2019 International Conference on High Voltage Engineering and Technology (ICHVET 2019)

Hyderabad, India 7-8 February 2019



IEEE Catalog Number: ISBN: CFP19R66-POD 978-1-5386-7577-9

Copyright © 2019 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

IEEE Catalog Number:	CFP19R66-POD
ISBN (Print-On-Demand):	978-1-5386-7577-9
ISBN (Online):	978-1-5386-7576-2

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400 Fax: (845) 758-2633 E-mail: curran@proceedings.com Web: www.proceedings.com



Table of Contents

SI. No.	Paper ID	D Authors Name	Paper Title	Pg. No.
01	201902002	Himadri Lala and Subrata Karmakar	Classification of Arc Fault in Sphere-Gap and Rod-Gap Using Stockwell Transform and Machine Learning Based Approach	1
02	201902003	Pradeep Adusumilli and M M Bhaway 03	Optimization of LV winding lead routing in three phase power transformers to minimize induced losses in tank	6
03	201902004	P. Kasi Viswanathan and 04 S. Chandrasekar	Influence of Carbon Quantum Dots Modified Silica Nanoparticles on Insulation Properties of Mineral oil	10
04	201902005	M. Mohana Rao and Mritunjay Kumar 05	Ultra-High Frequency (UHF) based Partial Discharge Measurement in Gas Insulated Switchgear (GIS)	15
05	201902006	P Rajamani, K A Aravind, K Urukundu, 06 B Krishna, Pradeep Nirgude and P Sivaprasad,	Commissioning of UHV Indoor Double Shielded Laboratory for Radio Interference Voltage and Partial Discharge Measurement	20
06	201902007	Pradeep Adusumilli and 07 S V N Jithin Sundar	A new criterion for optimal dielectric design of high voltage bushing internal shields in large power transformer	26
07	201902008	S. Priya and V.Gowri Sree	A Study on Effect of Protrusion Geometry on the 400kV XLPE Cable Degradation	30
08	201902009	V.Mohan , S. Poornima and 09 C. Pugazhendhi Sugumaran	Mitigation of ferro-resonance in Capacitive Voltage Transformer using Memelements	36
09	201902010	S. Poornima, L. Sathyanandhan and C. Pugazhendhi Sugumaran	Ferro-resonance Mitigation in an Inductive Voltage Transformer using Memristor Emulator	41

i

SI. No.	Paper ID	Authors Name	Paper Title	Pg. No.
10	201902012	Chirag.K.Vibhakar, Binita Dutta, Mihir Vasavada, Rafiq Mathersa and N Vasudev	Investigation on Room Temperature Vulcanized Silicon Insulation With and Without ATH Filler Loading by Incline Plane Tracking & Erosion Test Method	47
11	201902013	Mohan P. Thakre, M.F. A. R. Satarkar and K. Vadirajacharya	Experimental Non Resonant Piezoelectric Transformer for High Voltage Measurement	52
12	201902014	S. Venkataraman and B. Gunasekaran	Case Study on using different insulating materials for Indian Railways network, performance analysis of in-service composite insulators and Recommendations for the future	58
13	201902016	Bhavin Raval, Vikrant Gupta, Dishang Upadhya, Niranjan Goswami, Kush Mehta, ,N.P.Singh, Rasesh Dave, Sandip Gajjar, Amit Patel, Hitesh Dhola, Aruna Thakar and Ujjwal Baruah	High voltage behaviour of large size air insulated Coaxial Transmission Line	63
14	201902017	M.Kalyan Chakravarthi, A.V.Giridhar, and D.V.S.S.Siva Sarma	Localization of Incipient Discharge in Power Transformer using UHF Sensors	66
15	201902018	Umashankar M, N. M. Renukappa, J. Sundara Rajan and Kunigal Shivakumar	Nylon-66 nanofiber interleaved Carbon Epoxy composites for EMI shielding applications	69
16	201902019	Hadimani Shivakumar, N. M. Renukappa, Kunigal Shivakumar and J. Sundara Rajan	Development of high dielectric constant epoxy composite with nano graphene platelets	74
17	201902020	Santhy P. Kuruvilla , N. M. Renukappa and J. Sundara Rajan	Development of Epoxy with Nano and Micro Fillers for Core Insulation of Composite Insulators	80

ii

SI. No.	Paper ID	Authors Name	Paper Title	Pg. No.
18	201902024	Mihir N. Velani and Santhosh C. Vora	Stability Predictions of Zinc Oxide Surge Arrester by Employing Finite Element Solutions	85
19	201902026	P Rajamani, K A Aravind, K Rajeshwara Rao, Sandhya K and Pradeep Nirgude	Experimental studies on Radio Interference of 1200 kV Unipolar UHV DC Transmission line	91
20	201902027	Neelesh Arora	Performance of RTV Insulator Coatings based on Filler Type	95
21	201902028	Darshan Prakash Borthakur and Supriyo Das	Life Estimation of XLPE Cable under Electrical and Thermal Stress	98
22	201902029	Subrata Karmakar, Anurag Dutta and Hussain Kalathiripi	Investigation of the Effect of High Voltage Impulse Stress on Transformer Oil by Infrared Spectroscopy	104
23	201902030	Subrata Karmakar, Shivani Meshram and Hussain Kalathiripi	Evaluation of Partial Discharge Aged Transformer Oil using Optical Spectroscopy Techniques	109
24	201902031	Soumya Ranjan Nayak and Subrata Karmakar	Assessment of Thermally Aged Cross Linked Polyethylene Insulation Under High Impulse Voltage Stress	114
25	201902032	K. Kalyan Kumar, K.M. Reddy and P.G.S. Kumar	Comparative Analysis of Dielectric Characteristrics of Differently Manufactured High Voltage Insulation System for generator Stator Winding	118
26	201902034	Prabhat K Sonu and Gururaj S Punekar	Configuring Voltage Impulse Generator using Simplex Search Algorithm	124
27	201902035	Rajini.H, K.N.Ravi and Vasudev.N	A Study on RTV coating: Ageing and Reduction of Coating length on insulator	128

iii

SI. No.	Paper ID	Authors Name	Paper Title	Pg. No.
28	201902036	Dharababu Thummapal, Suyog Kothari and Madakumar Thirumalai	Emerging Technologies in High voltage Gas insulated Switchgear- Clean Air GIS and NCIT	133
29	201902037	Mariusz Rohmann, Subba Challa, Gurumoorthy Kurra, Sateeswara Mogatala and Dirk Schraeder	Switching Capability of Air Insulated High Voltage Disconnectors	136
30	201902040	Andreas Voß	Superimposed Impulse Voltage Test for DC-Cables	140
31	201902041	Ndirangu Julius, Nderu John, Irungu George, Peter Kimemia and Raphael Ndolo	Analytical Calculation of Electric and Magnetic Fields Near a Proposed 132kV Line with Constrained Right of Way – Kenyan Case Study	145
32	201902042	Florent Giraudet	Various Benefits for Line Surge Arrester Application and Advantages of Externally Gapped Line Arresters	151
33	201902043	T. Bhavani Shanker, V. Vaidhyanathan, and A. Sheik Mohamed	Comparison of partial discharge performance of identical generator transformers in a thermal power station by acoustic emission technique - case studies	157
34	201902044	A. Ashokbabu and P. Thomas	Dielectric and Thermal Properties of PTFE/CaCu3Ti4O12 (CCTO) Nanocomposites	162
35	201902045	P.Thomas and Nandini E Hudedmani	The effect of nanoparticles on the insulating characteristics of synthetic esters	166

iv

SI. No.	Paper ID	Authors Name	Paper Title	Pg. No.
36	201902046	Ann Pamla Cruze and K.S.Lokesh	Ageing characteristics of Alkali Neutralized on Neem oil for liquid insulation	169
37	201902047	R Panneer Selvam and Yamini Gupta	Seismic Qualification of High Voltage Substation Equipment	174
38	201902048	Rajaramamohanarao Chennu, Sudhakara Reddy S, Anupam Awasthi and Rajkumar Maroti	Design and simulation of re-ignition circuit for synthetic testing of HV/EHV circuit breakers	180
39	201902050	Dharmesh Yelamanchi, U R Sheshagiri Rao, N.Vasudev and A.V.Giridhar	Parametric Analysis of Surge Test Circuit for Auto Recloser to Resolve Experimental Difficulties	185
40	201902051	Ashitha P N, Karunakara K and Moumita Naskar	A study on AC/DC tracking and erosion resistance of Liquid Silicone Rubber	190
41	201902052	G. Kishore Kumar, Nithin Kalyan Kumar and R.K.Kumar	Study of Reactive Power consumption for Different Core material of Distribution Transformers	195
42	201902053	N Maheswara Rao, B R Vasudevamurthy, G Girija, S Arjuna Rao, Swaraj Kumar Das and R A Deshpande	Understanding of HV current transformer failures during short- time current tests - An insight of current density calculations beyond IEC standards	198
43	201902056	G. Venkateswarlu, Yugal Agarwal, M S Takkher, Wadhwani M K and Santhosh J	Significance of Tank Current Measurement during Short Circuit Testing of Power Transformer	204
44	201902057	K. A. Aravind, P. Rajamani, B. Krishna, K. Sandhya and Pradeep Nirgude	Flashover performance of composite insulators and porcelain insulators	209

v

SI. No.	Paper ID	Authors Name	Paper Title	Pg. No.
45	201902058	K. Marimuthu, S.Vynatheya, Vasudev N and P Raja	Quality Analysis of Ceramic Insulators Under Electro Thermal Stresses	212
46	201902059	Bhurat Puneet, K S Meera and Vasudev N	Failure of Distribution-Class Surge Arresters and Preventive Measures	218
47	201902060	Muhammed Faisal Rahman and Pradeep Nirgude	A New Approach to Study Partial Discharge Inception due to Particles in Transformer Oil using Electric Field Analysis	222
48	201902061	N.V. Ramkumar, A.S. Chandramouleeswaran and S.V. Phaneesha	Influence of shed profile on the pollution performance of porcelain insulators	228
49	201902062	Muhammed Faisal Rahman and Pradeep Nirgude	Investigation of Particle Initiated Partial Discharges in Transformer Oil with Pressboard Barrier under Divergent Fields	232
50	201902063	Manohar Singh, Anand Prakasha and K S Meera	Impact of online testing of distribution transformers - A case study	237
51	201902066	Vinit Srivastava, Bharat Singh Rajpurohit and Manbir Kaur	Numerical Investigation of Particle Effect on Water Drop under High Voltage Silicone Rubber Insulator	243
52	201902067	Ramya M and Dinesh M N	Experimental Study of Source Charactristics for Pollution Tests	249
53	201902068	Sonali Abhinav Roy, Ravi Kiran and M Mohana Rao	Estimation of Gas discharge rates in EHV Gas Circuit Breakers	252

SI. No.	Paper ID	Authors Name	Paper Title	Pg. No.
54	201902069	Ashwini A V, K N Ravi and Vasudev N	Experimental study on aging of polymeric insulators by dip method	257
55	201902070	Jithin Pauly P, Prabhakar C , Kanyakumari.M, and Vasudev N	Determination of Non-inductive Residual Voltage for steep(0.5 µs front time) impulse currents on Station Class Surge Arrester Blocks	260
56	201902071	Nagaraja H P, K N Ravi and Vasudev N	Analysis of Brittle Fracture of Composite Insulators by using Finite Element Technique	266
57	201902073	Suhaib Ahmad Khan, Asfar Ali Khan, Mohd Tariq	Experimental Analysis for the Effect of Fe/Ti Nanoparticles on the Dielectric Strength of Transformer Oil	271

vii