2014 INTERNATIONAL SYMPOSIUM ON ELECTRICAL INSULATING MATERIALS
June 1-5, 2014, Niigata City, Japan

Sponsored by
IEEJ Technical Committee on Dielectrics and Electrical Insulation

Technically Co-sponsored by
IEEE Dielectrics and Electrical Insulation Society

Co-sponsored by
Faculty of Engineering, Niigata University
Waseda University

In cooperation with
IEEE DEIS Japan Chapter

Supported by
Niigata Prefecture
Niigata Visitors & Convention Bureau

with Tentative Program (Apr. 30th, 2014)
ORGANIZING COMMITTEE
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LOCAL ARRANGEMENT COMMITTEE
Chair: K. Kato (Niigata Univ.)
Members: K. Shinbo, A. Baba (Niigata Univ.), and N. Fuse (CRIEPI)

Workshop "Analysis for Polymeric Insulating Materials Using Advanced Numerical Simulation (APIANS)"
Chair: T. Tanaka (Waseda Univ.)
Assistant Coordinator: A. Kumada (The Univ. Tokyo) and M. Kozako (Kyushu Inst. Tech.)

Demonstration of PEA Measurement Systems
Event Director: Y. Murakami (Toyohashi Univ. Tech.)
Event Assistant Director: H. Miyake (Tokyo City Univ.)
Conference Information

ISEIM 2014 will be held in Niigata, Japan on June 1-5, 2014. The previous conferences were held in Tokyo (1995), Toyohashi (1998), Himeji (2001), Kitakyushu (2005), Yokkaichi (2008), and Kyoto (2011), all in Japan. The organizing committee cordially invites you to participate in the conference.

About Niigata
Niigata City is a beautiful "city of water", and serves as a transportation hub with a seaport, an airport, Shinkansen stations, and highways. Various sightseeing spots are scattered throughout the suburbs, such as Iwamuro Hot Spring. The City is proud of its variety of wonderful foods, such as seafood nurtured by the Sea of Japan, rice and sake. The conference venue Toki Messe is in the new district of Niigata City. From its observatory, the highest spot in the city, you can see the Shinano River, the Sea of Japan, and Sado Island in the distance.

Main Topics
1. Space charge, surface and interfacial phenomena
2. Electrical properties of dielectrics and measurement and testing techniques
3. Nanotechnology for dielectrics
4. Inorganic and functional dielectric materials
5. Organic thin films and electronics
6. Dielectric materials for electronics and telecommunication
7. Dielectric properties of biological objects, biodielectronics
8. Inverter Surges
9. Partial discharge
10. Asset management for dielectrics applied apparatus
11. Insulation design, reliability, aging and degradation, their detection and monitoring
12. Polymeric insulators and outdoor insulation
13. Eco-friendly dielectric materials and recycling
14. Electrical insulation phenomena and charging under cosmic and radiological environment
15. Collaborate work with industries and universities

Papers on the following topics are particularly welcome: polymeric insulators and outdoor insulation, space charge measurements, on-line monitoring and diagnostics of power apparatus, GIS and cables, diagnosis of GIS, dc cables, development of polymeric cables and joints for higher electric fields, organic and inorganic thin films, new and functional materials including biological and medical dielectrics, and ferroelectric materials.

Workshop of "APIANS (Analysis for Polymeric Insulating Materials Using Advanced Numerical Simulation)"
In this workshop, we can have several lecturers focusing on the followings.

◊ Numerical calculation for band energy structures of polymers using molecular orbital method or others.
Numerical analysis for mechanical structures of polymers using finite element method or others.
Numerical simulation of charge storage and transportation processes in polymers using advanced computing techniques.
Numerical simulation for growth of tree in polymers based on fractal models or others.
Other numerical approaches for analysis of polymeric characteristics as insulating materials.

Note: audiences who want to take part in this program are needed to apply through the registration system.

Special Sessions for Space Charge Measurement Technologies
The broad HVDC power network is getting to move forward with full-scale implementation, especially in Europe area. In order to estimate the HVDC stress on insulating materials, space charge distribution with the pulsed electro-acoustic (PEA) method - based measurement has been paid much attention. The organizing committee is planning to hold a special session introduces the advanced technique for measuring the space charge distribution in insulating material using PEA method.

Special Oral Session: One or two oral sessions will be held during the symposium, including key note lectures by invited speakers.

Tutorial Program: This is a practice program to lean the basic space charge measurement for beginners using standard measurement system. Participants can touch the conventional PEA system and learn the procedure of measurement and calibration step by step, conform to the IEC Technical Specification (IEC/TS 62758) procedure.

Note: audiences who want to take part in this program are needed to apply through the registration system.

Demonstration Session: This is a demonstration session of advanced measurement systems brought by some researchers in Japan. Following eight types of state-of-the-art PEA systems will be gathered and audiences can see how they work.

Note: Most of the measurement systems cannot be operated or controlled by audiences. It would also be dangerous during the voltage application. Please follow instructions provided at the conference. The organizing committee is not responsible for any damages if the audience does not follow them.

MVP (Mutual Visiting type Poster) Session
This session aims to encourage and improve the presentation and discussion abilities of attendees, and give a chance to discuss other poster presentations. Attendees are required to present their poster not only to the attendees who do not present in the session but also to the other presenters of the session. All the attendees of the MVP session that is all the presenters of the MVP session have rights of voting the good presentation, definite replay in discussion, and beautiful poster. The excellent presenter(s) will be awarded in the banquet.

SS (Industry) Session
TC-DEI has held Sun-shine (industry) session in the previous domestic and international symposiums. They were very received very well and many Japanese companies in this field want to participate in the SS session. TC-DEI aims to make a good opportunity for companies to introduce their developed and developing technologies and
products to attendee especially young researchers such as university students and graduate students. It must be a good opportunity to introduce your company.

**Japan-Korea Young Researcher Exchange Program**

Technical committees on dielectrics and electrical insulations both in Japan and Korea are now starting new exchange program for young researchers. Winners are selected from domestic annual conferences in both countries, and get a chance to have presentation under the financial aid. The winner’s presentation will be held in Oral I, Several Properties Session in ISEIM 2014.

**Language**

The working language of the symposium is English. All printed matter will appear in English.

**Registration Fee**

Registration fee is changed from the one informed on call for papers due to increase in consumption tax and in the number of social events. Organizing committee ask all the attendees to kindly be understand the situation. Note that lectures invited for Inuishi Memorial, Plenary, Session Invited, Japan-Korea Young Researcher Exchange Program, and workshop APIANS are exempt from mandatory registration charges.

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<th></th>
<th>Members a)</th>
<th>Non-Members</th>
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<td><strong>Mandatory registration</strong></td>
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<td>40,000 JPY</td>
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<td>Students b, c)</td>
<td>20,000 JPY</td>
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<td>Registration only for the paper d)</td>
<td>10,000 JPY</td>
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<td><strong>Options</strong></td>
<td>Workshop APIANS participation fee</td>
<td>3,000 JPY</td>
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<td>PEA measurement tutorial participation fee</td>
<td>2,000 JPY</td>
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<td>Technical Tour Ticket</td>
<td>1,000 JPY</td>
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<td><strong>More options</strong></td>
<td>Banquet Ticket for Accompanying Person</td>
<td>5,000 JPY</td>
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<td>Additional Proceedings</td>
<td>10,000 JPY</td>
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</tbody>
</table>

a) Members of IEEJ, IEEE, CIGRE, CES, or KIEEME.

b) Services will be transferred as a set of proceeding booklet, a USB stick, a banquet ticket, some conference kits and other services at the conference. Due date of service transfer: At the conference (Jun. 1, 2014 - Jun. 5, 2014). Receipt is issued at the registration desk.

c) This includes booklet and USB stick of the symposium proceedings, one ticket for banquet.

d) This is for authors who do not attend the symposium. IMPORTANT: papers neither registered nor paid the publication fee will be deleted from the symposium proceedings, and also will not disclosed on IEEE Xplore.

**Technical Tour (Bus tour from the conference venue, at 11:45 a.m. of Jun. 4th)**

Only one technical tour, which rounds the following three sites, will be provided. *Those who are interested in can apply through the registration system.*

1) **Tohoku Electric Power Co., Inc., Higashi Niigata Thermal Power Station**: An anti-fouling system has been added.
to the 1610 MW CCGT plant at Higashi Niigata, Japan. This plant, which increased the station’s total capacity to 4600 MW, was Japan's first large CCGT project and is operated by Tohoku Electric Power Co., Inc.. The plant was suffering from fouling which restricted flow through the plant's water outflow structure, affecting productivity levels and efficiency. The problem was solved by applying anti-fouling coatings in 2005. The power station was the first to be equipped with a new generation of Mitsubishi gas turbines. Mitsubishi Heavy Industries installed a combined cycle power plant (Unit 4) that has a turbine inlet that can handle temperatures of up to 1450°C. Before the turbine began commercial operation in 1999, the plant had a capacity of 2990 MW. The existing installation comprised two 350 MW steam turbines (Minato units one and two), two 600 MW steam turbines (Units 1 and 2) and a 1090 MW CCGT (Unit 3). Unit 3 was completed in 1984; it has six MW701D gas turbines and was Japan's first large CCGT plant.

2) NAMICS Corporation, a company that produces conductive and insulating products for electronic components and systems: This company has developed insulating materials for disc ceramic capacitors since late 1960's. The company has also developed conductive materials such as silver pastes for electrodes, and semiconductor sealing. It is rare case to conduct research and development both for insulating and conductive materials. Recent featured products are; 1) ‘NCP’ that realizes the short-time hardening, 2) ‘ANCP’ that can perform the solder joining and resin sealing at the same time, and 3) a adhesion film that can fit to high frequency and light model semiconductor passiveness.

3) Imayotsukasa Syuzo, Sake Brewery: Imayotsukawa was founded in 1767. At the Imayotsukawa sake factory, only Niigata's natural "Suganadake" spring water is used to make sake. Using this spring water and high quality sake rice, the sake is made with great care and has a strong, delicious flavor, even when compared to other dry sake. The historic factory building was built around 1900. Tours will take you through each stage of the sake brewing process, and visitors get to learn about the warehouses. After the tour finishes, there will be sake tasting. Come learn about the process of making sake and try some for yourself.

Digest Reports from Investing R&D Committees

The TC-DEI in IEEJ runs investigating R&D committees that organize several technical meetings a year. Their roles are to survey trends in basic and applied insulating technology broadly both in Japan and overseas, and to scientifically classify the technological needs shared by various areas of new technology development as well as the problems involved. The booklet of ISEIM 2014 proceedings includes digest results of these efforts.

ISEIM 2014 Web Site
http://www2.iee.or.jp/~adei/ISEIM2014/
The Way of Presentation

All papers accepted for ISEIM 2014 must be presented at the Conference. Papers will be presented in poster, MVP, or oral sessions.

Oral sessions: Presentations must be concise and to the point. The length of your oral presentation must be less than 20 minutes, including discussion and change of presentation. This is also the same to the Japan-Korea exchange program. Presentations nominated as in-session invited talk have 25 minutes including discussion and change of presentation. Your presentation material should be prepared in Microsoft PowerPoint or Adobe PDF and are required to transfer to the computer set at the presentation room until the day before your presentation.

If you do not want to submit your presentation material on ahead of your session and you want to give your presentation with your computer, please consult to the chairperson. Please note that the secretariat only prepare the RGB video-out terminals. We do not have any terminals for other terminations such as HDMI. Authors are required to prepare conversion adapter by themselves.

Poster sessions: Your poster should attract the viewer's attention and suggest the scope of the work and the most important results. Avoid unnecessary details. The fine points of the research can be developed during one-on-one discussions. Authors are encouraged to devise presentations that are best suited to the work and are given considerable latitude in the presentation of their results.

Poster boards are provided during the session. Its size is a height of approx. 2.1 m and a width of 1.2 m. ‘A-zero’ size posters will be suitable. Thumbtacks will be provided by the conference secretariat.

Schedule for #1 Session: 13:00 – 15:30, Jun. 3rd: preparation
15:45 – 17:30, Jun. 3rd: presentation
17:30 – 17:50 Jun. 3rd: removing
Schedule for #2 Session: 8:30 – 9:30, Jun. 4th: preparation
9:30 – 11:15, Jun. 4th: presentation
11:15 – 11:35 Jun. 4th: removing

All the presentation materials remained at 8:30 a.m., Thursday, Jun. 5th will be removed and disposed by the conference secretariat.

MVP sessions: “MVP” session is an abbreviation of "Mutual Visiting type Poster" session. This session aims to encourage and improve the presentation and discussion abilities of attendees, and give a chance to discuss other poster presentations. Attendees are required to present their poster not only to the attendees who do not present in the session but also to the other presenters. All the attendees of the MVP session, that is all the presenters of the MVP session have rights of voting the good presentation, definite replay in discussion, and beautiful poster. The excellent presenter(s) will be awarded in the banquet.

The program committee will explain how to execute the session and distribute the rating list at the beginning of the session. After that, attendees of the MVP session will explain their poster to the other attendees. The presentation time will be around 5 minutes excluding discussion. The discussion time will be 5 minutes following to the
explanation. During presentation and discussion, other attendees may mark the presentation, replay and understandability of poster. The rating list will be withdrawn after the MVP session and be made up.

In the MVP session, you are provided a poster board, which are completely the same as those in Poster session mentioned above. The size of your poster board is a height of approx. 2.1 m and a width of 1.2 m. ‘A-zero’ size posters will be suitable. Thumbtacks will be provided by the conference secretariat.

The schedule of the preparation and removal of the MVP session is as follows;

Schedule for #1 Session: 13:00 – 15:30, Jun. 3rd: preparation
15:45 – 17:30, Jun. 3rd: presentation
17:30 – 17:50 Jun. 3rd: removing

Schedule for #2 Session: 8:30 – 9:30, Jun. 4th: preparation
9:30 – 11:15, Jun. 4th: presentation
11:15 – 11:35 Jun. 4th: removing

All the presentation materials remained at 9:00 a.m., Thursday, Jun. 5th will be removed and disposed by the conference secretariat.

The flow of the MVP session is as follows;

1. The flow of the MVP session is explained.
2. Presenters of the MVP session will be grouped into several groups. One group has 6 to 7 presenters. Note: the grouping has finished and your group number is shown on the program on the conference web site. At the opening of the MVP session, the grouping will be confirmed. A group consists of the young researchers in as the similar field as possible.
3. All the presenter break into small groups confirmed, then you are required to give your poster presentation to the other member in your group. The presentation duration should be 5 minutes at most. After the presentation, the time is open for discussion. The other member in your group will give you some question, so please answer the question appropriately.
4. After your presentation, the other member in your group will give his/her poster presentation. The presenter will change in turn.
Note: During the presentation and discussion, the other attendees may mark the presentation, replay and understandability of hit/her poster. The rating list will be withdrawn after the MVP session and be made up. The excellent presenter(s) will be awarded in the conference banquet.
5. The rating list will be collected by the Coordinator of the group.
6. Then, the coordinator will take his group to the SS session (Exhibition by companies). The presenter of the SS session will explain latest topics in their research and development. Some companies are planning to show you the actual measuring systems and some experimental specimen. As mentioned above, the presenter should give his/her presentation to about 6 or 7 researchers in the same time, although the presenter should give his/her presentation to only 1 or 2 researchers.

Here, please note that a coordinator will chair your group. The coordinator is basically Japanese University professors and Japanese company researchers. The aim of the coordinator plays roles of a time keeper, activation of the discussion, etc. like a session chair in an oral session. Thus, if you have any question about the MVP session on site, please ask to your coordinator.
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<tr>
<th>Date</th>
<th>Location</th>
<th>Time</th>
<th>Event</th>
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<tr>
<td>Jun. 1st</td>
<td>Main A Hall</td>
<td>9:00-10:20</td>
<td>Opening Address</td>
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<td>Inuishi Lecture</td>
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<td>10:40-11:40</td>
<td>Plenary Lecture</td>
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<td>13:00-15:05</td>
<td>Oral A Nano-composite #1</td>
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<td>15:20-17:00</td>
<td>Oral C Nano-composite #2</td>
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<td>9:00-10:50</td>
<td>Oral DA Space Charge</td>
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<td>10:50-12:30</td>
<td>Oral DB Space Charge</td>
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<td>13:30-15:15</td>
<td>Oral F Outdoor Insulation and Diagnosis #2</td>
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<td>15:45-17:10</td>
<td>Oral G Partial Discharge</td>
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<td>Jun. 2nd</td>
<td>Main B Hall</td>
<td>14:00-17:00</td>
<td>Workshop APIANS</td>
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<td>Welcome Party, at 30th Floor of Hotel Nikko Niigata, 1800-2000</td>
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<td>201A Hall</td>
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<td>201B Hall</td>
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<td>10:40-11:40</td>
<td>Lunch Break</td>
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<td>13:00-14:50</td>
<td>Oral B Inverter and Partial Discharges</td>
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<td>15:30-17:00</td>
<td>PEA Tutorial</td>
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<td>Jun. 3rd</td>
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<td>Oral E Outdoor Insulation and Diagnosis #1</td>
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<td>10:50-12:30</td>
<td>Oral F Outdoor Insulation and Diagnosis #2</td>
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<td>11:00-12:30</td>
<td>PEA Demo</td>
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<td>Lunch Break</td>
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<td>15:45-17:10</td>
<td>MVP, Poster, &amp; SS #1</td>
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<td>15:45-17:30</td>
<td>Technical Tour</td>
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<td>Banquet, at 4th Floor of Hotel Nikko Niigata, 18:00-20:00</td>
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<td>15:45-17:10</td>
<td>MVP, Poster, &amp; SS #2</td>
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<td>Banquet, at 4th Floor of Hotel Nikko Niigata, 18:00-20:00</td>
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<td>Jun. 5th</td>
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<td>11:40-11:50</td>
<td>Closing Remarks</td>
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Cells colored in pink: special application is required in addition to normal registration set.
Scientific Program (Still tentative [Apr. 29th])

Important notice: Inputted presentations below *temporally* include some papers that have not been completed. IF SUCH PAPERS WILL NOT BE COMPLETED AND ACCEPTED, THEY WILL BE DELETED FROM ALL OF THE SYMPOSIUM RECORDS.

**Sun. Jun. 1**

14:00 – 17:00  *Workshop APIANS (Room 303&304). Application is required.*

*Chair: T. Tanaka (Waseda Univ)*

(15:40 - 16:00 Short Break)

14:00 - 14:10  Chairman's Introduction

Toshikatsu Tanaka (Waseda Univ., Japan)

14:10 - 14:40  The Application of Computational Methods to the Design of Dielectric Materials and Systems

Steven A. Boggs (Univ. Connecticut, USA)

14:40 - 15:10  First Principle Simulations of Electronic Structure of Polymer Dielectrics

Mikael Unge (ABB, Switzerland)

15:10 - 15:40  Determination of Charge-Trapping Sites in Saturated and Aromatic Polymers by Quantum Chemical Calculation

Tatsuo Takada (Tokyo City Univ., Japan)

16:00 - 16:30  Modeling Charge Transport and Storage in Polymeric Insulating Materials: Numerical Analysis, Optimization and Validation

Severine Le Roy (Univ. Toulouse, France)

16:30 - 17:00  Numerical Simulation Methods to Model Electron Trapping and Transport in Polyethylene at the Molecular Level

David Cubero (Univ. Sevilla, Spain)

13:00 – 17:30  *Registration*

18:00 – 20:00  *Welcome party (at Hou-Ou Hall, 30th Floor of Hotel Nikko Niigata)*

**Mon. Jun. 2**

*Invited Lecture (Main A Hall)*

9:00 - 9:20  *Opening Address*

Yasuhiro Tanaka (Tokyo City Univ., Japan)

9:20 - 10:20  *Inuishi Memorial Lecture*  

[026] Nanodielectrics - the First Decade and Beyond

J. Keith Nelson (Rensselaer Polytechnic Institute, USA)

*Chair: TBD*

10:20 - 10:40  *Break*
<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
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</table>
| 10:40 - 11:40| **Symposium Plenary Lecture**  
  Chair: TBD  
  [031] The Missing Link – The Role of Space Charge in Polymeric Insulation Lifetime  
  George Chen (University of Southampton, UK and Xi’an Jiaotong Univ., China) |
| 11:40 - 13:00| **Lunch Break**                                                                                             |
| 13:00 - 15:05| **Session A: Nano-composite #1 (Main A Hal)**  
  Chair: TBD, Co-chair: TBD  
  A1 (SI)  
  [009] Modelling the Dielectric Permittivity of Nanocomposites – the Overlap Model  
  Ioana Preda¹², Jérôme Castellon¹, Michel Fréchette², and Serge Agnel¹  
  (¹Univ. Montpellier, France, ²Inst. Rec. d’Hydro Québec Canada)  
  A2  
  [021] Core-double-shell Structured Nanocomposite Dielectrics with High Permittivity and Low Loss for Electric Energy Storage  
  Xingyi Huang¹, Liyuan Xie¹, Fei Liu¹, and Pingkai Jiang¹²  
  (¹Shanghai Jiaotong Univ., China ²Shanghai Eng. Center for Material Safety of Nuclear Power Equipment, China)  
  A3  
  [017] Measuring and Modeling the Thermal Conductivity of Epoxy-boron Nitride Nanocomposites  
  I. A. Tsekmes, R. Kochetov, P. H. F. Morshuis, and J. J. Smit  
  (Delft Tech. Univ., the Netherlands)  
  A4  
  [049] Space Charge and Conductivity Characteristics of CB/XLPE Nanocomposites  
  Zhiyu Yan, Baozhong Han, Hong Zhao, Jiaming Yang, and Chunyang Li  
  (Harbin Univ.Sci. Tech., China)  
  A5  
  [055] Nano-composite Polymeric Insulating Material of Mixed Addition for Control of Treeing Deterioration  
  Yoshiaki Yamano (Chiba Univ., Japan)  
  A6  
  [135] A Numerical Approach for Analysis of Structure of Lower-permittivity Insulating Nanoporous Composite  
  Muneaki Kurimoto, Yuyu Yamashita, Takeyoshi Kato, and Yasuo Suzuoki  
  (Nagoya Univ., Japan) |
| 13:00 - 14:50| **Session B: Inverter and Partial Discharge (201A Main Hal)**  
  Chair: TBD, Co-chair: TBD  
  B1 (SI)  
  [034] Acoustic Emission from Partial Discharges in Cable Termination  
  Tadeusz Czaszejko and Jonathan Sookun (Monash Univ., Australia)  
  B2 (SI)  
  [084] Phase Resolved Measurement and Simulation of Partial Discharges in Solid and Liquid Insulating Materials  
  Suwarno (Inst. Teknologi Bandung, Indonesia)  
  B3  
  [007] Review of Stator Insulation Problems in Medium Voltage Motors Fed from Voltage Source PWM Drives  
  G. C. Stone and I. Culbert (Iris Power, Canada)  
  B4  
  [069] Measurement of Stress Grading Conductivity to 1.6 MV/m and 155°C Computation of Grading |
Power Density and Temperature Rise for PWM Waveforms
Steven Boggs\textsuperscript{1}, Akiko Kumada\textsuperscript{2}, and Tetsuo Yoshimitsu\textsuperscript{3} (\textsuperscript{1}The Univ. Connecticut, USA, \textsuperscript{2}The Univ. Tokyo, Japan, \textsuperscript{3}Toshiba Mitsubishi-Electric Industrial Systems Co., Japan)

B5 [122] Partial Discharge Characteristics of Twisted Magnet Wire under High Frequency ac Voltage
Satoshi Matsumoto, Nguyen Nhat Nam, Daichi Nagaba, and Takahiro Ogiya (Shibaura Inst. Tech., Japan)

15:20 - 17:00 \textit{Session C: Nano-composite #2 (Main A Hal)}

\textit{Chair: TBD, Co-chair: TBD}

C1 [023] Polyethylene-based Nanodielectric Containing Octaisobutyl Polyhedral Oligomeric SilSesquioxanes Obtained by Hexane Slurry Blending
Meng Guo\textsuperscript{1}, Michel Fréchette\textsuperscript{2}, Nicole R. Demarquette\textsuperscript{1}, Éric David\textsuperscript{1}, Hugues Couderc\textsuperscript{1}, and Jean-Christophe Daigle\textsuperscript{2} (\textsuperscript{1}École de Technologie Supérieure, Canada, \textsuperscript{2}Inst. Rec. d’Hydro-Québec, Canada)

C2 [058] Simulation of Space Charge Behavior in LDPE with a Modified of Bipolar Charge Transport Model
Jiandong Wu, Li Lan, Zhe Li, and Yi Yin (Shanghai Jiaotong Univ., China)

C3 [082] Effect of Relative Humidity on Surface Dielectric Breakdown of Epoxy Based Nanocomposites under Repeated Pulses
Y. Gao, Y. K. Men, and B. X. Du (Tianjin Univ., China)

C4 [120] Correlation between Trap Parameters and Breakdown Strength of Polyethylene/Alumina Nanocomposites
Weiwang Wang and Shengtao Li (Xi’an Jiaotong Univ., China)

Masahiro Kozako (Kyushu Inst. Tech., Japan)

15:00 - 17:00 \textit{PEA System Tutorial Program (201B Hall) Application is required.}

\textit{Lecturer: Y. Tanaka (Tokyo City Univ), Assistant: Y. Kohno (Five Lab.)}

\textbf{Tue. Jun. 3}

9:00 – 12:30 \textit{Session D: Space Charge Special Oral (Main A Hall)}

\textit{Chair: TBD, Co-chair: TBD}

(10:50 - 11:00 Short Break)

DA1 (SI) [019] Evidence of Exciton Formation in Thin Polypropylene Films under ac and dc Fields and Relationship to Electrical Degradation
Bo Qiao, Christian Laurent, and Gilbert Teyssedre (Univ. Toulouse and CNRS, France)

DA2 (SI) [077] Investigation of Space Charge Behavior of HVDC XLPE Cables Using PEA Method
Shuqi Li, Li Lan, Jiandong Wu, and Yi Yin (Shanghai Jiaotong Univ., China)
DA3  [098] Space Charge Measurement for 27 mm Thick XLPE Sample in PEA Method
   Masumi Fukuma¹, Hiroki Tomita¹, and Takashi Maeno² (¹Matsue Nat. College of Tech., Japan,
   ²Nat. Inst. Information and Communications Tech., Japan)

DA4  [099] Space Charge Formation and Conductivity Characteristics of PE and Oil Impregnated Paper under a
   Temperature Gradient
   Kai Wu¹, Zepeng Lv¹, Qingdong Zhu¹, Xia Wang¹, Yonghong Cheng¹, and L.A. Dissado¹,²
   (¹Xi’an Jiaotong Univ., China, ²Univ. Leicester, UK)

DA5  [167] Quantum Chemical Studies on Interface Charge Transfer between Electrode and Polyethylene under
   Electrical Stress
   Tatsuo Takada, Hiroaki Miyake, Yasuhiro Tanaka, and Masafumi Yoshida (Tokyo City Univ.,
   Japan)

DB1 (SI)  [086] Role of External and Internal Parameters on the Space Charge Formation in Dielectrics

DB2 (SI)  [088] The Effect of Charge Recombination on Surface Potential Decay Crossover Characteristics of
   LDPE
   Shengtao Li (Xi’an Jiaotong Univ., China)

DB3  [072] Breakdown Processes in Low Density Polyethylene and Cross-linked Polyethylene under dc High
   Stress
   Yasuhiro Tanaka¹, Tsuyoshi Kato¹, Hitoshi Suzuki¹, Hiroaki Miyake¹, and Takashi Maeno²
   (¹Tokyo City Univ., Japan, ²Nat. Inst. Information and Communication Tech., Japan)

DB4  [119] Preliminary Measurements on Dielectric Materials by the Pulsed Electro-acoustic Method Using a
   Ring Electrode
   Virginie Griseri¹, Jonathan Riffaud¹, Takashi Maeno², and Laurent Berquez¹ (¹Univ. Toulouse,
   France, ²Nat. Inst. Information and Communication Tech., Japan)

10:50 – 12:30  Session E: Outdoor Insulation and Diagnosis #1 (201A Hal)

Chair: TBD, Co-chair: TBD

E1  [020] Contrasting Analysis on Properties of Mechanical Fatigue and Solid Insulation during Aging Process
   Hailiang Lu¹, Yifan Liao², Xiaoqing Yuan¹, Fuzeng Zhang², Jingzhuo Zhang¹, Bao Wen¹, and
   Xishan Wen¹ (¹Wuhan Univ., China, ²Ultra High Voltage Eng. Tech., China)

E2  [051] Diagnosis of Generator Stator Winding Insulation Based on Dissipation Factor Measurement
   Fei Liu, Xingyi Huang, and Pingkai Jiang, (Shanghai Jiao Tong Univ., China)

E3  [123] The DGA Interpretation Method Using Relative Content of Characteristic Gases and Gas-ratio
   Combinations for Fault Diagnosis of Oil-immersed Power Transformers
   An-xin Zhao¹,², Xiao-jun Tang¹, Zhong-hua Zhang¹,³, and Jun-hua Liu¹ (¹Xi’an Jiaotong Univ.,
   China, ²Xi’an Univ. Sci. Tech., China, ³Nat. Inst. Metrology, China)

E4  [117] Paper Moisture Variation vs. Mechanical Deformation Impacts on Transformer Frequency Response
   Spectrum
   Mehdi Bagheri, B. T. Phung, and Trevor Blackburn (Univ. New South Wales, Australia)
E5  [071] Forces Affecting Metallic Particle Motion in GIS
Kenichi Nojima, Xueqin Zhang, Masayuki Sato, Takanori Yusuoka, Motoharu Shiiki, Masafumi Takei, and S.A. Boggs (Toshiba Co., Japan, Univ. Connecticut, USA)

12:30 - 13:30  Lunch Break

13:30 - 15:15  Session F: Outdoor Insulation and Diagnosis #2 (201A Hal)
Chair: TBD, Co-chair: TBD

F1 (SI)  [041] Experimental Investigation on the Role of Corrosive Sulphur on the Development of Partial Discharges in Power Transformers
A. P. Bramantyo, F. Ciani, S. Serra, P. H. F. Morshuis, A. Cavallini, and G. C. Montanari (Institut Teknologi Bandung, Indonesia, Techimp SpA, Italy, Delft University of Technology, the Netherlands, University of Bologna, Italy)

F2  [124] Study of Electric Field Distribution on 22 kV Insulator under Three Phase Energisation
Mu Liang and K. L. Wong (RMIT Univ., Australia)

F3  [037] Highly Sensitive Detection of Distorted Points in a Cable by Frequency Domain Reflectometry
Naoshi Hirai and Yoshimichi Ohki (Waseda Univ., Japan)

F4  [130] Study on Water Tree Degradation Diagnosis of XLPE Cable Using Charge Radar
Naohiro Hozumi (Toyohashi Univ. Tech., Japan)

F5  [008] Condition Assessment of Main Insulation in Transformer by Dielectric Loss Data Interpolation Method and Database Building
Jian Hao, Jin Fu, Zhiqin Ma, Shihai Zhang, and Shan Shen (State Grid Chongqing Electric Power Co., China, Guangdong Electric Power Research Institute, China)

13:30 - 15:30  PEA Demonstration Session (201B Hal)
Director: Y. Murakami (Toyohashi Univ. Tech.), Assistant Director: H. Miyake (Tokyo City Univ.)

Note: Presentation order has not been decided yet. Please contact to the director and assistance director for further information.

DS**  [163] Space Charge Measurement System Equipped with a Function to Measure Acoustic Properties
Yoshinobu Murakami, Takuma Sugiyama, Tomohiro Kawashima, Masumi Fukuma, and Masayuki Nagao (Toyohashi Univ. Tech., Japan, Matsue Nat. Collage of Tech., Japan)

DS**  [170] Ultra High Resolution PEA
Kensuke Kumaoka, Tsuyoshi Kato, Hiroaki Miyake, and Yasuhiro Tanaka (Tokyo City Univ., Japan)

DS**  [173] Simultaneous Measurement PEA System
Tsuyoshi Kato, Ryo Onozawa, Hiroaki Miyake, Yasuhiro Tanaka, and Tatsuo Takada (Tokyo City Univ., Japan)

DS**  [164] Space Charge Measurement for Full Size Cable by Pulse Electroacoustic Method
DS** [169] Portable Mini PEA
Naohiro Hozumi (Toyohashi Univ. Tech., Japan)
Kohei Horiguchi, Hiroaki Miyake, and Yasuhiro Tanaka (Tokyo City Univ., Japan)

DS** [171] Normal PEA
Kazuki Abe\textsuperscript{1}, Takashi Maeno\textsuperscript{1}, Hiroaki Miyake\textsuperscript{2}, and Yasuhiro Tanaka\textsuperscript{2} (\textsuperscript{1}Nat. Inst. Information and Communications Tech., Japan, \textsuperscript{2}Tokyo City Univ., Japan)

DS** [172] Wire cable PEA
Kazuki Abe\textsuperscript{1}, Takashi Maeno\textsuperscript{1}, Hiroaki Miyake\textsuperscript{2}, and Yasuhiro Tanaka\textsuperscript{2} (\textsuperscript{1}Nat. Inst. Information and Communications Tech., Japan, \textsuperscript{2}Tokyo City Univ., Japan)

DS** [174] Space Charge Measurement for Thick Sample in PEA Method
Masumi Fukuma\textsuperscript{1}, Hiroki Tomita\textsuperscript{1}, and Takashi Maeno\textsuperscript{2} (\textsuperscript{1}Matsue Nat. College of Tech., Japan, \textsuperscript{2}Nat. Inst. Information and Communications Tech., Japan)

15:45 - 17:10  
**Session G: Partial Discharge**  
(Main A Hal)  
Chair: TBD, Co-chair: TBD

G1 (SI) [157] Understanding the Partial Discharge Activity in Liquid Nitrogen under Harmonic ac Voltages
R. Sarathi (Indian Inst. Tech. Madras, India)

G2 [003] PD Patterns of Stator Windings by In-factory Experiment on a 10 kV Motor
Chuanyang Li, Jiancheng Song, Ailiang Kang, Lingyan Lin, and Zhipeng Lei (Taiyuan Univ. Technol., China)

G3 [090] Applicability of Oscillating Wave Test System for On-site PD Diagnosis of High Voltage Power Capacitors
T. Kuraishi\textsuperscript{1}, S. Miyazaki\textsuperscript{1}, T. Takahashi\textsuperscript{1}, T. Takahashi\textsuperscript{1}, O. Kato\textsuperscript{2}, and Y. Hayashi\textsuperscript{2} (\textsuperscript{1}Central Res. Inst. Electric Power Industry, Japan, \textsuperscript{2}Electric Power Development Co., Japan)

G4 [137] Electrical Tree in the Crosslinked Polyethylene with Bowtie Trees and the Partial Discharge Occurrence Phase Angle Distribution
Fumitaka Komori\textsuperscript{1}, Daiki Asai\textsuperscript{2}, Yasuo Suzuoki\textsuperscript{2}, and Toru Kawahara\textsuperscript{3} (\textsuperscript{1}Toba Nat. College of Tech., Japan, \textsuperscript{2}Nagoya Univ., Japan, \textsuperscript{3}Chubu Electric Power Co., Japan)

15:45 - 17:30  
**MVP and Poster Session #1**  
(Main B Hall)  
Coordinator: TBD

MVP Group 1A

VA1 [056] Structural Change Induced in LaAlO\textsubscript{3} by Ion Implantation
Masayuki Harima, Yosuke Horii, Takaaki Morimoto, and Yoshimichi Ohki (Waseda Univ., Japan)

VA2 [004] Partial Discharges in Motor Wires at PWM Voltages of Different Smoothness
T. J. A. Hammarström\textsuperscript{1}, T. Bengtsson\textsuperscript{1,2}, J. Blennow\textsuperscript{1}, and S. M. Gubanski\textsuperscript{1} (\textsuperscript{1}Chalmers Univ. Tech., Sweden, \textsuperscript{2}ABB Corporate Res., Sweden)

VA3 [012] Use of UHF Method to Measure Partial Discharge Signal under Square-wave Pulse
Xukun Chen, Baojiang Cao, Guangning Wu, Guoqiang Gao, Jianxiang Sun, and Zhen Gu
VA4 [043] Partial Discharge Characteristics of Direct-Fluorinated Polyimide Films
Heng Du, B. X. Du, Jie Li, Yong Liu, and Huanhuan Du (Tianjin Univ., China)

VA5 [062] Effect of Partial Discharges on Thermal Breakdown of Oil Impregnated Paper
Mohamad Ghaffarian Niasar, Respicius Clemence Kiiza, Nathaniel Taylor, Xiaolei Wang, Hans Edin, and Stefan Tenbohlen (1KTH Royal Inst. Tech., Sweden, 2Univ. Stuttgart, Germany)

Thibaut Billard, Thierry Lebey, Antoine Belinger, Nicolas Naude, and Nicolas Gherardi (Univ. Toulouse, France, CNRS, France)

VA7 [079] Partial Discharge Detection and Analysis of Oil-paper Insulation under dc Voltage Based on UHF Method
Qian Zhang, Hongliang Liu, Zhe li, Zhihao Wang, and Yi Yin (Shanghai Jiaotong Univ., China, Hebei Electric Power Co. Res. Co. Inst., China)

MVP Group 1B Coordinator: TBD

VA8 [061] Crystalline Structures of YAlO3 Single Crystal at High Temperatures
Takahiro Inoue, Takaaki Morimoto, Shoji Kaneko, Yosuke Horii, and Yoshimichi Ohki (Waseda Univ., Japan)

VA9 [085] Partial Discharge Characteristics of Oil Impregnated Insulation System with an Oil Gap under Continuous AC Voltage Application
Yuu Iwashita, Takashi Kurihara, Toshihiro Takahashi, and Tatsuki Okamoto (Central Res. Inst. Electric Power Industry, Japan)

VA10 [110] Partial Discharge Analysis in a Metal-dielectric Air Gap on Machine Insulation at Arbitrary Testing Voltage
Xiaolei Wang, Respicius Clemence Kiiza, Nathaniel Taylor, Mohamad Ghaffarian Niasar, and Hans Edin (KTH-Royal Ins. Tech., Sweden)

VA11 [114] Arcing current Features Extraction Using Wavelet Transform

VA12 [125] Characteristics of Discharge Generation across Insulation Barrier in the Oil/Pressboard Composite Insulation System

VA13 [133] UHF Sensor Optimization Used for Detecting Partial Discharge Emitted Electromagnetic Wave in Gas Insulated Switchgear
Inu Suprianto, Umar Khayam, Suwarno, Kiichi Nishigouchi, Mohamad Kamarol,
Masahiro Kozako³, and Masayuki Hikita³ (¹PT. PLN, Indonesia, ²Inst. Tek. Bandung, Indonesia, ³Kyushu Inst. Tech., Japan, ⁴Univ. Sains Malaysia, Malaysia)

VA14 [128] Fault Diagnosis Based on Current Signature Analysis for Stator Winding of Doubly Fed Induction Generator in Wind Turbine
Lulu Wang¹, Yong Zhao², Wei Jia¹, Bin Han², Yiyong Liu¹, Toshikatsu Tanaka³, Yonghong Cheng¹, and Yu Chen¹ (¹Xi’an Jiaotong Univ., China, ²Xi’an Thermal Power Res. Inst. Co., China, ³Waseda Univ., Japan)

MVP Group 1C Coordinator: TBD

VA15 [139] Optical Properties of Self-assembled Anisotropic Gold Nanoparticles
Ryotaro Ozaki¹, Nagao Yoshiki¹, Kazunori Kadowaki¹, Yutaka Kuwashara², and Seiji Kurihara² (¹Ehime Univ., Japan, ²Kumamoto Univ., Japan)

VA16 [015] Partial Discharge Behavior of a Newly Developed Enamel Insulation at Various Voltage Rise Times
Anh T. Hoang¹, Thomas J. Å. Hammarström¹, Tord Bengtsson¹, Yurii V. Serdyuk¹, and Stanislaw M. Gubanski¹ (¹Chalmers Univ. Tech., Sweden, ²ABB Co. Res., Sweden)

VA17 [129] Study of Direction Identification of Partial Discharge Using Multi Small Loop Sensors
Atsushi Inatomi¹, Shohei Mkaki¹, Masahiro Kozako¹, Masayuki Hikita¹, Tokihiro Umemura², Kazuo Iida², Yusuke Nakamura³, Tatsuya Hirose³, Teruhiko Maeda⁴, and Masakazu Higashiyama⁴ (¹Kyushu Inst. Tech., Japan, ²Mie Univ., Japan, ³Toshiba Co., Japan, ⁴Toshiba Industrial Products System Co., Japan)

VA18 [155] Effect of Barrier in the Propagation of Partial Discharge Signals
R. Sarathi¹, I. P. Merin Sheema¹, V. Subramanian² (¹,²Indian Inst. Tech. Madras, India)

VA19 [160] Research on Directional Coupler Measurement in Partial Discharge Monitoring of XLPE Cable
Dai Gong, Jing Sun, and Ziyu Zhao (Shanghai Jiaotong Univ., China)

VA20 [028] Relationship between Residual Charge Signals and ac Breakdown Voltages of Removed 6.6 kV XLPE Cables Using Residual Charge Detection Method with Pulse Voltages
Takashi Kurihara¹, Tatsuki Okamoto¹, Kazuhisa Miyajima², Katsumi Uchida², Myong Hwan Kim³, and Naohiro Hozumi³ (¹Central Res. Inst. Electric Power Industry, Japan, ²Chubu Electric Power Co., Japan, ³Toyoashi Univ. Tech., Japan)

MVP Group 1D Coordinator: TBD

VA21 [059] Effect of Component of Liquid Sample on Sterilization of E. coli by High Electric Field Pulse
Yuichi Murakami, Yuji Muramoto, and Noriyuki Shimizu (Meijo Univ., Japan)

VA22 [035] Experimental Study of the Influence of BTA and Irgamet39 on the Mineral Insulation Oil under Thermal Aging
Shuangzan Ren¹, Lu Pu¹, Guoqiang Huang¹, Yang Liu¹, Lisheng Zhong², Qinxue Yu², and Xiaolong Cao² (¹Shaanxi Electric Power Res. Inst., China, ²Xi’an Jiaotong Univ., China)

VA23 [136] Effects of Motorette Structure and Vanish Treatment on Repetitive Partial Discharge Inception Voltage Measurement Test in Inverter Surge Insulation
Hirotaka Nakaya¹, Naoto Yanaze¹, Masahiro Kozako¹, Masayuki Hikita¹, Takahisa Ueno², Tetsuo Yoshimitsu³, Kazuhisa Nakayama¹, Takayuki Sakurai³, Tatsuya Hirose¹, and Satoshi Hiroshima⁴ (¹Kyushu Inst. Tech., Japan, ²Oita Nat. College Tech., Japan, ³Toshiba Mitsubishi Electric Industrial Systems, Japan, ⁴Toshiba Co., Japan)

VA24 [146] Influence of Prestressing on the Breakdown of Insulating Paper-Liquid Nitrogen Composite System
Tomohiro Kawashima¹, Yoshinobu Murakami¹, Masayuki Nagao¹, Yoshihiro Inagaki², Yuichi Ashibe³, and Takato Masuda² (¹Toyohashi Univ. Tech., Japan, ²Sumitomo Electric Industries, Japan)

VA25 [039] Dielectric Breakdown Characteristics of HTV Silicone Rubber under Multiple Stress Conditions
G. Haddad¹, K. L. Wong¹, and R. K. Gupta², (¹,²RMIT Univ., Australia)

G. Haddad¹, K. L. Wong¹, and P. Petersen² (¹,²RMIT Univ., Australia)

Poster Presentations

PA1 [044] Effect of Surface Fluorination on Space Charge Behavior in Multilayered Polyimide Films
Ang Li, B. X. Du, Heng Du, Yong Liu, Yu Gao, and Huanhuan Du (Tianjin Univ., China)

PA2 [046] Effects of Thermally Conducting Particles on Resistance to Tracking Failure of Polyimide/BN Composites
Meng Xiao, B. X. Du, Xiaolong Li, Yong Liu, Yu Gao, and Huanhuan Du (Tianjin Univ., China)

PA3 [063] Electrical Properties of Composite Material Containing Microvaristor and Semi-conductive Whisker
Hidehito Matsuzaki¹, Toshiyuki Nakano¹, Hideyasu Ando², and Masafumi Takei² (¹,²Toshiba Co., Japan)

PA4 [162] Effects of Nanosilica and Nanotitania on Partial Discharge Characteristics of Natural Rubber-LLDPE Blends as High Voltage Insulation Material
Yanuar Z. Arief¹, Wan Akmal Izzati¹, Aulia¹, Zuraimy Adzis¹, Nor Asiah Muhamad¹, Mohd Nazren Mohd Ghazali¹, Mohd Ridhan Mohd Sharip¹, and M. Z. H. Makmud² (Univ. Teknologi Malaysia, Malaysia, ²Univ. Malaysia, Malaysia)

PA5 [001] Evaluation of Insulation of H.V. Bushing - Online Monitoring tgδ of a 500 kV Bushing
Yi Li¹, Mingjun Cheng¹, Huaping Xu¹, Shengjie Huang², and Herschel J. West² (¹China Southern Power Grid Co., China, ²Wuhan Rigid Electronic Technology Co., China)

PA6 [142] Effect of Electrical Stress Produced by Repetitive Pulsed Power on Germination of Naked Barley Seed between Point-Plane Electrodes
Kazunori Kadowaki¹, Teruki Abe¹, Ryotaro Ozaki¹, Izumi Tsujita², and Nobuyuki Kurisaka² (¹Ehime Univ., Japan, ²Ehime Res. Inst. Agriculture Forestry and Fishes, Japan)

PA7 [075] OLED Ageing Signature Characterization under Combined Thermal and Electrical Stresses
Pascal Dupuis, Alaa Alchaddoud, Laurent Canale, and Georges Zissis (Univ. Toulouse, France)

PA8 [054] PD Test in Gas Insulated Substation Using UHF Method
Prabakaran T (Anna Univ., India)

PA9 [068] Partial Discharge Measurement for Medium Voltage Cables Using Different Voltage Wave Forms
PA10  [148] Ageing Characteristics of Polymeric Insulators under Salt Fog Condition and Outdoor Site Exposed in the Tropical Environment
SRIYONO, SATYAGRAHA A.K., SUHARTO, and ARRESTER C.S., (PT PLN RES. INST., Indonesia)

PA11  [141] Vibration and Development of Pearl-chain-type Tree in Silicone Gel under ac Voltage
Masaharu FUJII, Ryosuke UEDA, Hyeon-Gu Jeon, and Haruo IHORI (Ehime Univ., Japan)

PA12  [144] Orientation Effect of Nano-Alumina Coated Conductive Fillers on Dielectric Properties of Epoxy Composites
Kosuke Ushijima (Kyushu Inst. Tech., Japan)

PA13  [121] Molecular Dynamics Simulation for Epoxy-based Nanocomposites
Fumio Sawa and Takahiro Imaí (Toshiba Co., Japan)

PA14  [112] Partial Discharge Characteristics and Dissolved Gas Analysis of Vegetable Oil Influence of Cavities on the Dielectric Properties of Ethylene Propylene Rubber Insulation
Umar Khayam¹, Achmad Susilo², Joko Muslin², Yanuar Z Arief³, Suwarno¹, Motoo Tsuuchie⁴, Masayuki Hikita⁵, (¹Inst. Teknologi Bandung, Indonesia, ²PT PLN, Indonesia, ³Univ. Tek. Malaysia, ⁴Kyushu Inst. Tech., Japan)

Wed. Jun. 4
9:00 – 11:30  Session H: Several Properties of Dielectric Materials #1 (Main A Hall)  Chair: TBD, Co-chair: TBD

(10:20 - 10:30: short break)

H1  [126] Development of 250 kV HVDC XLPE Cable System in Korea
Soo-Bong Lee, Tae-Ho Lee, Eui-Hwan Jung, Yoon-Hyoung Kim, Hee-Chan Park, Sung-Yun Kim, Su-Kil Lee, Jin-Ho Nam, Seung-Ik Jeon, and Wan-Ki Park (LS Cable & System, Korea)

H2  [093] Terahertz Spectroscopic Analysis of Ethylene-Propylene-Diene Copolymer
Marina Komatsu¹, Tomoyuki Izutsu¹, Yoshimichi Ohki¹, Maya Mizuno², Kaori Fukunaga², Yoshiaki Nakamura³, Naofumi Chiwata³, (¹Waseda Univ., Japan, ²Nat. Inst. Information and Communications Tech., Japan, ³Hitachi Metals, Japan)

H3  [140] Evaluation of Space Charge in Liquid Dielectric Using Kerr Electrooptic Method
Haruo Ihori¹, Mitsuru Oka¹, Yuji Nagaoka¹, and Masaharu Fujii¹ (Ehime Univ., Japan)

H4  [154] The Influence of Thermal Aging on ac Dielectric Strength of Transparent Silicone Rubbers for HV Insulation
Chaiyaporn Lothongkam¹, Daniel Siebler¹, Gerd Heidmann², Ronald Plath³, and Ernst Gockenbach¹ (¹BAM Federal Inst. Materials Res. Testing, Germany, ²IPH GmbH, Italy, ³Tech. Univ. Berlin, Germany, ⁴Leibniz Univ. Hannover, Germany)

H5  [083] Total Dose Response of Al₂O₃-based MOS Structure under Gamma-ray Irradiation
Yonghong Cheng, Xin Liu, Man Ding, and Xiaolong Li (Xi’an Jiaotong Univ., China)

H. Misaka, N. Fuse, T. Kurihara, M. Kanegami, H. Homma, and T. Okamoto (Central Res. Inst. Electric Power Industry, Japan)

H7 [005] Reversed Sequential Test Conditions to Produce Damage Equivalent to the Simultaneous Exposure of Polymeric Materials to Heat and Radiation –Construction of a Computational Program and Numerical Approach–
Norikazu Fuse, Hiroya Homma, and Tatsuki Okamoto (Central Res. Inst. Electric Power Industry, Japan)

09:30 - 11:15 MVP and Poster Session #1  (Main B Hall)

MVP Group 2A  Coordinator: TBD

VB1 [027] Modelling the Effect of Amplifier Response in Pulsed Electroacoustic System

VB2 [057] Simulation Study on the Effect of Interface Charge between Oil and Paper
Kai Wu, Qingdong Zhu, Yang Tu, and Jie Dai (Xi’an Jiaotong Univ., China)

VB3 [065] Characteristics of Space Charge Behavior and Conduction Current in XLPE and Annealed Polyethylene under High DC Stress
Tsuyoshi Kato, Ryo Onozawa, Hiroaki Miyake, Yasuhiro Tanaka, and Tatsuo Takada (Tokyo City Univ., Japan)

VB4 [029] Comparison of Dielectric Properties among Polydicyclopentadiene Resin, Epoxy Resin and Their Composites with Microsized SiO2 Fillers
Yuki Masuzaki1, Yoshimichi Ohki1, and Masahiro Kozako2 (1Waseda Univ., Japan, 2Kyushu Inst. Tech., Japan)

VB5 [132] Dielectric Properties of Olefin-based Thermosetting Resin for Application to Electrical Insulating Material
Keisuke Yoshida1, Masahiro Kozako1, Shinji Ishibe1, Masayuki Hikita1, and Nobuhito Kamer2, (1Kyushu Inst. Tech., Japan, 2RIMTEC Co., Japan)

Kohei Horiguchi1, Yutaka Kikuchi1, Virginie Griseri2, Hiroaki Miyake1, Yasuhiro Tanaka1, Laurent Berquez2, and Christian Laurent2 (1Tokyo City Univ., Japan, 2Univ. Toulouse, France)

MVP Group 2B  Coordinator: TBD

VB7 [016] Influence of Paper Ageing on Space Charge Dynamics in Oil Impregnated Insulation Paper under dc Electric Field
Jin Fu1, Jian Hao1, Haibin Liu2, Ke Li1, Huailiang Cui1, Wei Zhang1 (1State Grid Chongqing Electric Power Co., China, 2Univ. Chongqing, China)

VB8 [066] Development of Space Charge Measurement System with High Positional Resolution Using Pulsed
Electro Acoustic Method
Kensuke Kumaoka¹, Tsuyoshi Kato¹, Hiroaki Miyake¹, and Yasuhiro Tanaka¹ (Tokyo City Univ., Japan)

VB9  [087] Excess Electron States and Mobility in Polyethylene
Yang Wang¹, Kai Wu¹, and David Cubero¹,² (¹Xi’an Jiaotong Univ., China, ²Univ. Sevilla, Spain)

VB10  [097] Development of a Space Charge Measurement Method without a Semiconducting Electrode
T. Sugiyama¹, M. UQBAH¹, A. Ishikawa¹, T. Kawashima¹, Y. Murakami¹, M. Fukuma², and M. Nagao¹ (¹Toyohashi Univ. Tech., Japan, ²Matsue Nat. College Tech., Japan)

VB11  [033] Analysis on Thermally Stimulated Currents in Polyethylene-terephthalate and Polyethylene-naphthalate
Peng Yang¹, Yoshimichi Ohki¹, and Fuqiang Tian², (¹Waseda Univ., Japan, ²Beijing Jiaotong Univ., China)

VB12  [102] The Influence of Degassing on Morphology and Properties of High Voltage Cross-Linked Polyethylene Cable Insulation
Huan Li, and Jianying Li (Xi’an Jiaotong Univ., China)

MVP Group 2C  Coordinator: TBD

VB13  [078] Space Charge Behavior in Covering Insulating Material for Motor Windings under Applied Voltage of Square Wave
Kaoru Takizawa, Tomoki Suetsugu, Hiroaki Miyake, and Yasuhiro Tanaka (Tokyo City Univ., Japan)

VB14  [111] Space Charge Distribution Measurement in Insulating Material of Enameled Wire
Kazuki Abe¹, Arata Naoumi¹, Hiroaki Miyake¹, Yasuhiro Tanaka¹, and Takashi Maeno² (¹Tokyo City Univ., Japan, ²Nat. Inst. Information and Communications Tech., Japan)

VB15  [149] Prebreakdown Investigations of Vacuum Discharge between Nano Gaps
Guodong Meng, Yonghong Cheng, Chengye Dong, and Kai Wu (Xi’an Jiaotong Univ., China)

VB16  [074] LDPE Composite Materials Obtained from Building Blocks Containing Standardized Graphene Interfaces
P. Mancinelli¹, V. Santangelo¹, D. Fabiani¹, A. Saccani², M. Toselli², and M. F. Fréchette³ (¹Univ. Bologna, Italy, ²Inst. Rec. d’Hydro Québec, Canada)

VB17  [134] Evaluation of Partial Discharge Inception Voltage of Bonding-less Gas Insulation Packaging for High Temperature and High Voltage Power Module
Keisuke Koyanagi¹, Akinari Yamane¹, Akihiro Imakiire¹, Masahiro Kozako¹, Masayuki Hiikita¹, Sorin Dinculescu², Zarel Valdez-Nava², and Thierry Lebey² (¹Kyushu Inst. Tech., Japan, ²Univ. Paul Sabatier, France)

MVP Group 2D  Coordinator: TBD

VB18  [070] Effect of Nano-filler Grain Size on Space Charge Behavior in LDPE/MgO Nanocomposite
Qiongxia Zhong, Li Lan, Jiandong Wu, Qiaohua Wang, and Yi Yin (Shanghai Jiaotong Univ., China)

VB19  [080] Space Charge Behavior in Multilayered Polyimide Films under dc High Stress near Breakdown Strength
Keigo Matsubara, Shohei Kawano, Hiroaki Miyake, and Yasuhiro Tanaka (Tokyo City Univ., Japan)

VB20  [025] Influence of Cavities on the Dielectric Properties of Ethylene Propylene Rubber Insulation
Zhipeng Lei, Jiancheng Song, Muqin Tian, Pulong Geng, Chuanyang Li, Xiaohui Cui, and Chunyu Xu (Taiyuan Univ. Tech., China)

VB21  [105] Study on Electrical Properties of Micro-nano Structured Epoxy Composites
Jielin Guo¹, Yu Chen¹, Zirui Jia¹, Toshikatsu Tanaka², Jielong Wu³, and Yonghong Cheng¹
(¹Xi’an Jiaotong Univ., China, ²Waseda Univ., Japan, ³Shanxi Electric Power Co., China)

VB22  [107] Space Charge Formations and Electrical Conductivities Characteristics of Nano Composite XLPE
J. H. Nam¹, H. J. Jung¹, Y. S Yang¹, T. H. Lee¹, W. K. Park¹, J. T. Kim², and J. H. Lee³ (LS Cable & System, Korea, ²Daegu Univ., Korea, ³Hoseo Univ., Korea)

VB23  [143] Toluene Decomposition in Humid Gas by Using Surface Discharges on Dielectric Subjected to Repetitive Voltage Pulses with Polarity Reversal
Kazunori Kadowaki, Yuji Morii, and Ryotaro Ozaki (Ehime Univ., Japan)

Poster Presentations

PB1  [091] Diagnosis of Degradation Condition of Materials Using Hydrophobic and Dielectric Analysis
Tetsuro Tokoro¹, Hiroyuki Iwase¹, and Masayuki Nagao² (¹Gifu Nat. College of Tech., Japan, ²Toyohashi Univ. Tech., Japan)

PB2  [014] Molecular Dynamics Simulation on the Impact of Electric Field on the Yield Behavior of Insulation Paper
Peng Fan, Youyuan Wang, Miao Tian, and Junfeng Wu (Chongqing Univ., China)

PB3  [138] Polarity-Reversed Voltage Pulse Propagation Analysis for Power Cable Insulation Diagnosis
Ryotaro Ozaki, Shohei Masaki, Yuma Saiki, Fumiya Nakato, and Kazunori Kadowaki (Ehime Univ., Japan)

PB4  [052] Doping Effect of SiO₂/CeO₂ on the Dielectric, Ferroelectric and Piezoelectric Properties of (Ba₀.₇Ca₀.₃)(Zr₀.₂Ti₀.₈)O₃ Ceramics
Wenfeng Liu, Daqi Zhao, and Shengtao Li (Xi’an Jiaotong Univ., China)

PB5  [045] Electrical Performance of Silicone Rubber/SiO₂ Nanocomposites under Low Temperature
Jiangang Su, B. X. Du, Tao Han, and Huanhuan Du (Tianjin Univ., China)

PB6  [047] Effects of Adding Rate on dc Tracking Failure of Epoxy/MgO Nano-composites under Contaminated Conditions
Yaguang Guo, Boxue Du*, Meng Xiao, Yong Liu, Gao Yu, and Huanhuan Du (Tianjin Univ., China)

PB7  [048] Surface Charge Decay of Direct-fluorinated RTV Silicone Rubber/SiO₂ Nanocomposites
Zhonglei Li, B. X. Du, Hang Xu, Huan Huan Du, and Yu Gao (Tianjin University, China)

PB8 [103] Effect of Preparation Technologies on Space Charge Characteristics of LDPE/LDPE Interface
Yongjie Nie and Shengtao Li (Xi'an Jiaotong Univ., China)

PB9 [64] Investigations of Particle Behavior in a Coaxial Electrode Configuration under dc-Condition
Thomas Malcher¹, Mohammad Zamani¹, Michael Muhr¹, Uwe Schichler¹, and Denis Imamovic²,
(Graz Univ. Tech., Austria, ²Siemens AG, Germany)

PB10 [109] Colossal Dielectric Permittivity Materials: Myths and Reality
Chaf CHEBALLAH¹, Lionel LAUDEBAT¹, Thierry LEBEY¹, (¹LAPLACE, France,
²CNRS-UPS-INP, France)

PB11 [118] Influence of Nano-doping on Surface Flashover Performance in Vacuum of Epoxy Resin
Ze Lian, Shengtao Li, and Peilin Du (Xi’an Jiaotong Univ., China)

PB12 [150] Enhanced Ferromagnetic Interactions in Chromium (III) Doped YMnO₃
Rajesh K. Thakur¹, Rasna Thakur¹, N. Kaurav², G. S. Okram³, and N. K. Gaur¹ (¹Barkatullah
Univ., India, ²,³Government Holkar Science College, India)

PB13 [151] Elastic and Thermal Properties of Sr1-xCaxCoO 3 Cobaltates
Rasna Thakur, Rajesh K. Thakur, and N.K. Gaur (Barkatullah Univ., India)

11:45 - 17:00 Technical Tour (Lunch included) Application is required.
Guide: K. Kato, K. Shinbo, A. Baba (Niigata University)

Note: Meeting place will be announced during the symposium. Japanese style lunchbox is included.

18:00 - 20:00 Symposium Banquet (at Toki Ball Room, 4th Floor of Hotel Nikko Niigata)

Thu. Jun. 5

09:00 - 11:30 Session I: Several Properties of Dielectric Materials #2 (Main A Hall)
Chair: TBD, Co-chair: TBD

(10:00 - 10:10: short break)

Dynamics Simulation Study
Miao Tian, Youyuan Wang, and Peng Fan (Chongqing Univ., China)

12 [053] Residual Voltage Endurance of Generator Insulation Systems
Christof Sumereder and Mario Dolcic (Graz Univ. Tech., Austria)

13 [096] Influence of Electron Beam Irradiation on Electrical Insulating Properties of Polylactic Acid Added
with Soft Resin
Katsuyoshi Shinyama and Shigetaka Fujita (Hachinohe Inst. Tech., Japan)

14 [022] A Comparative Study on the Effect of Acids on the Hydrophobicity of HTV and LSR Polymeric
Insulators
M. R. Abdelmohaymen1, Bahaa A. Arafa1, El-Sayed M. El-Refaie2, and S. E. Kamal3 (1Extra High Voltage Res. Center, Egypt, 2Helwan Univ., Egypt, 3Al-Azhar Univ., Egypt)

I5 [018] Assessment of 300 MW Turbine Generator Stator insulation
Lijun Wang, Yizhong Zhang, Wenjing Jin, Jingzhe Shi, Song Zhou, Qiang Li, and Song Liu (Shanghai Electric Power Equipment, China)

I6 [153] Dielectric Strength Behavior and Mechanical Properties of Transparent Silicone Rubbers for HV Cable Accessories
Chaiyaporn Lothongkam1, Philipp Rohwetter1, Wolfgang Habel1, and Ernst Gockenbach2
(1BAM Federal Inst. Materials Res. Testing, Germany, 2Leibniz Univ. Hanover, Germany)

I7 [***] A Study on the Measurement of Electrical Conductivity of PPLP in LN2 for a Stop Joint Box of dc HTS Power Cable [Japan-Korea Young Researcher Exchange Program]
Jae-Sang Hwang and B.W. Lee (Hanyang University, Korea)

9:00 - 11:00 Session J: Organic Materials (201A Hall)
Chair: TBD, Co-chair: TBD

(10:00 - 10:10: short break)
J1 [094] Roles of Pore Structure and Type of Electrolyte on the Capacitive Performance of Activated Carbons Used in Electrical Double-layer Capacitors
Seiji Kumagai1, Koji Mukaiyachi1, Masashi Sato1, Nobuhito Kamikuri2, and Daisuke Tashima2
(1Akita Univ., Japan, 2Univ. Miyazaki, Japan)

J2 [006] Ionic Carriers in Organic Electronics –Lean of the Ion–
Mitsuyoshi Onoda (Univ. Hyogo, Japan)

J3 [089] Electrical Conduction of Parylene Composite Thin Films
Tatsuo Mori (Aichi Inst. Tech., Japan)

J4 [060] Simultaneous Detection of Ammonia and Water Vapors Using Surface Plasmon Resonance Waveguide Sensor
Kazunari Shinbo (Niigata Univ., Japan)

J5 [131] Visualization of Spatially Distributed Bioactive Molecules Using Enzyme-Linked Photo Assay
Naohiro Hozumi (Toyohashi Univ. Tech., Japan)

Kazuma Hara, Ninsonti Hathaithip, Akira Baba, Kazunari Shinbo, Keizo Kato, and Futao Kaneko (Niigata Univ., Japan)

11:10 - 11:20 Closing Remarks
SS (Sun Shine) Session
Coordinator: T. Imai (Toshiba Co.)

S1 [030] Introduction of Characteristics of Olefin-based Thermosetting Resin for Application to Electrical Insulating Material
Nobuhito Kamei and Naoki Nishioka (Rimtec Co., Japan)

S2 [158] Advanced Nano-silica Dispersion for Epoxy Insulation
Masashi Abe, Takashi Sonoda, Naohiko Suemura, Yoshinari Koyama, and Kenji Tanimoto (Nissan Chemical Industries, Japan)

S3 [038] Study on Improvement of Reliability of Transformer Using Nanocomposite Insulation Materials
Yusuke Nakamura¹, Ken-ichi Yamazaki¹, Takahiro Imai¹, Tamon Ozaki¹, Miwa Takeuchi¹, and Teruhiko Maeda² (¹Toshiba Co., Japan, ²Toshiba Industrial Products And Systems Co., Japan)

S4 [175] Partial Discharge Mechanism under Impulse Voltage Application in Oil-Immersed Power Transformer
Takahiro Umemoto (Mitsubishi Electric Co., Japan)

S5 [168] Research on Diagnosis of Abnormality of Power-Transformer Winding by Frequency Response Analysis in CRIEPI
Satoru Miyazaki (Central Res. Inst. Electric Power Industry, Japan)

S6 [165] Failure Analysis and Maintenance for Stator Winding of Rotating Machine
Hideharu Noda (Kuwahara Electric Co., Japan)

S7 [113] Consideration of Apparatus for New IEC Technical Specifications of Inverter-fed Motor Insulation
Satoshi Hiroshima¹, Tatsuya Hirose¹, Tetsushi Okamoto¹, Tetsuo Yoshimitsu², Sho Fukumoto², Takayuki Sakurai², and Tomomi Ikegami² (¹Toshiba Co., Japan, ²Toshiba Mitsubishi-Electric Industrial Systems Co., Japan)

S8 [101] Development of Thermal Conductivity Enamel Wire
Katsuhiko Fukuda, Toshimi Koga, and Takatoshi Watanabe (Totoku Toryo Co. Ltd., Japan)

S9 [127] Development of Partial-discharge Detection Method for Switchgear
Hitoshi Shibano (Nissin Electric, Japan)

S10 [152] Evaluating Strength of Adhesive Interfaces between Ceramics and Resin in Resin-Molded Structures
Miki Yamazaki and Tomio Iwasaki (Hitachi Ltd., Japan)

S11 [161] Development of IPM for Inverter Air Conditioning Using AL Insulation Board
Tatsuya Ganbe, Kenji Okamoto, Tadanori Yamada, and Hiroyuki Oota (Fuji Electric Co., Japan)

S12 [036] Space Charge Measurements of Full Size HVDC XLPE Cable
Hiroki Mori and Yukihiro Yagi (Viscas Co., Japan)

S13 [092] Introduction of Insulators, Hollow Insulators and External Gapped Line Arresters
Takanori Kondo and Ryo Inoue (NGK Insulators Ltd., Japan)
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<th>Digest Reports from Investing R&amp;D Committees  (No Presentations)</th>
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| **DR1** Digest Report of Investigating R&D Committee on Current State and Future View of Innovative Diagnostic Techniques of Power Apparatus  
  Chair: M. Ikeda (Japan Nuclear Energy Safety Organization, Japan) |
| **DR2** Digest Report of the Investigation Committee on Degradation Diagnosis Technology of Electric Power Apparatus for Its Transfer  
  Chair: Y. Ehara (Tokyo City Univ., Japan) |
| **DR3** Digest Report of Investigating R&D Committee on Testing Methods of Winding Insulation Systems for Inverter-fed Motors  
  Chair: M. Nagata (Univ. Hyogo, Japan) |
| **DR4** Digest Report of Investigating R&D Committee on Nanomaterials and Structure Control for Organic Devices with New Function and High Performance  
  Chair: K. Kato (Niigata Univ., Japan) |
| **DR5** Digest Report of Investigating Committee on Application to the Next-Generation Electronics of Organic Dielectrics, Conductive Electrical and Electronic Materials in Asian Countries  
  Chair: M. Iwamoto (Tokyo Inst. Tech., Japan) |