in Positive Cloud-to-Ground Lightning Leaders**
Dylan Goldberg (Florida Institute of Technology, USA); Amitabh Nag (Florida Institute of Technology, USA & Los Alamos National Laboratory, USA); Kenneth Cummins, Austin Brower, Mathieu Plaisir, Alex Tempert and Hamid Rassoul (Florida Institute of Technology, USA)

10:00 **Investigation of the inception and development of aircraft-initiated same-polarity leaders**
Sayantan Das and Udaya Kumar (Indian Institute of Science, India)

10:15 **Streamer Discharge Modeling Between Water Droplets Inside Thundercloud**
Hasupama Jayasinghe, Vernon Cooray and Emek Abali (Uppsala University, Sweden); Liliana Arevalo (Hitachi Energy AB, Sweden)

10:30 **Insight into the ionization wave in long sparks with ultra-fast photomultiplier tube array:preliminary results**
Xiankang Wang, Xiaopeng Liu, Jiaqi Wu, Chuntang Liu, Xiangen Zhao, Junjia He (State Grid Hubei Electric Power Co., LTD, China)

10:45 **Directly measured versus remotely estimated peak currents of negative cloud-to-ground return strokes**
Kenneth Cummins (Florida Institute of Technology, USA & University of Arizona, USA); Amitabh Nag (Florida Institute of Technology, USA & Los Alamos National Laboratory, New Mexico, USA); Christopher Biagi (Florida Institute of Technology, USA & NASA Applied Physics Laboratory, Florida, USA); Mathieu Plaisir and Goldberg, Dylan (Florida Institute of Technology, USA); Dustin Hill and Mata, Carlos (Scientific Lightning Solutions, Florida, USA); Hamid Rassoul (Florida Institute of Technology, USA)

June 4 (Thu)	11:00 - 12:30
	1F Kaderu Hall (Kaderu 2.7)

Poster Session #E

Chairs: Sebastian Schatz

P-E1 **Rational Approximation of the Transient Ground Resistance for Overhead Transmission Lines**
Pedro Henrique Nascimento Vieira and Antonio Carlos Siqueira Lima (Universidade Federal do Rio de Janeiro, Brazil); Alberto Resende De Conti (Universidade Federal de Minas Gerais, Brazil); Marcelo Aroca Tomim (Universidade Federal de Juiz de Fora, Brazil)

P-E2 **Influence of Shield Wire Relative Permeability on Backflashover Performance**
Jesus Enrique Guevara Asorza (University of Campinas, Brazil); Theofilos A. Papadopoulos (Aristotle University. of Thessaloniki, Greece); Jose Pissolato Filho (University of Campinas, Brazil)

P-E3 **Separation Distance and ki Factor for Negative and Positive First Return Stroke Current Compared to Negative Subsequent Return Stroke Current**
Christian Drebenstedt, Kamila Costa, Eduard Shulzhenko and Michael Rock (Technische Universität Ilmenau, Germany)

P-E4 **Improved Resistance Formula of Horizontal Grounding Grids**
Peerawut Yutthagowith (King Mongkut's Institute of Technology Ladkrabang, Thailand); Nawakun Triruttanapiruk and Busayapol Paophan (King Mongkut's University of Technology, Rayong Campus, Thailand)

P-E5 **Impedance and Lightning Performance of Transmission Tower Grounding in Frequency-Dependent Soil**
Mathias Vinther (Technical University of Denmark, Denmark & Energinet, Denmark); Joachim Niemann-Larsen (Energinet, Denmark); Joachim Holbøll (Technical University of Denmark, Denmark)

P-E6 **Integrated Analysis System from Lightning Surge to Transformer Insulation Evaluation**
Makoto Takahashi, Takayuki Kamihaba, Tatsuya Masuda, Kiwamu Miyajima and Toru Satoh (AICHI ELECTRIC Co., Ltd., Japan)

P-E7 **Observations of Winter Type Upward Lightings at the Sea of Japan coast**
Ami Kudo and Mikihisa Saito (Central Research Institute of Electric Power Industry, Japan); Keita Sagara (JIST Co., Ltd., Japan); Tomomi Narita (Shonan institute of technology, Japan); Hirofumi Fujioka (Takaoka Toko Co., Ltd., Japan); Go Imada (Niigata Institute of Technology, Japan); Tsuboi Toshihiro and Sakae Taniguchi (Tokyo Electric Power Company Holdings, Inc, Japan)

June 4 (Thu)	11:00 - 12:30
	7F Room730 (Kaderu 2.7)

Poster Session #F

Chairs: Evgeniya Borozdina

P-F1 **Magnetic Research on the Soil and Fragment of Gutter Around the Lightning Strike Area**
Hideo Sakai (*University of Toyama, Japan*); Shoichi Nagata and Chikashi Okabayashi (*Sankosha Corporation, Japan*)

P-F2 **Comparison of Generation Conditions for Branching and Non-Branching of Positive Leaders in a 2.5 m Air Gap**
Lili Guo, Xiangen Zhao, Xiankang Wang, Xiaopeng Liu and Junjia He (Huazhong University of Science and Technology, China)

P-F3 **Correlating Lightning Electric-Field Signatures with Extreme Weather Events**
Nishanth Parus and Chandima Gomes (University of the Witwatersrand, South Africa)

P-F4 **Detection and Quantification of Corona Emission under Thunderstorm**

Conditions Using Ultraviolet Diagnostics
Nishanth Parus and Chandima Gomes (University of the Witwatersrand, South Africa); Leonard Staphorst, Tiffany Yeomans and Michael Moller (UViRCO Technologies, South Africa)

P-F5 **Insights on Lightning Risk Assessment for Gas Pipelines Intersecting Large-Scale Solar Photovoltaic Farms**
C.A. Charalambous, Christoforos Theophanous and Kyriakos Louca (University of Cyprus, Cyprus); Nikolaos Kokkinos (ELEMKO, SA Greece)

P-F6 **Comparison of Volumetric and Coated-Wire FDTD Models for Transient Simulation of Buried Insulated Cables**
Naiara Duarte and Rafael Alipio (Federal Center for Technological Education of Minas Gerais (CEFET-MG), Brazil); Dmitry Kuklin (Kola Science Centre of the Russian Academy of Sciences, Russia); Susana Naranjo-Villamil (EDF Power Networks Lab, France)

P-F7 **Comparison of Lightning-Induced Shield Currents on Buried Insulated Cables Using 3D-FDTD and Frequency-Domain Coupling Models**
Hannes Kohlmann (OVE Service GmbH, Austria); Dmitry Kuklin and Evgeniya Borozdina (NERC, KSC RAS, Russia)

P-F8 **Experimental Verifications for the Protection of Fuel Storage Tanks against Lightning Discharges**
Helio Eiji Sueta (IEE USP, Brazil); Antonio Roberto Panicali (Proelco, Brazil); Luis Eduardo Caires, Roberto Zilles and Miltom Souza (IEE USP, Brazil); Danilo Ferreira de Souza (Federal University of Mato Grosso, Brazil)

P-F9 **A proposal for procedure to evaluate the need of surge protection measures (SPM) in Japan, based on IEC 62305-2.**
Kensuke Kaito, Tomohiro Oku and Junichi Suzuki (SHODEN CORPORATION, Japan)

P-F10 **Lightning Injury Mechanisms: Expanding the Classification**
Gabriel Santos and Martins J.r, Walter (Federal University of Mato Grosso, Brazil); Hélio Sueta (University of Sao Paulo (USP), Brazil); Ronald Holle (African Centres for Lightning Education Network – ACLENet, Uganda); *Mary Cooper (Holle Meteorology & Photography, USA); Danilo Souza (Federal University of Mato Grosso, Brazil & University of Sao Paulo (USP), Brazil*)

June 4 (Thu)	12:30 - 14:00 TKP SAPPORO Business Center Akarenga-mae

Lunch

June 4 (Thu)	14:00 - 15:30
	1F Kaderu Hall (Kaderu 2.7)

Lightning protection of power systems -5

Chairs: Susana Naranjo-Villamil, Naiara Duarte

14:00 **Computing Coupling Effects on Insulator Lightning Overvoltages by Different Electromagnetic Models**
Erika Stracqualursi (Sapienza University of Rome, Italy), Bárbara Pereira and Fernando H. Silveira (Universidade Federal de Minas Gerais, Brazil); Rodolfo Araneo (Sapienza University of Rome, Italy); Silverio Visacro (Universidade Federal de Minas Gerais, Brazil); Amedeo Andreotti (University of Naples Federico II, Italy)

14:15 **A Comprehensive Analysis of Multiphase Flashover on a 500 kV Double Circuit Transmission Line by Means of Monte Carlo Method Approach**
Fernando Silveira (UFMG, Brazil); Frederico Almeida (CEMIG, Brazil); Silverio Visacro(UFMG, Brazil)

14:30 **Experimental Measurement and Model Validation for Lightning Overvoltages in Windings of Pole-Mounted Distribution Transformers**
Susumu Matsuura and Koji Michishita (Shizuoka University, Japan); Kenichi Kanatani (Hokuriku Electric Power Transmission & Distribution Company, Japan)

14:45 **Impact of Ground Wires on the Indirect Lightning Performance of Overhead Lines in Tropical Zones**
Edison Andres Soto Rios (Industrial University of Santander, Colombia)

15:00 **Lightning Overvoltage on an EHV Substation Caused by Multiphase Back Flashover**
Shozo Sekioka (Shonan Institute of Technology, Japan)

June 4 (Thu)	14:00 - 15:30
	7F Room 710 (Kaderu 2.7)

Lightning electromagnetic impulse (LEMP) and lightning-induced effects -3

Chairs: Akiyoshi Tatematsu, Daniele Mestriner

14:00 **The Influence of the Distribution Transformer Characteristics on the Lightning Overvoltages at the LV Circuit of Hybrid Overhead Lines**
Alexandre Piantini and Luana Moraes (University of São Paulo, Brazil)

14:15 **Simulation-Based Analysis of Parameter Effects on Lightning Overvoltages in a 440 kV Transmission Line**
Thiago Farias dos Santos and Alexandre Piantini (Federal Catarinense Institute & University of São Paulo, Brazil); Alexandre Piantini (University of São Paulo, Brazil)

14:30 **Direct Lightning Overvoltage and Flashover Risk in Complex Distribution Line Network considering Electromagnetic Coupling from Lightning Channel**
Jinxin Cao, Chuge Zhu, Jianguo Wang, Mi Zhou, Runyu Fu and Yadong Fan (Wuhan University, China)

14:45 **Direct Stroke Lightning Overvoltage by Rocket Triggered on 10 kV Distribution Lines with Lightning Arrester and Shield Wire**
Runyu Fu, Jianguo Wang, Jinxin Cao (Wuhan University, China); Yuqian Fang (Hangzhou Power Supply Company, State Grid Zhejiang Electric Power co.. Ltd., China); Quanxin Li(Wuhan University, China); Shoupeng Wang (Yantai Power Supply Company, State Grid Shandong Electric Power co.. Ltd.)

15:00 **Assessment of Electromagnetic and Thermal Stresses in Reinforced Concrete of a Hydroelectric Dam Under Direct Lightning Current Using XGSLab**
Ivan Grobbelaar (Private contribution, South Africa); Mark Hendricks (DEHN, Inc., USA); Alejandro Espinosa (DEHN, Canada)

15:15 **VTS-PEEC: An Accelerated Solution for Lightning Transient Simulation on 10 kV Distribution Systems**
Chakhung Yeung, Yaping Du, Yuxuan Ding, Xiangen Zhao, Xiao He and Nan Feng (The Hong Kong Polytechnic University, Hong Kong S.A.R. (China)); Lei Jia (China Southern Power Grid, China); Song Zhang (Research Institute China Southern Power Grid, China); Ruihan Qi (China Southern Power Grid, China)

June 4 (Thu) 14:00 - 15:30 8F Room 820 (Kaderu 2.7)

Lightning attachment and shielding against lightning

Chairs: Rafael Alipio, Kamila Costa

14:00 **Application of the Oblique Thin Wire Model for Calculations of Lightning-Induced Currents**
Dmitry Kuklin and Evgeniya Borozdina (Kola Science Centre of the Russian Academy of Sciences, Russian Federation); Evgeniya Borozdina (Kola Science Centre of the Russian Academy of Sciences, Russian Federation); Hannes Kohlmann (EMC Laboratory, Switzerland & ALDIS/BLIDS, Austria)

14:15 **Lightning Shielding Failure Analysis in High-Temperature Low-Sag (HTLS) Transmission Lines**
Jesus Enrique Guevara Asorza (University of Campinas, Brazil); Theofilos A. Papadopoulos (Aristotle University. of Thessaloniki, Greece); Jose Pissolato Filho (University of Campinas, Brazil)

14:30 **A Chain Arc Model with Coupling Inner-Outer Two Layers in Lightning Swept-Stroke Simulation**
Kunhao Liu, Yakun Liu, Zhenyu Wei, Siyuan Shen, Liang Qiao and Donghuang Luo (Shanghai Jiao Tong University, Shanghai, China)

14:45 **Attachment Processes of Cloud-to-Ground Lightning Striking Transmission Lines and Ground**
Megumu Miki, Toru Miki, Mikihisa Saito and Ryuichi Nakane (CRIEPI, Japan); Takahiro Tajiri and Masahito Shimizu (Chubu Electric Power Co.,Inc, Japan)

June 4 (Thu) 15:30 - 16:00 1F & 7F (Kaderu 2.7)

Coffee Break

June 4 (Thu) 16:00 - 18:00 1F Kaderu Hall (Kaderu 2.7)

Lightning monitoring and its application for disaster resilience -1

Chairs: Michihiro Matsui, Goran Milev

16:00 **Short-Term Lightning Activity Nowcasting using Temporal Artificial Intelligence Model: Feature Combination Analysis**
Mohd Anif Akhmal Abu Bakar, Yuji Takayanagi, Muhammad Haziq Mohammad Sabri(Kindai University, Japan); Ting Wu(Gifu University, Japan), Mohd Zafri Baharuddin(Universiti Tenaga Nasional, Malaysia); Mohd Riduan Ahmad(Universiti Teknikal Malaysia Melaka , Malaysia); Takeshi Morimoto(Kindai University, Japan)

16:15 **Performance of Density-based Clustering using MTG-LI Data for Short-Term Lightning Forecasting**
Andre Razvan Topala(EPFL, Switzerland); Hannes Kohlmann(ALDIS-OVE, Austria); Ehsan Mansouri and Farhad Rachidi(EPFL, Switzerland)

16:30 **Advancements in Microwave Interferometer for Corona Discharges Mapping Associated with Positive Narrow Bipolar Events**
Ahmad Rifhan Salman, Mohd Riduan Ahmad, Muhammad Zuhair Bolqiah Edris, Harry Sucitra Roslan, Nur Zahin Azhari Nazifunnur and Mohamad Zoinol Abidin Abd

Aziz(Universiti Teknikal Malaysia Melaka, Malaysia); Muhammad Haziq Mohamad Sabri, Yuji Takayanagi and Takeshi Morimoto(Kindai University, Japan); Mohd Zafri Baharuddin(Institute of Energy Infrastructure & Universiti Tenaga Nasional, Malaysia); Zen-Ichiro Kawasaki(Kindai University, Japan); Manabu Akita(University of Electro-Communication, Japan)

16:45 **Relationship between Lightning Activity, Rainfall Intensity, and Cloud-Top Height During Two Flash Flood Events in Malacca Malaysia**

Harry Sucitra Roslan, Mohd Riduan Ahmad and Nor Azlan Mohd Aris(Universiti Teknikal Malaysia Melaka, Malaysia); Muhammad Haziq Mohammad Sabri (Kindai University, Japan); Ahmad Rifhan Salman and Muhammad Zuhair Bolqiah Edris (Universiti Teknikal Malaysia Melaka, Malaysia); Mohd Zafri Baharuddin (Universiti Tenaga Nasional, Malaysia); Nor Hadizah Mohd Khalid (Malaysia Meteorological Department, Malaysia); Yuji Takayanagi and Takeshi Morimoto (Kindai University, Japan); Zen-Ichiro Kawasaki(Kindai University, Japan)

17:00 **Observations of Multi-Point Lightning Strikes Using a VHF Broadband Interferometer**

Yuji Takayanagi and Takeshi Morimoto (Kindai University, Japan); Manabu Akita(University of Electro-Communication, Japan); Zen-Ichiro Kawasaki (Osaka University, Japan) and Daohong Wang (Gifu University, Japan); Mohd Riduan Ahmad (Universiti Teknikal Malaysia Melaka, Malaysia); Mohd Zafri Baharuddin (Universiti Tenaga Nasional, Malaysia)

17:15 **3D Lightning Mapping for Narrow Bipolar Event Using Two-Station VHF interferometer**

Muhammad Zuhair Bolqiah Edris and Mohd Riduan Ahmad (Universiti Teknikal Malaysia Melaka, Malaysia); Muhammad Haziq Mohammad Sabri and Yuji Takayanagi (Kindai University, Japan); Manabu Akita(The University Of Electro Communication, Japan); Ahmad Rifhan Salman and Mohamad Zoinol Abidin Abd. Aziz (Universiti Teknikal Malaysia Melaka, Malaysia); Mohd Khairy Zahari (Universiti Teknologi Mara, Malaysia); Takeshi Morimoto (Kindai University, Japan); Mohd Zafri Baharudin (Universiti Tenaga Nasional, Malaysia); Nik Mohd Zarifie Hashim (Universiti Teknikal Malaysia Melaka, Malaysia); Zen-Ichiro Kawasaki (Osaka University, Japan)

17:30 **Comparison of Two Ground-Based LLSs in South Africa**

Hugh Hunt, Carina Schumann and Ian Jandrell (University of the Witwatersrand, South Africa); Tom Warner (ZTResearch, USA)

June 4 (Thu) | 16:00 - 18:00 | 7F Room 710 (Kaderu 2.7)

Lightning deleterious effects

Chairs: Hiroki Tanaka, Stephane Schmidt

16:00 **Estimation of the occurrence of long continuing current strikes in fuel tanks**

Helio Sueta (IEE USP, Brazil); Antonio Roberto Panicali (Proelco, Brazil); Luis Eduardo Caires, Roberto Zilles and Miltom Shigihara (IEE USP, Brazil); Danilo Ferreira de Souza (Federal University of Mato Grosso, Brazil)

16:15 **Risk Analysis for Dam Structure Using IEC 62305 Methods**

Mark Hendricks (DEHN, Inc., USA); Alejandro Espinosa (DEHN, Canada)

16:30 **Contribution in the use of space-based lightning detection in electrical power systems**

Jesús A. López Trujillo (Universitat Polotècnica de Catalunya, Spain); Pau Milán (Comsa, Spain); Joan Montanyà, David Romero, Gloria Solà, Cristina Alés and Oscar van der Velde (Universitat Polotècnica de Catalunya, Spain); Daniel Aranguren

(Keraunos, Colombia)

16:45 **Inflammation of Ecological and Biogenic Thermal Insulation Materials caused by Lightning Currents**
Josef Birkl (DEHN SE, Germany); Michael Rock (TU Ilmenau, Germany); Björn Maiworm (City of Munich, Germany); Thomas Engel (Technical University of Munich, Germany)

17:00 **Multi-Station Long-Continuing-Current Observations associated with Wildfire Ignitions in Florida**
Istvan Kereszy, Giovanna Pedro and Paulo Victorino (Fire Neural Network, Brazil); Krisztian Pomazi (Budapest University of Technology and Economics, Hungary); Marcelo Arcanjo (Universitat Polytècnica de Catalunya, Spain); Marcelo Saba and Paola Lauria (National Institute for Space Research, Brazil); Karine Teixeira, Lucas Guimarães, Gustavo Barbosa, Listz Araújo, Miguel Guimarães (Federal Center for Technological Education of Minas Gerais, Brazil);

17:15 **Operational Insights from an Instrumented Wind Turbine in Croatia: Lightning Seasonality and Blade Damage**
Franjo Vukovic (University of Zagreb Faculty of Electrical Engineering and Computing, Croatia); Nikola Pletikosa (Porzana d.o.o., Croatia); Bozidar FIlipovic-Grcic and Bojan Franc (University of Zagreb Faculty of Electrical Engineering and Computing, Croatia)

June 4 (Thu) | 16:00 - 18:00 | 8F Room 820 (Kaderu 2.7)

Lightning protection and lightning testing standards

Chairs: Dieter Poelman, Felicitas Modlinger

16:00 **A Chapter in the History of Lightning Standardization**
István Kiss, Bálint Németh, György Kálecz, Norbert Szedenik and István Berta (Budapest University of Technology and Economics (BME), Hungary)

16:15 **DC voltage durability of Metal oxide varistors having asymmetric V-I changes after Lightning Impulse**
Taiga Mochiduki and Naoyuki Tsukamoto (Otowa electric co.,LTD., Japan)

16:30 **Prerequisites for Testing of DC Surge Protective Devices using Capacitor Discharge**
Martin Hannig and Ralph Brocke (DEHN SE, Germany);

16:45 **National Implementation and Supplements to IEC 62305-3 Ed. 3**
Josef Birkl (DEHN SE, Germany); Alexander Kern (FH Aachen, Germany)

17:00 **DIN EN IEC 62305-3 Supplement 7: Additional Information for Structural Installations with Hazardous Areas**
Gabriele Schweble-Juch (Schweble Juch GbR, Germany); Manfred Kienlein (DEHN SE, Germany); Jürgen Wettingfeld (Vektor Plan GmbH, Germany); Josef Birkl (DEHN SE, Germany);

17:15 **AI-Driven Localized Lightning Forecasting System for Early Lightning Protection**
Zhitong Li (Fuzhou University, China); Yida Zhang (King's College London, United Kingdom); Xin Li (Xiamen Taihang Technology Co., Ltd., China)

June 4 (Thu) | 19:00 - 21:00 | SAPPORO GRAND HOTEL

Banquet

■ Friday, June 5

June 5 (Fri) | 9:30 - 10:30 | 1F Kaderu Hall (Kaderu 2.7)

Lightning physics and phenomenology -4

Chairs: Hannes Kohlmann, Kazuo Yamamoto

9:30 **Winter Lightning Observation Results for Twenty Seasons at Uchinada Wind Power Plant**
Akira Nakamura and Masayuki Minowa (Aichi Institute of Techology)

9:45 **A Dual-Station Synchronized Broadband Interferometric Observation of a Compact Intracloud Discharge**
Hengyi Liu, Qi Qi, Liangtao Xu and Wen Yao (Chinese Academy of Meteorological Sciences, China)

10:00 **Estimation of Macroscopic Charges in a Dipole Charge Model for an Isolated Thundercloud Based on Multi-point Measurements of Electrostatic Field**
Kozo Yamashita (Komatsu University, Japan); Hironobu Fujisaka (Fujisaka Technology Office, Japan); Hiroyuki Iwasaki (Gunma University, Japan)

10:15 **Estimation of Charge Structure in a Thunderstorm Using X-band Radar and Ground-based Electric Field at a Single Location**
Kazuki Kawai and Kudo, Takeshi (OTOWA ELECTRIC CO., LTD., Japan); Masashi Kamogawa (University of Shizuoka, Japan); Hironobu Fujiwara (NPO Mount Fuji Research Station, Japan); Syugo Hayashi (Meteorological Research Institute Japan Meteorological Agency, Japan)

June 5 (Fri) | 9:30 - 10:30 | 7F Room 710 (Kaderu 2.7)

Lightning safety, medicine and education

Chairs: Istvan Kiss, Michael Rock

9:30 **A contribution to the threat for human beings caused by touch and step voltages close to structures**
Daniel Beetz and Alexander Kern (University of Applied Sciences FH Aachen, Germany)

9:45 **Why Lightning Remains an Unsolved Problem for the Oil & Gas Industry**
Carlos Mata and Dustin Hill (Scientific Lightning Solutions, LLC, USA)

10:00 **Evaluation Experiment on The Electrical Continuity between H-beams and Perforated Steel Sheet**
RuKai Sun, Kenichi Seki, Kouichi Mori and Takashi Tsuchida (KANDENKO Co., Ltd., Japan)

10:15 **Study of Past Lightning Strikes Using Historical Records and Remanent Magnetization of Materials**
Shoichi Nagata (Sankosha Corporation, Japan); HIdeo Sakai (University of Toyama, Japan); Kaneme Yonezawa and Chikashi Okabayashi (Sankosha Corporation, Japan)

June 5 (Fri) | 10:30 - 11:00 | 1F & 7F (Kaderu 2.7)

Coffee Break

June 5 (Fri)	11:00 - 12:30 1F Kaderu Hall (Kaderu 2.7)

Lightning monitoring and its application for disaster resilience -2

Chairs: Isabell Stucke, Takeshi Morimoto

11:00 **Confidence classification of lightning discharges igniting wildfires**
Jose V. Moris (Vrije Universiteit Amsterdam, Netherlands); Francisco J. Pérez-Invernón, Pablo A. Camino-Faillace and Francisco J. Gordillo-Vázquez (IAA-CSIC, Spain); Nicolau Pineda (Meteorological Service of Catalonia, Spain); Gianni B. Pezzatti and Marco Conedera (WSL, Switzerland); Jeff Lapierre (Earth Networks, USA); Hugh G. P. Hunt (University of the Witwatersrand, South Africa); Sander Veraverbeke (Vrije Universiteit Amsterdam, Netherlands)

11:15 **Location Errors of Lightning Position Estimated by Japanese Lightning Detection Network at Wind Turbines in the Coastal Area of the Sea of Japan**
Michihiro Matsui (Franklin Japan Corporation, Japan); Koji Michishita (Shizuoka University, Japan); Yasuhiro Miyam (Shoden corporation, Japan)

11:30 **Evaluation of the Detection Efficiency of the Meteosat Lightning Imager using Ground-Truth Observations at the Sentech Tower in South Africa**
Ehsan Mansouri and Eren Gedik (EMC Laboratory, EPFL, Switzerland); Hannes Kohlmann (ALDIS-OVE, Austria); Carina Schumann (University of the Witwatersrand, South Africa); Marcelo Saba (National Institute for Space Research (INPE),); Hugh Hunt (University of the Witwatersrand, South Africa); Marcos Rubinstein (Institute for Information and Communication Technologies, HES-SO, Switzerland)

11:45 **High Speed Camera Observation of Chaotic Pulses Preceded Dart Leaders and Negative Return Stroke**
Azhari Nazifunnur Nur Zahin, Mohd Riduan Ahmad and Muhammad Zuhair Bolqiah Edris (Universiti Teknikal Malaysia Melaka, Malaysia); Muhammad Haziq Mohammad Sabri (Kindai University, Japan); Ahmad Rifhan Salman and Zikri Abadi Baharudin (Universiti Teknikal Malaysia Melaka, Malaysia); Mohd Zafri Baharuddin (Universiti Tenaga Nasional, Malaysia); Yuji Takayanagi and Morimoto, Takeshi (Kindai University, Japan)

June 5 (Fri)	13:00 - 14:00 1F Kaderu Hall (Kaderu 2.7)

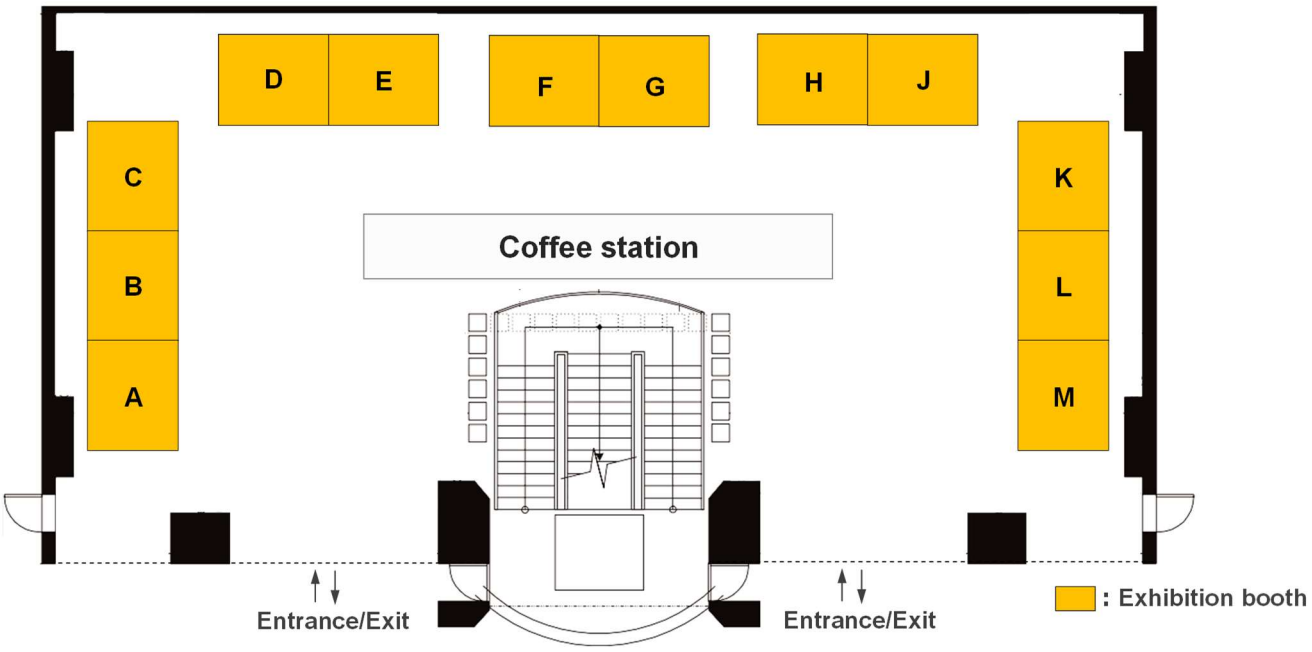
Closing Session

Exhibition Plan

A technical exhibition will be opened during the conference (June 1st -5th, 2026) at Kaderu 2.7.

The booth layout of the exhibition and the list of the exhibitors are as follows:

Booth layout



Exhibitors' List

Booth A	Sankosha Corporation
Booth B	OTOWA ELECTRIC CO., LTD.
Booth C	SHODEN CORPORATION
Booth D	OSAKA HIRAISHIN KOGYO Co., Ltd.
Booth E	NIPPON CHIKO CO.,LTD. / Morinaga Electronic CO.,Ltd.
Booth F	Tridelta Meidensha GmbH
Booth G	MEIDENSHA CORPORATION
Booth H	KANDENKO CO.,LTD.
Booth J	DEHN Japan K.K.
Booth K	Central Research Institute of Electric Power Industry
Booth L	Hokkaido Electric Power Network, Inc.
Booth M	Japan Lightning Protection System Industrial Association (JLPA)

Conference Tour & BBQ Dinner

Participants will depart by bus from Kaderu 2.7 for the tour, and upon completion, will proceed directly to the beer party venue without returning to Kaderu 2.7. After the event concludes, buses will transport participants back to Kaderu 2.7. Dinner will feature a Genghis Khan BBQ, a Hokkaido-style lamb barbecue.

The latest information is available at https://iclp2026.org/venue.html#event.

Date & Time	June 2nd, 2026 (Tue), 14:00 - 20:30
Meeting Point / Time	Meeting point: Kaderu Hall in Kaderu 2.7, Meeting time: 13:50
Dispersal Point	Sapporo station north exit, Kaderu 2.7

Please gather at Kaderu Hall at 13:50 before the conference tour departs, and board the bus according to your chosen course. The bus departure time will be announced by your guide, so please board on time. If you are late, you will be responsible for finding your own way back.

1. Conference Tour (14:00-18:00)

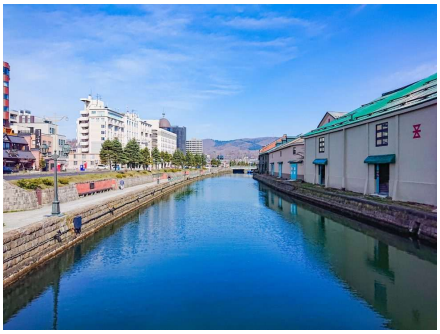
Participants are asked to select one tour course from options: A to C.

A. Otaru canal Tour: The Historic Gateway of the North

Completed in 1923, the Otaru Canal was once the strategic heart of Northern Japan's international trade. During its golden era, it served as a vital hub connecting Hokkaido with Russia and the rest of Japan. This bustling waterway was the final destination for the legendary Kitamaebune cargo ships, which brought a wealth of goods from across the archipelago—from essential grains to the prized Hidaka Kelp "Kombu". While the world now knows "Kombucha" as a trendy fermented tea, this sea-harvested kelp was a true cornerstone of the region's culinary and economic prosperity.

Beyond maritime trade, Otaru's wealth was fueled by the booming herring industry and its role as a major terminal for coal exports, which powered Japan's industrialization. This immense prosperity gave rise to the iconic timber-framed stone warehouses that line the canal. These structures were meticulously engineered to endure Otaru's brutal winters, where temperatures often plunge below -10°C (14°F). This unique architecture provided vital insulation, protecting precious cargo from the freezing elements while creating a rugged, enduring aesthetic that remains the soul of the city.

Today, these historic buildings have been carefully preserved and are now used as restaurants, cafés, and souvenir shops, allowing visitors to enjoy the canal's rich history and nostalgic atmosphere.



Otaru Canal

B. Suburbs of Sapporo Tour: ES CON FIELD HOKKAIDO, Hitsujigaoka Observatory

ES CON FIELD HOKKAIDO is a brand-new American-style ballpark and entertainment district that opened in 2023, featuring restaurants, shops, and a unique open-roof stadium. This is not only a baseball stadium but also a spacious park open to everyone. Surrounded by green areas and walkways, it allows visitors to enjoy baseball games, relax outdoors, and spend quality time with family and friends, creating a ballpark that blends sports, nature, and daily life. Please note that no baseball game is scheduled on the day of the tour.

Hitsujigaoka Observatory is a well-known scenic spot in Sapporo, famous for its peaceful pastureland and the statue of Dr. William S. Clark, an iconic symbol of Sapporo. Clark inspired young Japanese students while introducing Western-style higher education in the early Meiji period (1870s). He is widely known in Japan for his famous phrase, “Boys, be ambitious!”, which is often quoted in its original English. Visitors can enjoy a relaxed atmosphere with grazing sheep, seasonal flowers, and panoramic views of the Sapporo cityscape. The observatory reflects the pioneer spirit of Hokkaido and offers a calm escape from the city, making it a popular destination for sightseeing and cultural exploration throughout the year.

Hitsujigaoka Observatory

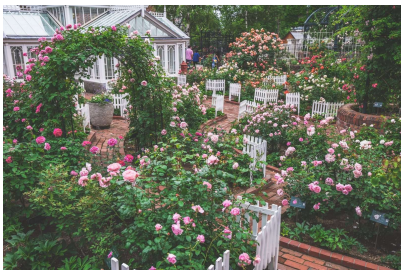
C. Sapporo City Tour: Hokkaido Shrine, Okurayama Ski Jump Stadium, Shiroi Koibito Park

Hokkaido Shrine was established in 1871 and is the most important Shinto shrine in Sapporo. Shinto is Japan’s indigenous national religion, and shrines are sacred sites dedicated to nature spirits known as kami. Visitors can observe traditional Japanese wooden shrine architecture and enjoy the calm atmosphere of a forested shrine area even in the middle of the city. They are welcome to observe the shrine and its surroundings as a cultural site. Participation in religious practices is entirely optional.

Okurayama Ski Jump Stadium is a historic ski jump venue in Japan, best known for hosting the ski jumping events of the 1972 Sapporo Winter Olympics. The stadium continues to host major ski jumping competitions, including World Cup events, and remains an important part of Japan’s winter sports heritage.

In addition to watching the chocolate production line at Shiroi Koibito Park, you can enjoy a sweets-making workshop to make a heart-shaped Shiroi Koibito cookie (about 14 cm) and relax at the Chocolate Lounge.

Hokkaido Shrine

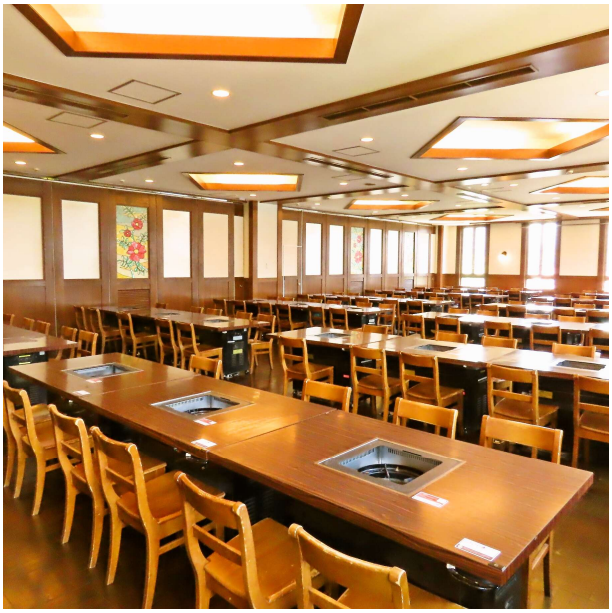


Shiroi Koibito Park (White chocolate factory)

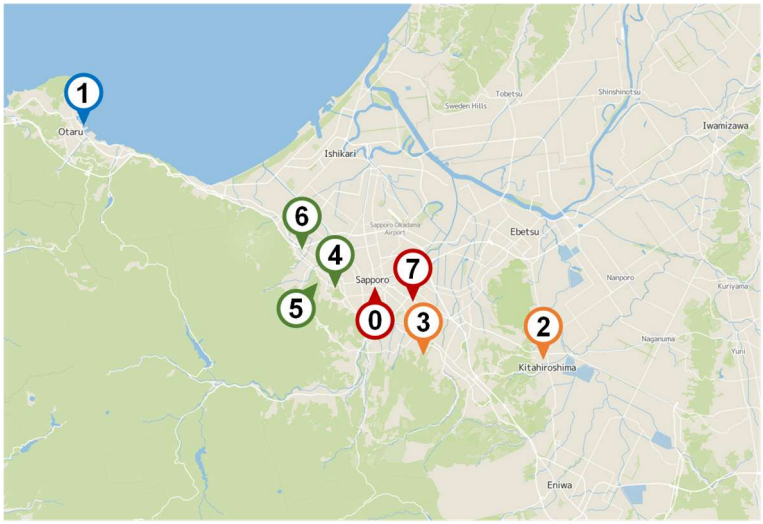
2. BBQ Dinner (18:00-20:30) Asahi Beer Garden

Genghis-Khan BBQ (Hokkaido-style Lamb BBQ) is a dish in which mutton or lamb is grilled together with vegetables on a special dome-shaped grill. The unique shape allows the meat juices to soak into the vegetables, making them even more delicious to eat.

⚠ **Please wear casual clothes, as smoke from the BBQ may cling to your clothing.**



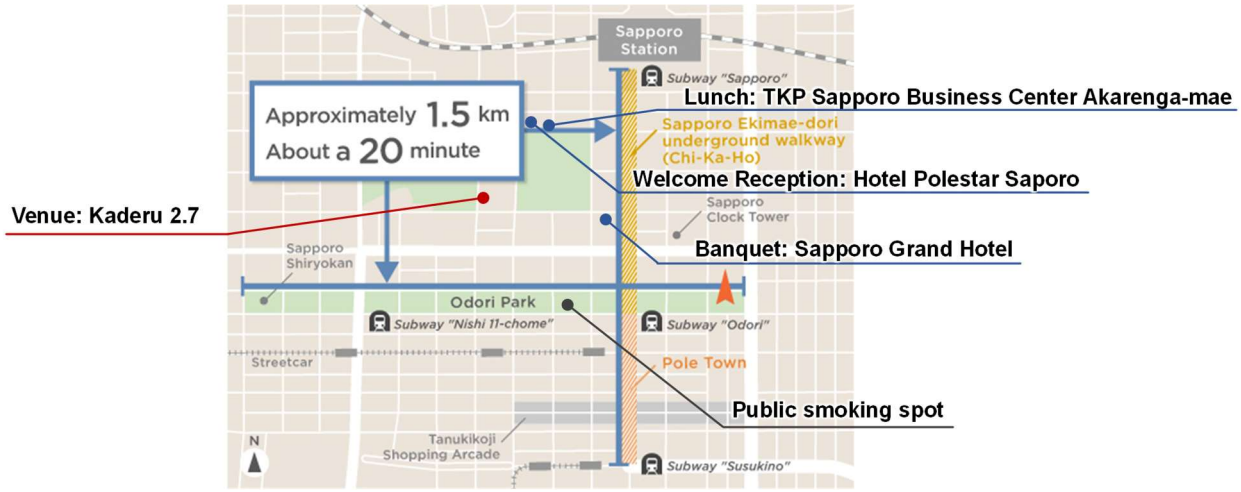
Conference Tour Map



Venue	0	Kareru 2.7
Tour A	1	Otaru Canal
Tour B	2	ES CON FIELD HOKKAIDO (Baseball Park)
	3	Hitsujigaoka Observatory
Tour C	4	Hokkaido Shrine
	5	Okurayama Ski Jump Hill
	6	Shiroi Koibito Park (White chocolate factory)
Dinner	7	Asahi Beer Garden

Maps

Conference Venue



Kaderu 2.7

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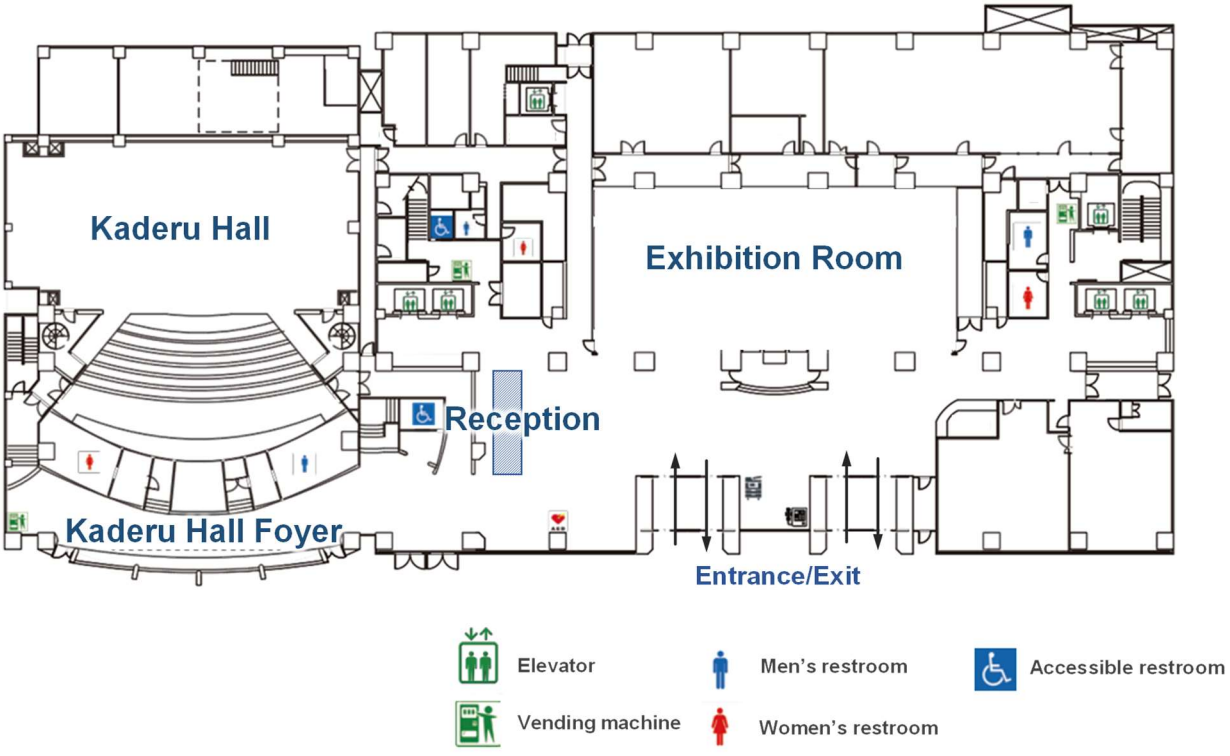
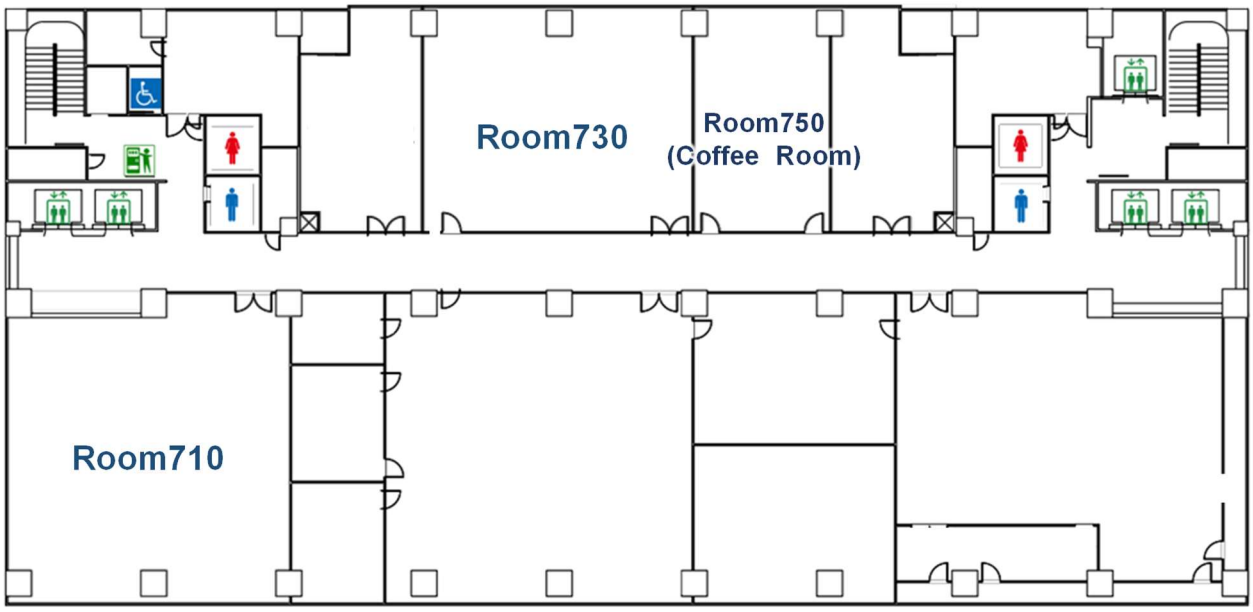


Kaderu Hall

Exhibition Room

7F



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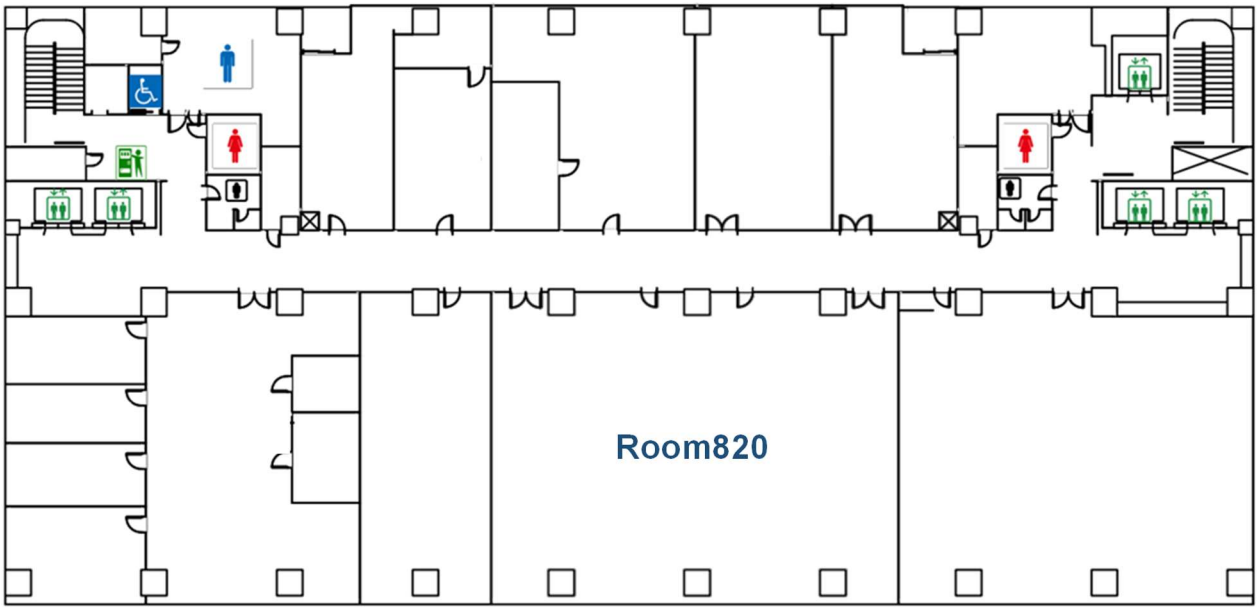

Elevator
Men's restroom
Accessible restroom
Vending machine
Women's restroom

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