# **2015 International Conference** on Condition Assessment **Techniques in Electrical Systems** (CATCON 2015)

**Bangalore**, India 10-12 December 2015



IEEE Catalog Number: CFP1520V-POD **ISBN:** 

978-1-4673-7749-2

## Copyright © 2015 by the Institute of Electrical and Electronic 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 publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.

IEEE Catalog Number:	CFP1520V-POD
ISBN (Print-On-Demand):	978-1-4673-7749-2
ISBN (Online):	978-1-4673-7748-5

#### 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



### **Contents**

SI. No.	Paper Title	Author	Page No.
1.	Review on Ester based Dielectric liquids for Transformer Insulation Technology	U.Mohan Rao, Y. R. Sood, and R. K. Jarial	01
2.	Field Experiences with Ageing Electrical Assets in Power Plants	Nagarjun.Y and Ganesh.K.L	07
3.	Cancer Classification from Gene Expression Based Microarray Data Using SVM Ensemble	Shemim Begum, Debasis Chakraborty and Ram Sarkar	13
4.	Automatic Detection of Powerlines in UAV Remote Sensed Images	Ramesh KN, A Sreenivasa murthy, Senthilnath J and SN Omkar	17
5.	A Trigonometric Functional Link Single Layer Neural Network approach for Non linear dynamic plant identification using Second Order Levenberg-Marquardt Algorithm	S.K.Padhi, S.Behera, B.N.Sahu and M.N.Mohanty	22
6.	DCT Combined With Fractal Quadtree Decomposition and Huffman Coding for Image Compression	Padmavati.S and Vaibhar Mesharam	28
7.	Simulation of Lightning Impulse Voltage Stresses in Underground Cables	Kaveri Bhuyan, Mudang Taro and Saibal Chatterjee	34
8.	Mathematical-Detection-Algorithms for Cable Diagnostics and investigations with Line-Resonance-Analysis	Tobias Maier, Thomas Leibfried and Eric Elcheroth	40
9.	Artificial Neural Network (ANN) Based Implementation of Duval Pentagon Performance Evaluation of Modified	Md Umar Farooque, Shufali A Wani and Shakeb A Khan T.G. Maniumath and Ashak	46
10.	Genetic Algorithm over Genetic Algorithm Implementation on Fault Diagnosis of Cascaded Multilevel Inverter	T.G. Manjunath and Ashok Kusagur	51
11.	PD test in Gas Insulated Substation using UHF method	Prabakaran T, John Powl.S and Uppili. B	57
12.	Influence of Corona Intensity on the Hydropobhicity Recovery of Polymeric Insulating Samples	Shakthi Prasad D, Subba Reddy B, Alok R Verma, Desik Rengarajan and Veeresh N Patil	61
13.	Improvements in AEPD location identification by removing outliers and post processing	Deepthi Antony and Gururaj S Punekar	66
14.	Design of a Novel Fuzzy Logic Based Controller for Maximum Power Point Tracking of a Grid Connected Solar PV System		70
15.	Optimum Threshold Estimator For De- Noising Partial Discharge Signal Using Wavelet Transform Technique	Jayakrishnan .M , B. Nageshwar Rao, K.P. Meena and R. Arunjothi	76
16.	Performance Analysis of Transformer Liquid Insulation system under various Environmental Conditions	Madavan.R and Sujatha Balaraman	83
17.	Application of Numerical Techniques to FRA Data for Diagnosing Integrity of Transformer Windings	M. Prameela and Pradeep M. Nirgude	87

Sl. No.	Paper Title	Author	Page No.
18.	A Novel Radial Flux Sensing Technique for Stator Turn Fault Detection in Induction Motors in Online Mode Using Observer Coil	G. N. Surya, Z. J. Khan and M. S. Ballal	93
19.	A Comparative Study of Conductivity and Moisture for Condition Assessment of Oil- Paper Insulation of a Transformer	S.K. Ojha, P.Purkait and S. Chakravorti	99
20.	Condition Assessment of Induction Motor Under Different Power Quality Events	Supriya Jaiswal and Makarand S.Ballal	105
21.	Modeling and Implementation of Impedance based Fault Locator for Medium Transmission Line	Adil Abdul Hameed, Ankush Gupta, AS Kiranraj Ashwini Devendran G and P. Raja	111
22.	DGA diagnostics save transformers – Case Studies	Dhruvesh M. Mehta, P. Kundu, A. Chowdhury and V.K. Lakhiani	116
23.	Self-adaptive differential relaying for power transformers using FPGA	S. Dhinesh kumar, P. Raja and S. Moorthi	121
24.	Symmetrical Components based Advanced Scheme for Detection of Incipient Inter-turn Fault in Transformer	P. A. Venikar, Makarand S. Ballal, B.S Umre and H. M. Suryawanshi	127
25.	Detection and Discrimination of Simultaneous Stator Inter-Turn and Broken Rotor Bar Faults in Induction Motor	Deepak M. Sonje, P.Kundu , A. Chowdhury	133
26.	Applications of Underground Transmission Lines for High Power AC Transmission	Hermann Koch and Denis Imamovic	139
27.	3d Vibration Analysis of Flux Reversal Generator	B. Vidhya and K. N. Srinivas	145
28.	Modelling and simulation of the impact of SVC on existing distance relay for transmission line protection	Sabyasachi Behera, P.Raja and S.Moorthi	151
29.	Characteristic Signature Identification of Air-Gap Eccentricity Faults using Extended <i>d-q</i> Model for Three Phase Induction Motor	Bindu S. and Vinod V. Thomas	157
30.	Effect of Cold Fog on Leakage Current Characteristics of Polluted Insulators	M Majid Hussain, S Farokhi, S G McMeekin and M Farzaneh	163
31.	Pulse Electric Field Analysis on Breast Cancer Model	S.Poompavai, V.Gowri Sree and T.M.Sridhar	168
32.	Application of Double Park's Vector Approach for Detection of Inter-turn Fault in Induction Motor	Tushar G. Vilhekar, Makarand S. Ballal and H. M. Suryawanshi	173
33.	Study of Lightning Phenomena on UG C on Soil Resistivity	Palla Sathish Kumar and Supriyo Das	179
34.	Use of Particle Swarm Optimization in the Computation of an optimal permittivity distribution in Functionally Graded Material insulators	Syed Abdullah Qasim and Nandini Gupta	184
35.	Analysis of Age Groups and Motion Speed using Smart Phone Accelerometers	Sarah Christina Shekeran and J Sangeetha	189
36.	An Effective Implementation of Phasor Measurement Unit (PMU) by using Non- Recursive DFT Algorithm	S. Venkata Hareesh, P.Raja and M.P. Selvan	195
37.	Mathematical Morphology aided Shape, Texture and Colour Feature Extraction from Skin Lesion for Identification of Malignant Melanoma	S. Chatterjee , D.Dey and S.Munshi	200

Sl. No.	Paper Title	Author	Page No.
38.	Detection of Partial Discharges and its Effect on Solid Insulation used in High	Subrata Karmakar and Soumya Mishra	204
39.	Voltage Cable Space Charge Dynamics in LDPE	JS Chahal and C C Reddy	209
40.	On the Resolution of Raw Charge Signal and De-convolved Signal of a PEA System	Ashish Gupta and C C Reddy	213
41.	Recurrence Plot Analysis for Assessing the Quality of Polymeric Insulators	Subba Reddy B and Rajalingam M	217
42.	Condition Assessment of Oil-paper Insulation used in Power Transformer based on Polarization Energy	M.Mukherjee , A.K. Pradhan , A. Baral and S. Chakravorti	222
43.	Space Charge Measurement in Dielectrics using Pressure Wave Propagation Method	N.Haque, S. Dalai, S. Chakravorti and B. Chatterjee	226
44.	Estimation of Severity of Simulated Mechanical Damages in a Single Isolated Transformer Winding	Pritam Mukherjee and L. Satish	231
45.	Extra High Voltage DC Extruded Cable System Qualification	H. Ghorbani, A. Gustafsson, M. Saltzer and Sridhar Alapati	236
46.	Identification of Salt and Salinity Level of 11kV Contaminated Porcelain Disc Insulator using STD-MRA Analysis of Leakage Current	S. Chatterjee, A. Banik, S. Dalai and B. Chatterjee	242
47.	Measurement of electron avalanche current in a point-plane geometry stressed with negative voltage	Udaya Kumar and Debasish Nath	247
48.	Bearing fault detection with the use of acoustic signals recorded by a hand-held mobile phone	Maciej Orman, Pawel Rzeszucinski, Agnieszka Tkaczyk, Karthik Krishnamoorthi, Cajetan T. Pinto and Maciej Sulowicz	252