



NE-IECCE 2026 Special Session (SS-04)

Title of Proposed Session:

Innovative Techniques and Challenges for Condition Monitoring of Power Equipment's

Technical Outline of the Session

The increasing demand for reliable and uninterrupted electrical power across various sectors, including industry, transportation, healthcare, and residential applications, has placed high-voltage equipment at the heart of critical infrastructure. Ensuring the continuous and optimal operation of power equipment, such as transformers, cables, reactors, converters, generators, and circuit breakers, is essential to prevent unplanned outages, reduce maintenance costs, and improve the overall reliability of the grid. Condition monitoring plays a pivotal role in predicting the health of these systems and facilitating preventive or corrective actions before failures occur. This special session will focus on emerging and advanced techniques for condition monitoring of power equipment, with a particular emphasis on technologies like sensors, data analytics, predictive maintenance, and remote monitoring. The session aims to foster a comprehensive understanding of the current trends, challenges, and innovations in the field and will provide a platform for industry professionals, researchers, and engineers to share knowledge and discuss solutions.

Topics of Session

The scope of this Special Session includes, the following topics:

1. Advanced sensor technologies for power equipment Monitoring.
2. Artificial intelligence and machine learning in predictive fault location in power equipment.
3. Partial discharge monitoring and diagnosis in power equipment.
4. Condition monitoring in smart grid systems.
5. Integration of IoT technologies with power equipment for continuous monitoring.

Special Session Organizers

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Sorokhaibam Nilakanta Meitei (Senior Member, IEEE) was born in Manipur, India, in 1992. He received the B.Tech. degree in electrical and electronics engineering from Assam Don Bosco University, Guwahati, India, in 2014, the M.Tech. degree in power systems from NIT Nagaland, Dimapur, India, in 2016, and the Ph.D. degree in electrical engineering from NERIST, Arunachal Pradesh, India, in 2021. He is now working as Assistant Professor with the Department of Electrical Engineering, NIT Manipur, Imphal, India. He is also a member of various professional organization such as IEEE, IEI, ISTE and CMSI. His research interests include power systems, finite element method (FEM) analysis, condition monitoring in high-voltage transformers, power cables, and renewable energy.





2. Dr. Benjamin A Shimray
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Dr. Benjamin A Shimray (IEEE Member) received his Ph.D. and M. Tech from the National Institute of Technology Manipur (2018), Imphal and The National Institute of Engineering, Mysore (2010) respectively. He is now working as Associate Professor with the Department of Electrical Engineering, NIT Manipur, Imphal, India. He is also a member of various professional organization such as IEEE, IEI and IAENG. His area of interest is application of Soft Computing techniques to renewable energy planning and management, control system applications, and cyber vulnerabilities and system resilience.



3. Dr. Prof. Saibal Chatterjee
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Saibal Chatterjee (Senior Member, IEEE) was born in West Bengal, India, in January 1969. He received the B.E. degree in electrical engineering from NIT Durgapur, Kolkata, India, in 1990, and the M.E. and Ph.D. degrees in electrical engineering from Jadavpur University, Kolkata, in 1994 and 2007, respectively. He did his PGDIM from IGNOU. His employment experience includes as sales Engineer in ORGLimited, Howrah, and worked as a Shop Floor Engineer and Design Engineer in Marson's Limited, Kolkata, for three years. He is currently working as a Professor with the Department of Electrical and Electronics Engineering, NIT Mizoram, Aizawl, India. His research interests include power systems, application of soft computing techniques in power systems, and high voltage.

