



Joint Conference
of
The 10th International Workshop on
High Voltage Engineering (IWHV 2016),
and
2016 Japan-Korea Joint Symposium on
Electrical Discharge and High Voltage
Engineering (JK2016 on ED&HVE)

Program Booklet



November 4 – 5, 2016
University of Miyazaki, Miyazaki, Japan

[INVITATION]

Joint conference of the tenth International Workshop on High Voltage Engineering (IWHV 2016) and the 2016 Japan-Korea Joint Symposium on Electrical Discharge and High Voltage Engineering (JK2016 on ED&HVE) provides good opportunity to present and discuss latest findings in the field of high voltage engineering.

The IWHV 2016 in Miyazaki will continue along the line of the previous workshops, which were held in Okinawa (1999), Tottori (2000), Fukuoka (2003), Sapporo (2004), Shizuoka (2007), Kyoto (2008), Kitakyushu (2010), Kanazawa (2012) and Okinawa (2014). The JK 2016 on ED&HVE in Miyazaki will follow the line of the previous symposium in Mokpo, Korea, 2015, and also provides an opportunity for the specialists in the field of fundamentals and applications of electrical discharge and high voltage engineering, for exchanging and sharing their research achievements and experiences.

The joint conference is organized by the Technical Committees on High Voltage Engineering, on Switchgear and Protection and on Electrical Discharge, IEE of Japan. Three organizing committees will cordially invite you to participate in the joint conference.

[TECHNICAL SUBJECT AREAS]

1. Switchgear, Power apparatus and Industrial applications
2. Lightning, Over-voltages, Fast transients
3. High voltage measurements & testing
4. Insulation materials and systems (gas, liquid, solid, vacuum and combined materials)
5. Outdoor insulation
6. Fundamental phenomena of electrical discharges, partial discharges and corona discharges
7. Electrical discharges, plasma and their applications
8. Field calculation, measurement& EMC, EMF
9. Nano-dielectric application to HV Power apparatus
10. Environmental effects of HV system

[COMMITTEE]

(1) Organized by:

- IEEJ Technical Committee on High Voltage Engineering (HVE)
- IEEJ Technical Committee on Switchgear and Protection Engineering (SPE)
- IEEJ Technical Committee on Electrical Discharge (ED)

(2) Co-organized by:

- University of Miyazaki
- Research Center for Sustainable Energy & Environmental Engineering, Faculty of Engineering, University of Miyazaki
- Smart Electric Power & High Voltage Research Group in KIEE

(3) Sponsored by:

- Kyushu Branch of the IEEJ
- IEEE Power & Energy Japan Joint Chapter
- IEEE Dielectrics and Electrical Insulation Society Japan Chapter
- The Japanese National Committee of CIGRE
- The Institute of Engineers on Electrical Discharges in Japan

(4) Steering Committee Members:

M. Yashima	Chairman	CRIEPI	Japan	Chairman of T.C. on HVE
H. Akashi	Co-Chairman	National Defense Academy	Japan	Chairman of T.C. on ED
Young-geun Kim	Co-Chairman	LSIS	Korea	
Y. Yokomizu		Nagoya University	Japan	Chairman of T.C. SPE
N. Hayashi		Miyazaki University	Japan	Local Committee
T. Sakoda		Miyazaki University	Japan	Local Committee
A. Takei		Miyazaki University	Japan	Local Committee
Jeongtae Kim		Daejin University	Korea	
Bangwook Lee		Hanyang University	Korea	
S. Ichimura		Hitachi Ltd.	Japan	T.C. on HVE
T. Hoshino	Secretary	Toshiba Corporation	Japan	T.C. on HVE
T. Miki		CRIEPI	Japan	T.C. on HVE

(5) Other Committee Members:

(a) Technical Committee on Switchgear and Protection Engineering

T. Mori	Toshiba Corporation	Japan
H. Urai	Hitachi Ltd.	Japan

T. Onchi	Fuji Electric	Japan
T. Mori	Mitsubishi Electric	Japan

(b) Technical Committee on Electrical Discharge

A. Kumada	The University of Tokyo	Japan
H. Kojima	Nagoya University	Japan
Y. Yamano	Saitama University	Japan
N. Shimura	Toshiba Corporation	Japan

(c) Facilitator of Japan-Korea Joint Symposium on Electrical Discharge and High Voltage

F. Tochikubo	Tokyo Metropolitan University	Japan
--------------	-------------------------------	-------

[WORKING LANGUAGE]

The official language of the workshop is English. All printed matters, oral presentations and discussions are in English.

[PUBLICATIONS]

1. All the accepted papers will be printed in the Proceedings of IWHV2016 and JK2016 on ED&HVE.
2. A special issue of IEEEJ Transactions is scheduled to be published after the workshop. The authors are encouraged to submit the papers to the IEEEJ Transactions.

[IMPORTANT INFORMATION]

(1) Conference Reception

The conference reception is located inside a **room B109**, and opens as follows:

Nov. 4 (Fri.) 8:00-16:00

Nov. 5(Sat.) 8:00-13:30

(2) Resting Room:

A room B109 is used as a resting room as well as the conference reception, and tea, coffee, snacks, etc. will be self-served in the resting room.

(3) Registration FEE:

Registration fee is free to all participants for all conference sessions including invited lectures. However, the conference banquet and proceedings are charged.

(4) Proceedings

Two volumes of printed proceedings are sold at the conference reception. You can arbitrarily purchase a single volume and/or a set of two volumes of the proceedings. Author(s) are also requested to pay a full amount of price when purchasing the proceedings. (The price of the proceedings is decided according to the number of papers published in it as a rule).

Price of conference proceedings is as follows (per each):

	Volume 1 (Proc. for 11/4)	Volume 2 (Proc. for 11/5)	A set of two volumes
Members of IEEJ	JPN 6,000	JPN 5,800	JPN 11,800
Non-Members	JPN 9,100	JPN 8,700	JPN 17,800

[Notice] Only **Japanese cash** for payment is acceptable.

(5) Methods of Payment During the Conference (Credit card and foreign currency cannot be used):

Any kind of credit cards is unavailable for the payment of proceedings, banquet, and others relating to the conference, and **only Japanese cash** is available for them.

Foreign currency cannot be also used during conference. Payment to University cafeteria and University bookstore is also in Japanese cash only.

(6) Conference Banquet:

A modest conference banquet will be held on November 4th, 2016, starting at 19:00 at "**World Gourmet Viking Aletta, Miyazaki Yamagata-ya**", which is located on the 6th Floor of Yamagata-ya Department Store at the corner of Takachiho-dori and Tachibana-dori (Downtown).

- **URL of Aletta** : http://www.aletta.info/shop_miyazaki.php

The banquet fee is JPN 6,000 per person for a general participant and JPY 3,000 per person for a student **who shows his/her valid student ID**.

A free bus is available from University to the banquet place, **leaving at 17:50**. The meeting point will be announced on the conference notice board. As the numbers of seats are limited, please make reservation at the reception **by the noon of Nov. 4** if you'd like to take the bus.

[USEFUL INFORMATION]

(1) Access to Conference Site

University of Miyazaki has two campuses called “*Kibana campus*” and “*Kiyotake campus (or Medical campus since there is a University hospital on campus)*” in the close vicinity with each other (It takes about 5 min. from one campus to another campus by a car). The workshop venue is on “**Kibana Campus**”.

You can reach the workshop venue about 60 minutes (about JPY 660) by public bus (*Miyazaki-Kotsu Bus*) bound for “*Miyazaki Daigaku (which means University of Miyazaki)*” via. “*Miyakoh-city bus center*” (Bus number: 811, 820, 821, 822 and 832, Route number: 2-06), and about 30 minutes by taxi (about JPY4,000) from Tachibana-dori area (the downtown of Miyazaki city).

It takes about 20 minutes from Miyazaki Airport to the workshop venue by taxi (about JPY 2,000). There is no direct access between Miyazaki Airport and University by public bus and by JR train.

More detailed information can be obtained from the following web site:

http://www.miyazaki-u.ac.jp/english/contents/locations_map_address/index.html

(2) Free WiFi Connection

A free-WiFi access point named “*FreeSpot*” can be used only near the conference rooms during the conference. Detailed information such as “*Pass phrase*” can be obtained on the notice board.

If you have an account for “**eduroam**”, you can also connect to the “eduroam” access point on campus.

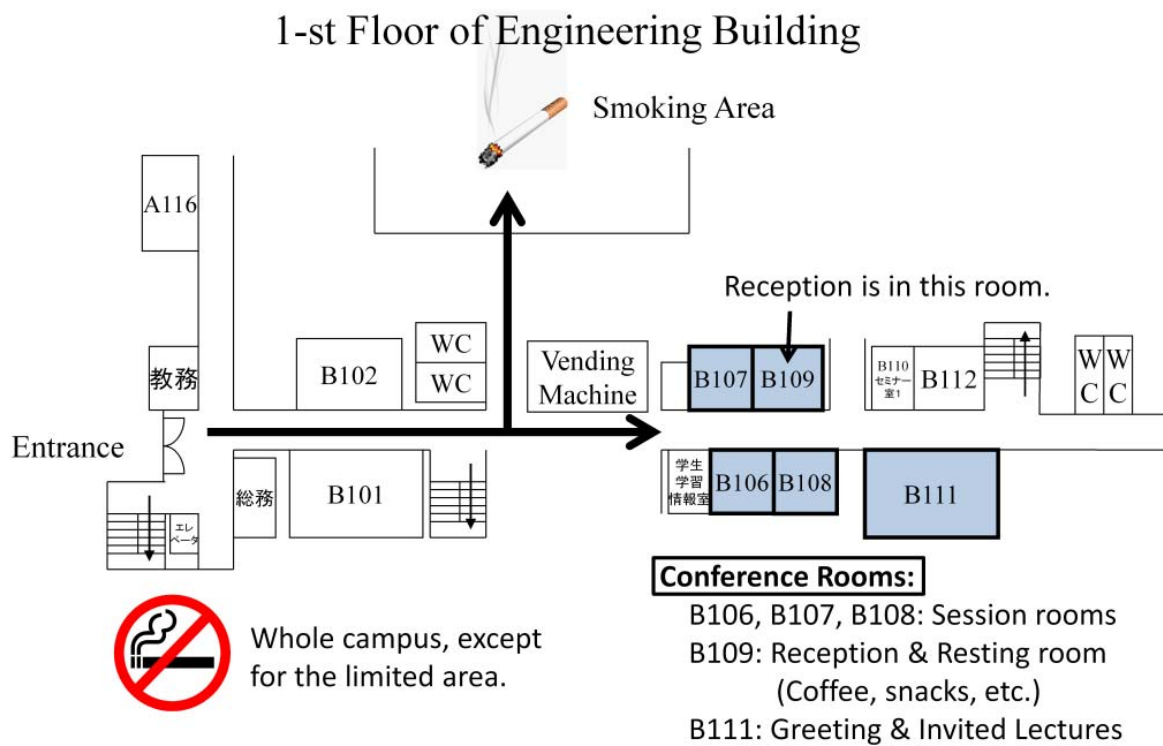
(3) Smoking Area (Smoking on campus is strictly prohibited.)

No smoking is allowed on Campus of University of Miyazaki, but for in a restricted area.

The smoking area near the conference site is posted on the conference notice board.



A view of conference site (Engineering building) from a point “A” in the campus map above.



A layout of conference rooms (1-st floor of Engineering building), and the location of a smoking area.

(4) Lunch Map Around University Campus

You can take lunch at a cost of reasonable price (JPY 500--600) at the University cafeteria (Seikyo restaurant). A **lunch map** showing some places for lunch is also available on the reception.

(5) Accomodations

There is no accommodation available to visitors near the university. Meanwhile, there are many hotels and restaurants near JR Miyazaki station and the downtown area of Miyazaki city (along Tachibana-dori) within walking distance. Most of the hotels will be reserved through the major web booking sites.

(6) Others

More information can be obtained at the conference reception and the conference notice board.

[Quick Information of Conference Schedule]

(1) Presentation Time

A presentation time is 25 minutes each paper (incl. 5 min. for Q&A, and 1 min. for switching time.)

Conference schedule for IWHV2016 & JK2016

※Presentation time is 25 minutes including a 5-minute question and answer.

Date	Time	Room B107	Room B106	Room B108	Room B111
4th, Nov. (Fri.)	9:00 - 9:15				Greeting
	9:20 - 12:00 (incl. 10 min Break)	Theme: Lightning Phenomena (6 papers) Time: 9:20~12:00 Session chair: M.Miki	Theme: Arc measurement (5 papers) Time: 9:20~11:35 Session chair: T.Koshiduka	Theme: Partial discharge, cable insulation (4 papers) Time: 9:20~11:10 Session chair: H.Kojima	
	12:00 - 13:00	Lunch			
	13:00 - 15:15 (incl. 10 min Break)	Theme: Lightning Protection (5 papers) Time: 13:00~15:15 Session chair: S.Yasui	Theme: Transient voltage, VCB (5 papers) Time: 13:00~15:15 Session chair: Y.Yokomizu	Theme: Surface discharge (3 papers) Time: 13:00~14:25 Session chair: A.Kumada	
	15:30 - 17:10				Invited Lectures (See below)
	19:00 - 21:00	Banquet at "World Gourmet Viking Aletta, Miyazaki Yamagataya"			
5th, Nov. (Sat.)	9:20 - 12:00 (incl. 10 min Break)	Theme: Diagnosis of cables and transformers (3 papers) Time: 9:20~10:45 Session chair: M.Hikita	Theme: Arc analysis (6 papers) Time: 9:20~12:00 Session chair: Y.Inada	Theme: Discharge application, liquid discharge (5 papers) Time: 9:20~11:35 Session chair: F.Tochikubo	
	12:00 - 13:00	Lunch			
	13:00 - 16:30 (incl. 10 min Break)	Theme: Numerical Electro-magnetic Analysis (8 papers) Time: 13:00~16:30 Session chair: Y.Baba		Theme: Gaseous and vacuum discharges (5 papers) Time: 13:00~15:15 Session chair: Y.Yamano	

※The banquet will be held on November 4, 2016, beginning at 7:00 PM at "World Gourmet Viking Aletta, Miyazaki Yamagata-ya", the 6th floor of Yamagata-ya Department store. Banquet fee: JPY 6,000 for a general participant, and JPY 3,000 for a student.

※Participants to the banquet will move from University of Miyazaki to the banquet place by a free bus leaving at 5:50 PM from the conference site.

【Invited Lectures】

【50 min】Prof. Jangseob Lim (Mokpo National Maritime University), "Condition Indexing of HV System for Asset Management"

【50 min】Dr. Kazuhiro Toyoda (Department of Electrical Engineering and Electronics, Kyushu Institute of Technology), "High voltage on spacecraft"

[Program in Detail]

November 4, 2016

(Room B111) November 4 (Fri.), 2016 9:00-9:15

Greeting

MC: N. Hayashi

Welcome address by Dr. M. Yashima (Central Research Institute of Electric Power Industry)
(Chairperson of Conference)

(Room B106) November 4 (Fri.), 2016 9:20 - 11:35 (incl. 10 min Break)

Theme: **Arc Measurement**

Session chair: T. Koshiduka

- | | |
|-------------------------------------|--|
| ED-16-094
SP-16-023
HV-16-079 | A synthetic test of 1kA current supply and voltage application for CO ₂ gas arcs using power semiconductors
<i>*Tomoyuki Nakano, Yu Tabata, Kosuke Murai, Yasunori Tanaka, Yoshihiko Uesugi, Tatsuo Ishijima (Kanazawa University), Kentaro Tomita (Kyushu University), Yuki Inada (Saitama University), Katsumi Suzuki (Tokyo Denki University), Takeshi Shinkai (Tokyo University of Technology)</i> |
| ED-16-095
SP-16-024
HV-16-080 | Dielectric Recovery Property Measurements of CO ₂ Arcs Under Free Recovery Condition using Power semiconductors
<i>*Yu Tabata, Tomoyuki Nakano, Yasunori Tanaka, Yoshihiko Uesugi, Tatsuo Ishijima (Kanazawa University), Kentaro Tomita (Kyushu University), Yuki Inada (Saitama University), Katsumi Suzuki (Tokyo Denki University), Takeshi Shinkai (Tokyo University of Technology)</i> |
| ED-16-096
SP-16-025
HV-16-081 | Study on Factor of the Quenching Performance on the Polymer Material by using a High Current Interruption and Arc Observation for an Air Circuit Breaker
<i>*Norrawit Tonmitr, Kazuki Ganaha, Eiji Kaneko (University of the Ryukyus), Takehiro Hayashida (Togami Electric MFG.Co.Ltd.)</i> |
| ED-16-097
SP-16-026
HV-16-082 | Arc Deflection Length Affected by Transverse Rotating Magnetic Field with Lateral Gas as Function of Arc Current
<i>*Yoko Ishii, Toru Shiino, Shinji Yamamoto, Toru Iwao (Tokyo City University)</i> |
| ED-16-098
SP-16-027
HV-16-083 | [withdrawn] |
| ED-16-099
SP-16-028
HV-16-084 | Experimental Study on Arc-Column Resistance Rise Process in Interruption for Various Direct Currents
<i>*Masahiro Ito, Yasunobu Yokomizu, Kazuya Oshima, Toshiro Matsumura (Nagoya University)</i> |

(Room B106) November 4 (Fri.), 2016 13:00 - 15:15 (incl. 10 min Break)

Theme: **Transient Voltage and VCB**

Session chair: Y. Yokomizu

- ED-16-100 Switching Transients at Cable Transmission System
SP-16-029 *Tomohiro Yamada, Tadashi Koshizuka (Tokyo Denki University), Junichi Arai
HV-16-085 (Kogakuin University), Kohei Higashikawa (Kyushu University), Hisatoshi Ikeda (The University of Tokyo), Nouredine Harid, S.M. Mueen, Ahmed Al-Durra (The Petroleum Institute)
- ED-16-101
SP-16-030 [withdrawn]
HV-16-086
- ED-16-102 The Analysis for Seismic Safety evaluation of Gas Insulated Switchgear(GIS)
SP-16-031 Kyoung-woo Kim, Chae-yoon Bae, *Yeoung-geun Kim (LSIS)
HV-16-087
- ED-16-103
SP-16-032 [withdrawn]
HV-16-088
- ED-16-104 Small DC vacuum arc characteristics and motion under the transverse magnetic field.
SP-16-033 *Taishi Shiozuka, Yuto Hachiman, Ryoji Oshiro, Eiji Kaneko (University of the Ryukyus)
HV-16-089
- ED-16-105 Moving Speed of Cathode Spot Affected by Transverse Magnetic Field
SP-16-034 *Shiko Kaneda, Arisa Takahashi, Soshi Iwata, Shinji Yamamoto, Toru Iwao (Tokyo City University)
HV-16-090
- ED-16-106 Vapor dynamic behavior from the electrode in reduced-pressure arcs predicted by
SP-16-035 moving particle semi-implicit method
HV-16-091 *Takuya Nakagawa, Masao Shibayama, Tomoyuki Nakano, Yasunori Tanaka, Yoshihiko Uesugi, Tatsuo Ishijima (Kanazawa University)

(Room B108) November 4 (Fri.), 2016 9:20 - 11:10 (incl. 10 min Break)

Theme: **Partial Discharge and Cable Insulation**

Session chair: H. Kojima

- ED-16-107 Detection of Partial Discharges in Electric Power Equipment using an
SP-16-036 Electromagnetic Wave Sensor
HV-16-092 *Yugo Shirahama, Toshiki Hirashima, Mitsuki Kawakone, Takuma Miyake, Tatsuya Sakoda (Miyazaki University)
- ED-16-108 Investigation of the influence of residual magnetic flux on FRA of transformer
SP-16-037 +Takashi Nakajima, Masaya Hiraide, Tadashi Koshizuka (Tokyo Denki University),
HV-16-093 Hisatoshi Ikeda, Yasuhiko Taniguchi, Eiichi Haginomori (The University of Tokyo)

ED-16-109	
SP-16-038	[withdrawn]
HV-16-094	
ED-16-110	DC Electric Field Analysis of Pre-Molded Cable Joint Considering Switching
SP-16-039	Impulse Superimposed Condition
HV-16-095	<i>*Kuniaki Sakamoto, Ik-Soo Kwon, Bang-Wook Lee (ERICA Campus, Hanyang University, Republic of Korea), Dong-Suk Hong, Seong-Jung Kim (Taihan Electric Wire Co.,Ltd, Republic of Korea)</i>
ED-16-111	
SP-16-040	[withdrawn]
HV-16-096	
ED-16-112	Partial Discharge Properties of Interfacial Electrical Trees in Cable Accessory Model
SP-16-041	<i>*Sung-Ho Yoon, Dae-Hoon Kim, Jeong-Tae Kim (Daejin University)</i>
HV-16-097	
ED-16-113	
SP-16-042	[withdrawn]
HV-16-098	

(Room B108) November 4 (Fri.), 2016 13:00 - 14:25 (incl. 10 min Break)

Theme: **Surface Discharge**

Session chair: A. Kumada

ED-16-114	Study on Influence of the hydrophobicity on AC Flashover Characteristics in
SP-16-043	Contaminated solid dielectrics
HV-16-099	<i>+Jong Sung Kang, Jin Tae Kim, Sung Sik Bang (Hyundai Heavy Industries Co., Ltd), Gi Jo Lim (Chungbuk national university)</i>
ED-16-115	
SP-16-044	[withdrawn]
HV-16-100	
ED-16-116	Dependence of Silica Nano Filler added to Epoxy Resin on Creepage Discharge
SP-16-045	Properties in Mineral oil
HV-16-101	<i>*Kyunghoon Jang, Akahoshi Takao, Kozako Masahiro, Hikita Masayuki (Kyushu Institute of Technology)</i>
ED-16-117	Detection of Partial Discharge in Snow Accretion along a 66 kV Insulator by
SP-16-046	Harmonics of Leakage Current
HV-16-102	<i>+Yoshio Higashiyama, Yasuyuki Konawa, Yuta Inoue (Yamagata university), Kazuya Kikuchi (Tohoku Electric Power Co., Inc)</i>
ED-16-118	
SP-16-047	[withdrawn]
HV-16-103	

ED-16-119
 SP-16-048 [withdrawn]
 HV-16-104

ED-16-120
 SP-16-049 [withdrawn]
 HV-16-105

(Room B107) November 4 (Fri.), 2016 9:20 - 12:00 (incl. 10 min Break)

Theme: **Lightning Phenomena**

Session chair: M. Miki

ED-16-121 Observation of attachment processes of lightning flashes striking transmission lines
 SP-16-050 +Megumu Miki, Toru Miki, Mikihi Saito (*Central Research Institute of Electric*
 HV-16-106 *Power Industry*), Masahito Shimizu (*Chubu Electric Power Co., Inc.*), Fukumune
Suzuki (Sankosha Corporation), Takeshi Morimoto (Kindai University)

ED-16-122 Discrimination between Multiple Strokes and Multi-point Flash by Observation
 SP-16-051 of VHF Pulse Radiation
 HV-16-107 +Masahito Shimizu (*Chubu Electric Power Co., Inc.*), Fukumune Suzuki, Hiroki Tsuji
(Sankosha Corporation), Megumu Miki (Central Research Institute of Electric Power
Industry), Yoshitaka Nakamura (Kobe City College of Technology), Takeshi Morimoto
(Kindai University)

ED-16-123
 SP-16-052 [withdrawn]
 HV-16-108

ED-16-124 Experimental Study with downsized Models for Lightning Protection of Large-
 SP-16-053 scale Offshore Wind Power Plants
 HV-16-109 *Toshiaki Fujii, Takeshi Kudou, Yasuhiko Shimizu, Yoshito Abe, Kazushi Ohtsuki
(OTOWA Electric Company), Yoh Yasuda(Kyoto University)

ED-16-125 Relation of Charge Transfer of Lightning in Tohoku Initiated by Upward propagating
 SP-16-054 leaders And Atmospheric Conditions
 HV-16-110 *Minoru Furukawa, Koji Michishita (*Shizuoka University*), Shigeru Yokoyama (*Japan*
Transport Safety Board), Nobuyuki Honjo (*Electric Power Development Co.*)

ED-16-126 Discussion on characteristics of inter-stroke interval of sub-milliseconds in natural
 SP-16-055 lightning
 HV-16-111 +Mitsuhiko Matsui (*Franklin Japan Corporation*), Koji Michishita(*Shizuoka*
university)

ED-16-127 Horn Length Estimation for Decrease of Tripout Rates on 150 kV Transmission Lines
 SP-16-056 in West Sumatra in Indonesia
 HV-16-112 +Yusreni Warmi, Koji Michishita (*Shizuoka Univ*)

(Room B107) November 4 (Fri.), 2016 13:00 - 15:15 (incl. 10 min Break)

Theme: **Lightning Protection**

Session chair: S. Yasui

- | | |
|-----------|---|
| ED-16-128 | Analytical Study of Overvoltage of Insulated-cable-type Down-conductor |
| SP-16-057 | + <i>Shinji Yasui, Kohei Sakaguchi (Nagoya Institute of Technology), Takashi Tsuchida</i> |
| HV-16-113 | <i>(Kandenko Co. Ltd.)</i> |
| ED-16-129 | Detection of lightning damage on wind turbine blade by measurement of transient |
| SP-16-058 | elastic wave |
| HV-16-114 | * <i>Shuhei Fujimoto, Kenji Yamane, Akio Sakurai, Michio Shimada (National Maritime</i> |
| | <i>Research Institute), Sadao Akahoshi (ClassNK)</i> |
| ED-16-130 | Study on Design Methods of Optimal Grounding Systems against Lightning Surges |
| SP-16-059 | for Railway Telecommunication Systems |
| HV-16-115 | * <i>Tomoki Kawamura, Keiichi Takeuchi, Daisuke Yamaguchi (Railway Technical</i> |
| | <i>Research Institute)</i> |
| ED-16-131 | A grounding system for reducing a surge current between two grounding electrodes on |
| SP-16-060 | FRP boat |
| HV-16-116 | * <i>Yoki Ikeda (National Institute of Technology, Nara college)</i> |
| ED-16-132 | |
| SP-16-061 | [withdrawn] |
| HV-16-117 | |
| ED-16-133 | A Study of Protection of Surge Arrester Damage on Distribution Line due to |
| SP-16-062 | Backflow Lightning from Wind Turbine in Winter |
| HV-16-118 | * <i>Akifumi Hirao, Koji Michishita (Shizuoka University)</i> |
| ED-16-134 | |
| SP-16-063 | [withdrawn] |
| HV-16-119 | |

(Room B111) November 4 (Fri.), 2016 15:30 – 17:10

Invited Lectures

MC: T. Hoshino

1. Jang seob Lim (Mokpo National Maritime University, Korea), "Condition Indexing of HV System for Asset Management".
2. Kazuhiro Toyoda (Kyushu Institute of Technology, Japan), "High voltage on spacecraft".

November 4 (Fri.), 2016 19:00 – 21:00

Banquet

Place: **World Gourmet Viking Aletta, Miyazaki Yamagata-ya.**

- Is located on the 6th Floor of Yamagata-ya Department Store at the corner of Takachiho-dori and Tachibana-dori (downtown).
- **URL of Aletta** : http://www.aletta.info/shop_miyazaki.php
- The banquet fee: JPN 6,000 per person for a general participant and JPY 3,000 per person for a student who shows his/her valid student ID.
- A free bus is available from University to the banquet place, **leaving at 17:50**, and the meeting point will be announced on the conference notice board.
- Need reservation at the reception **by the noon of Nov. 4** if you'd like to take the bus.

November 5, 2016

(Room B106) November 5 (Sat.), 2016 9:20 - 12:00 (incl. 10 min Break)

Theme: **Arc Analysis**

Session chair: Y. Inada

ED-16-135	Contribution to Heat Flux to Anode Affected by Frequency in Pulsed TIG
SP-16-064	Welding with Iron Vapor
HV-16-120	<i>*tanaka tatsuro, yamamoto shinji, iwao toru (Tokyo city university)</i>
ED-16-136	Analysis of Arc Conductance Decay in Post Arc Using Electromagnetic Thermal
SP-16-065	Fluid Simulation
HV-16-121	<i>*Maeda Yoshifumi, Ishikawa Yuya, Sato Ken, Ono Seisui, Yamamoto Shinji, Iwao Toru (Tokyo City University), Mori Yusuke, Otsuka Takahiro (TAKAOKA TOKO CO.)</i>
ED-16-137	[withdrawn]
SP-16-066	
HV-16-122	
ED-16-138	Magnetohydrodynamic simulation of arc-circuit instability in a high voltage direct
SP-16-067	current circuit breaker
HV-16-123	<i>*Satoshi Hirayama, Hikari Sato, Yoshitaka Inui (The University of Shiga Prefecture)</i>
ED-16-139	Numerical Research on the coupled Fluid-Mechanical Dynamic Analysis of
SP-16-068	High-voltage Self-blast circuit breakers
HV-16-124	<i>*Jee-yong Park, Ming Cui, Chae-yoon Bae, Young-geun Kim (LSIS Co., Ltd)</i>
ED-16-140	Understanding Switching Arcs and Dielectric Capability of a SF ₆ Self-Blast
SP-16-069	Interrupter
HV-16-125	<i>Jong-Chul Lee, *Won-Ho Lee, Jeong-Ho An (Gangneung-Wonju National University)</i>

ED-16-141 Three-dimensional LTE Simulation on SF₆ Gas-Blast Arcs in a Nozzle Space
 SP-16-070 *Kosuke Murai, Tomoyuki Nakano, Yasunori Tanaka, Yoshihiko Uesugi, Tatsuo
 HV-16-126 Ishijima (Kanazawa University)

(Room B108) November 5 (Sat.), 2016 9:20 - 11:35 (incl. 10 min Break)

Theme: **Discharge Application and Liquid Discharge**

Session chair: F. Tochikubo

ED-16-142 EARLY DETERIORATION OF PALM FATTY ACID ESTERS (PFAE) OIL
 SP-16-071 +Abdul Rajab, Motoo Tsuchie, Masahiro Kozako, Masayuki Hikita (Kyushu Institute
 HV-16-127 of Technology), Takashi Suzuki (LION SPECIALTY CHEMICALS CO., LTD.)

ED-16-143
 SP-16-072 [withdrawn]
 HV-16-128

ED-16-144
 SP-16-073 [withdrawn]
 HV-16-129

ED-16-145 Characteristics of atmospheric-pressure glow discharge surrounded by mist-flow
 SP-16-074 *Tomoyuki Tanaka (Tokyo Metropolitan University), Naoki Shirai(Hokkaido
 HV-16-130 University), Satoshi Uchida, Fumiyoshi Tochikubo (Tokyo Metropolitan University)

ED-16-146 Development of Compact Pulsed Power Modulator for Microscope
 SP-16-075 *Ryo Fukumura, Yusuke Kusaba, Takashi Sakugawa, Hidenori Akiyama (Graduate
 HV-16-131 School of Kumamoto University)

ED-16-147 Development of High Voltage Pulsed Power Generator for Inactivation of
 SP-16-076 Cyanobacteria
 HV-16-132 *Keisuke Oura, Akira Matsuo, Takashi Sakugawa, Tomohiko Yamashita, Hidenori
 Akiyama (Kumamoto University)

ED-16-148 The Development of The Next Generation Ignition System Using The Nanosecond
 SP-16-077 Pulse Power in The Gasoline Internal Combustion Engine
 HV-16-133 *Hitoshi Ueda, Ryo Nakamura, Hideaki Nariai, Takahiro Watanabe, Hidenori
 Akiyama, Takashi Sakugawa (Kumamoto University)

(Room B108) November 5 (Sat.), 2016 13:00 - 15:15

Theme: **Gaseous and Vacuum Discharges**

Session chair: Y. Yamano

- ED-16-149 Microprojection heating caused by approach of microparticle
SP-16-078 *Haruki Ejiri, Akiko Kumada, Kunihiro Hidaka (*The University of Tokyo*), Taiki
HV-16-134 Donen, Mitsuru Tsukima (*Mitsubishi Electric Corporation*)
- ED-16-150 Influence of surface flashover and charging characteristics in vacuum on alumina
SP-16-079 ceramics exposed to intense X-ray irradiation
HV-16-135 *Ryoto Yamashita, Yasushi Yamano (*Saitama University*), Takayuki Inamoto, Ryo Abe
(*SHIBUYA CORPORATION*)
- ED-16-151 Concurrent flashover phenomena of a parallel gap configuration -Effects of gap length
SP-16-080 and residual voltage-
HV-16-136 +Takatoshi Shindo, Megumu Miki, Toru Miki (*Central Research Institute of Electric
Power Industry*)
- ED-16-152 Particle-initiated Flashover Characteristics for Various Ribbed Profile in SF₆ Gas
SP-16-081 *Dong-Hun Oh, Jae-Hong Koo, Bang-Wook Lee (*Hanyang University*), Chae-Min
HV-16-137 Lee (*Hanyang University EFT Center*), Dong-Hoon Jeong, Jae-Kyu Seong (*Hyosung
Co., Ltd.*)
- ED-16-153
SP-16-082 [withdrawn]
HV-16-138
- ED-16-154 Study on improvement of discharge characteristics of a surge arrester with a spark gap
SP-16-083 *Hibiki Horie, Takuma Miyake, Tatsuya Sakoda (*University of Miyazaki*), Tatsuya
HV-16-139 Tokunaga, Katsutaka Kubo, Manabu Mizutani, Takato Fukano (*Toshiba Corporation
Energy Systems & Solutions Company*)
- ED-16-155
SP-16-084 [withdrawn]
HV-16-140

(Room B107) November 5 (Sat.), 2016 9:20 - 10:45

Theme: **Diagnosis of Cables and Transformers**

Session chair: M. Hikita

- ED-16-156 A New Approach for Aging Estimation by using the Used Cable Diagnosis of 3D
SP-16-085 Matrix
HV-16-141 *Seung-Won LEE, Su-Hwan KIM, Yong-Hyun KIM, Jang-Seob LIM (*Mokpo National
Maritime University*), Tae-Wan KIM (*KEPCO Research Institute*), Hwi-Gon PARK,
Jee-Hyeok HEO (*Mokpo National Maritime University*)

ED-16-157	
SP-16-086	[withdrawn]
HV-16-142	
ED-16-158	
SP-16-087	[withdrawn]
HV-16-143	
ED-16-159	A Proposed Economical Replacement of Oil-Filled Cables using the Health Index
SP-16-088	<i>*Su-Hwan KIM, Seung-Won LEE, Jang-Seob LIM (Mokpo National Maritime University), Ji-Won Kang, Chae-Kyun Jung, Hung-Sok Park (KEPCO Research Institute)</i>
HV-16-144	
ED-16-160	Transient Recovery Voltage at Transformer Limited Fault Interruption
SP-16-089	<i>*Masaya Hiraide, Tadashi Koshizuka (Tokyo Denki University), Eiichi Haginomori, Yasuhiko Taniguchi, Hisatoshi Ikeda (The University of Tokyo)</i>
HV-16-145	
ED-16-161	
SP-16-090	[withdrawn]
HV-16-146	

(Room B107) November 5 (Sat.), 2016 13:00 - 16:30

Theme: **Numerical Electromagnetic Analysis**

Session chair: Y. Baba

ED-16-162	Proposal of Treating Method Regarding a Vertical Power Cable in EMTP
SP-16-091	<i>*Ryoji Oshiro, Yuto Hachiman, Eiji Kaneko (University of the Ryukyus)</i>
HV-16-147	
ED-16-163	Rail Model for Lightning Surge Analysis Based on FDTD Simulation Results
SP-16-092	<i>*Akinori Hori (Doshisha University), Hiroki Tanaka (WEST JAPAN RAILWAY COMPANY, Doshisha University), Naoto Nagaoka (Doshisha University)</i>
HV-16-148	
ED-16-164	Improvement of Convergence Properties of Interface Problems in Iterative Domain
SP-16-093	Decomposition Method Applied Double-Double Precision
HV-16-149	<i>*Takehito Mizuma, Amane Takei (University of Miyazaki)</i>
ED-16-165	Basic study of time-domain full-wave electromagnetic field analysis based on three
SP-16-094	dimensional finite element method
HV-16-150	<i>*Isamu Higashi, Amane Takei (University of Miyazaki)</i>
ED-16-166	FDTD Computation of the Transient Electric Field of an Arrester
SP-16-095	<i>*Alfonse K. Nzenkula, Ryo Murakami, Shunsuke Imato, Yoshihiro Baba, Naoto Nagaoka (Doshisha University), Naoki Itamoto (Hokuriku Electric Power Company)</i>
HV-16-151	

ED-16-167	
SP-16-096	[withdrawn]
HV-16-152	
ED-16-168	FDTD Analysis of the Error of Estimated Lightning Electromagnetic Field Direction
SP-16-097	due to the Presence of a Grounded Structure.
HV-16-153	<i>*Shohei Araki, Yoshihiro Baba, Naoto Nagaoka (Doshisha University), Toshihiro Tsuboi, Shigemitsu Okabe (Tokyo Electric Power Company)</i>
ED-16-169	Evaluation on the legitimacy of assumption of plane waves in the result in numerical
SP-16-098	calculation in surge impedance Z_p in peaks E_p and B_p in the electric fields E and
HV-16-154	magnetic fields B caused by the vertical first lightning return strokes to the flat ground
	of downward flashes in conventional methods
	+ <i>Hiroshi Kurita (Nothing)</i>
ED-16-170	Effect in rising steepness on the vertical first lightning return strokes to the flat ground
SP-16-099	of downward flashes et al. on the result in numerical calculation in peaks E_p
HV-16-155	and B_p in the extremely far electric fields E and extremely far magnetic fields B
	caused by the vertical first lightning return strokes in 50 kA in peaks in conventional
	methods
	+ <i>Hiroshi Kurita (Nothing)</i>