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## In the News

✦ The **Institute Day** was celebrated at CPRI, Bangalore, on 16<sup>th</sup> January 2018. Smt. T.K. Anuradha, Programme Director, GEOSAT, ISRO Satellite Centre, Bangalore, the Chief Guest of the function delivered Jawaharlal Nehru Birth Centenary Memorial Lecture on 'Innovative steps-ISRO Way' on the occasion. Shri V.S. Nandakumar, Director General-CPRI presided over the function.



From Left to Right: Shri R.A. Deshpande, Additional Director, Shri V.S. Nandakumar, Director General-CPRI, the Chief Guest Smt. T.K. Anuradha, Programme Director, GEOSAT, ISRO Satellite Centre, Bangalore and Dr. R. Ramesh Babu, Director, CPRI, Bangalore



Shri Raj Pal, Economic Adviser, Ministry of Power, Government of India, visited CPRI, Bangalore and reviewed the progress of the on-going XII Five Year Plan Capital Projects, on 14<sup>th</sup> April 2018.



Shri B.A Sawale, Additional Director, STDS-CPRI, Bhopal at the IEC TC 13/WG11 meeting held at Rigi, Switzerland

- \* Director General-CPRI along with Additional director, Short Circuit Laboratory, CPRI, Bangalore attended the meeting taken by Secretary (Power) regarding dual certification of Distribution Transformers by BIS and BEE, held at Ministry of Power, New Delhi, on 5<sup>th</sup> March 2018.
- \* Shri B.A Sawale, Additional Director, STDS-CPRI, Bhopal attended the meeting of the State Advisory Committee of Madhya Pradesh State Electricity Regulatory commission, on 14<sup>th</sup> March 2018.
- \* Dr. N. Vasudev, Additional Director, CPRI, Bangalore & Dr. Pradeep M Nirgude, Additional Director & Unit Head, UHVRL-CPRI, Hyderabad attended 16<sup>th</sup> meeting of High Voltage Engineering Sectional Committee, ETD 19 held at BIS, New Delhi, on 20<sup>th</sup> March 2018.
- \* Director General-CPRI and Director-CPRI attended the International Conclave on R&D, organized by CEA, at Vigyan Bhavan, New Delhi, on 20<sup>th</sup> February, 2018.
- \* Shri R A Deshpande, Additional Director, CPRI, Bangalore and Shri Arka Chakraborty, Engineering Officer Gr.2, CPRI, Bangalore participated in International R&D Conclave- 2018 organized by CEA, at New Delhi, on 20<sup>th</sup> & 21<sup>st</sup> February 2018.



- \* Director General-CPRI along with Shri R. Sudhir Kumar, Joint Director/HoD, Energy Efficiency & Renewable Energy Division, CPRI, Bangalore attended the meeting taken by Secretary (Power) regarding Standards of LED bulbs and guidelines for their disposal, held at Ministry of Power, New Delhi, on 6<sup>th</sup> April 2018.
- \* Mr. Chai Xinghai, Director of Southeast Asia, Mr. Kang Jianjun, Vice President of M/s. TBEA, China and Mr. Abhijit Das Gupta, Director of M/s. Garden Power Tech., Bangalore visited to understand the testing facility at CPRI, Bangalore, on 4<sup>th</sup> June 2018. Information & Publicity Division had arranged visit to High Power Laboratory to understand the testing facility available in CPRI, Bangalore.

### Overseas Deputations

- Shri R Sudhir Kumar, Shri S Jothi Basu, Shri N Rajkumar, Dr. V Saravanan, Joint Directors were deputed for conducting training programme at Hwange Power Station, Zimbabwe Power Company, Victoria Falls, Zimbabwe from 04.02.2018 to 03.03.2018.
- Shri V.S. Nandakumar, Director General-CPRI and Mr. M.K. Wadhvani, Additional Director, STDS-CPRI, Bhopal at the 44<sup>th</sup> Management Committee Meeting of STL, Prague, Czech Republic



### Testing Assignment for Overseas Customers:



Seismic Test on Integrated Motor Control System Panel for M/s. Al-Ahleia Switchgear Co., Kuwait



Ability to withstand the dynamic effects of short circuit tests on 315 kVA, 33/0.433 kV, Three phase transformer carried out at High Power Laboratory, CPRI, Bangalore, for M/s. OMAN Industry Transformers & Switchgear, Sultanate of OMAN



Seismic test on Smart UPS 20 KVA, 3-Phase carried out at Earthquake Engineering & Vibration Research Centre, CPRI, Bangalore, for M/s. Schneider Electric IT Business Pvt. Ltd., Philippines



Vibration tests on 250 W Power supply unit inserted in the IE 5000 series switch carried out at Earthquake Engineering & Vibration Research Centre, CPRI, Bangalore for M/s. Integrity Electronics LLC, Apopka, FL 32703



M/s. Energypac Engineering Ltd, Dhaka-1208, Bangladesh has conducted temperature rise test on 20/28 MVA, 33/11.5 kV Power transformer at 25kA Temperature rise Lab, Bhopal.



Temperature rise test, Sound Level measurement in no load & full load conditions were conducted on the transformer of M/s SGB Malaysia Compact substation as per cl. 6.1, 6.5 of IEC 62271-202, 2014. The tests were conducted in STL, CPRI, Bhopal.



Seismic test on Sandwich Busway System – Guardex for M/s. RR Busduct Power Distribution Equipment, Dubai carried out at Earthquake Engineering & Vibration Research Centre, CPRI, Bangalore



37.5 kVA, 6.35 kV/240V Single phase transformer of M/s Confidence electric Bangladesh, undergoing short circuit test in Station1, STDS, Bhopal

**Testing Assignment for Domestic Customers:**



Ability to withstand the dynamic effects of Short circuit test on 21.6 MVA, 132 kV/27 kV Single Phase Transformer for M/s. Vishvas Power Engineering Services Pvt. Ltd., Nagpur



Ability to withstand the Dynamic Effects of Short Circuit test on 5 MVA, 33 kV/0.360-0.360 kV, Three Phase Transformer for M/s. Shilchar Technologies Limited, Vadodara



Short-time withstand current test on 245 kV, 3150 A, 50 kA GIS for M/s. Siemens Ltd., Aurangabad, Maharashtra



Measurement of Radio Interference Voltage (RIV) around 100 MVAR, STATCOM unit, for 400/220kV, PGCIL substation, NP Kunta, Anathapur, AP



Short-time withstand current test on 220 kV rated substation post insulator for M/s. Deccan Enterprises Ltd., Hyderabad



DC RIV test and DC corona test conducted on  $\pm 800$  kV, Spacer damper with retaining rods for six bundle lapwing ACSR conductor for M/s. EMI Transmission Limited, Mumbai at UHVRL-CPRI, Hyderabad



Lightning Impulse voltage withstand test and Wet Switching impulse voltage withstand test on  $\pm 800$  kV HVDC Single "Y" suspension Composite long rod insulator string for M/s. Deccan Enterprises Ltd., Hyderabad



DC corona test on  $\pm 800$  kV HVDC ACSR Hexagonal Lapwing Conductor Bundle for M/s. Neccan Power & Infra Ltd., Jaipur



Lightning Impulse voltage withstand test and Switching Impulse voltage withstand test conducted on 420kV, GIS for M/s. Siemens Limited, Aurangabad at UHVRL-CPRI, Hyderabad



Ability to withstand the dynamic effects of short circuit test conducted on 30.24 MVA, 220/27 kV single phase traction transformer for M/s. Transformers & Rectifiers Ltd., Ahmedabad at High Power Laboratory, CPRI, Bangalore



Short time current test at 50kArms for three seconds with initial peak of 125kA on 800kV, 500-1000-2000-3000/1-1-1A, Current Transformer for M/s. ABB India Ltd., Vadodara



Short Circuit Dynamic withstand tests as per Clause 4.2 of IS 2026 (Part-5), 2011 conducted on 25/31.5MVA, 66/11kV Power Transformer for M/s. Technical Associate Ltd., Sitarganj at STDS-CPRI, Bhopal



Short time current test conducted on Terminal Box for M/s. Skipper Seil Ltd., Bhiwadiat STDS-CPRI, Bhopal



Pollution test by salt-fog method on 245kV, Single pole Circuit Breaker with composite insulator for M/s. Siemens Ltd., Aurangabad carried out at UHVRL-CPRI, Hyderabad



Short time withstand current test at 90kArms for one second with initial peak of 230kA as per IS: 8084 on 11 kV , 4000A, 90kArms Busduct for M/s. BHEL, Rudrapur carried out at STDS-CPRI, Bhopal



Ability to withstand the dynamic effects of short circuit tests on 25 MVA, 110/33 kV, three phase transformer carried out at High Power Laboratory, CPRI, Bangalore, for M/s. Transformers & Rectifiers Ltd., Ahmedabad



Short time withstand current and Peak withstand current test at 63kArms for three second with initial peak of 163.8kA as per Clause 6.6 of IEC: 62271-102, 2001 on 300kV, 4000A Horizontal Double Break Disconnector for M/s. ABB India Ltd., Vadodara carried out at STDS-CPRI, Bhopal



Lightning Impulse voltage withstand test and Power frequency voltage withstand test carried out on 400kV, Polymer insulator string at UHVRL-CPRI, Hyderabad for M/s. Deccan Enterprises Limited, Hyderabad



Pollution test on 145 kV, 2000A, Single pole Circuit Breaker with composite insulator housing carried out at UHVRL-CPRI, Hyderabad for M/s. Siemens Limited, Aurangabad



Combined Capacitor Bank current Switching, Cable and Line Charging current Switching test duties for Class C2 as per Clause 6.111.9 of IEC: 62271-100, 2008+ AMD1:2012+ AMD2:2017 on 12 kV, 1250A, 26.3kA Indoor AIS Vacuum Circuit Breaker Panel carried out at STDS-CPRI, Bhopal for M/s. Pascal Switchgear India Pvt. Ltd., Calcutta



Ability to withstand the dynamic effects of short circuit test on 80/120MVA,132/33kV, Three Phase Transformer carried out at High Power Laboratory, CPRI, Bangalore



Ability to withstand the dynamic effects of short circuit tests on 35 MVA, 23.5/11.5 kV Three phase oil filled power transformer carried out at High Power Laboratory, CPRI, Bangalore



Short time withstand current and Peak withstand current test at 63kArms for one second with initial peak of 158kA as per Clause 6.6 of IEC: 62271-102, 2001 on 420 kV , 3150A Horizontal Double Break Disconnecter carried out at STDS-CPRI, Bhopal for GR Power Switchgear Limited, Hyderabad



## Participation in Exhibitions:

**ELECRAMA 2018, NOIDA:** CPRI participated in ELECRAMA 2018, held at Knowledge Park II, Greater NOIDA, from 10<sup>th</sup> to 14<sup>th</sup> March 2018. Honourable Vice-president of India Sri. Venkaiah Naidu inaugurated ELECRAMA 2018 and Sri Suresh Prabhu, Union Minister of Commerce and Industry addressed the Inaugural gathering.



Sri A.K. Rajput, Chief Engineer, CEA, New Delhi visited CPRI stall

**India Sourcing Fair, Russia:-**CPRI participated in the India Sourcing Fair, a 3 day event, held at St. Petersburg, Russia, from 20<sup>th</sup> to 22<sup>nd</sup> March 2018. The Power Pavilion was inaugurated by **Shri Arun Kumar Panda**, Secretary, MSME, Govt. of India in the gracious presence of **Shri Arun Kumar Sharma**, Consul. General of India, St.Petersburg, Russia. Senior Officers to Govt. of India which included **Ms. Renuka Kumar**, Director (Coordination), Policy and Planning, Ministry of Power and officials from Ministry of Steel and MSME were also present at the inaugural function.



## Events Celebrated

\* The **Institute Day** was celebrated at STDS-CPRI, Bhopal, on 16<sup>th</sup> January 2018. The programme was presided over by Chief Guest Shri D.K. Thakur, Executive Director, BHEL, Bhopal. The Chief Guest Shri D.K. Thakur, Executive Director touched upon the history of BHEL. Shri Rajeev Agrawal, Industrialist & Motivational Guru was the Guest of Honour.



\* UHVRL, CPRI, Hyderabad celebrated **Institute Day** on 16<sup>th</sup> January 2018. Shri G. Narsing Rao, Director, Projects & Grid Operation, TS Transco, Hyderabad was the Chief Guest of the function. He delivered a technical talk on "Challenges in implementation of projects in HV Transmission lines and Power scenario" on the occasion.



\* CPRI, Bangalore & its Units celebrated **69<sup>th</sup> Republic Day**, on 26<sup>th</sup> January 2018. Shri V.S. Nandakumar, Director General-CPRI hoisted the National Flag at CPRI, Bangalore.



- **Republic Day Celebration at UHVRL, Hyderabad,** Flag hoisting was done by Dr. Pradeep M Nirgude, Additional Director & Unit Head.



- "Swachh Bharat Abhiyan" programme was conducted at STDS, Bhopal from 16.05.2018 to 31.05.2018.



- CPRI, Bangalore celebrated the 127<sup>th</sup> Birth Anniversary of Dr. Bhimrao Ramji Ambedkar, on 14<sup>th</sup> April 2018.



- CPRI, Bangalore Celebrated Yoga day on 21st June 2018



- UHVRL, CPRI, Hyderabad, celebrated Dr. Bhimrao Ramji Ambedkar 127<sup>th</sup> Birth anniversary, on 14<sup>th</sup> April 2018.



- TRC Nagpur Celebrated Yoga day on 21<sup>st</sup> June 2018





**Workshop / Training Programme / Seminars conducted for Utilities:**

CPRI conducted Workshop/ Training Programme/ Seminars on the following topics for utilities / Manufacturers.



One day Tutorial program on “Testing of Power and Instrument Transformers” UHVRL, CPRI, Hyderabad



Training Program on 'Diagnostic testing & condition assessment of EHV Circuit breakers' for O&M Engineers & technical staff of THDC, Koteswar Power Station, Uttarakhand. Training conducted by Capacitors Division, CPRI, Bangalore.



Hindi Workshop was organized on the Role of Higher officers in O L Implementation, Problems confronted in O L Implementation & measures taken and Use of Hindi I T tools topics for the Technical and Ministerial Staff of the Institute at CPRI, Bangalore on 21<sup>st</sup> February 2018:



Delegates of the Training program on Awareness of Cyber Security for Power Utility Engineers” held at RTL-CPRI, Noida



Delegates of the Seminar on “Challenges and Probabilities in Design and Testing of Overhead Transmission Line Components and Accessories”



Delegates of the Tutorial Program on “Significance and Testing of Instrument Transformer in Power Sector”



Inauguration of National Conference on "Latest Trends in Switchgear & Control Gear – Smart Technologies", held at Hotel Noor Us Sabah Palace, Bhopal, on 23<sup>rd</sup> & 24<sup>th</sup> February 2018



Delegates of the One day Workshop on "Cyber Security for Renewable Energy"



Delegates of the One day workshop on 'Choice of Insulators in High Voltage Transmission System for different Environmental Conditions'



Group photo of WBSEDCL Engineers of Three Weeks Residential Induction Training Programme (Batch-32)



Delegates of the Three Weeks Residential Induction Training Programme for Engineers of West Bengal State Electricity Distribution Company Limited, (WBSEDCL) Kolkata (Batch-31)



Delegates of the Workshop on "Power Quality (PQ) Standards"



Training Program on “Awareness of Cyber Security for Power Utility Engineers” was held on 27<sup>th</sup> February, 2018 at RTL Kolkata in association with CPRI Bangalore.



Visit of Mr. Frederick Mukasa, Mr. Samuel Ssemanda Musoke & Mr. Julius Buzibwa from M/s. Uganda Electricity Transmission Company Ltd., and Mr. Gerhard Cornelius Vermeulen M/s. Intec GOPA International Energy Consultants, Germany for witnessing the testing of 400 kV D/C Type “ DC / DD Tower

**Visit of Overseas Customers/Important Customers to CPRI:**



Visit of Kang dong wan, Lee Jongmin, Yun Jinwon for Dielectric and RIV tests carried out as per IEC 62271-203 on M/s. Hyosung T&D India Pvt. Ltd., Pune, make 420kV Gas Insulated Switchgear comprising of Circuit breaker and Disconnecting switches carried out at High Voltage Division, CPRI, Bangalore.



Visit of Mr. Mir Mohammad Hassan Mamoon from M/s. Powermann Bangladesh Limited, Dhaka for witnessing the ability to withstand the dynamic effects of short circuit & Temperature-rise tests carried out on 100kVA 11/0.415kV, 200kVA 11/0.415kV & 250kVA 11/0.415kV Three Phase Distribution Transformers



Visit of Mr. Yin Huaxin, Mr. Kuanlai Sun & Mr. Yao Yunlei of M/s. Eaton Electrical, China for witnessing the tests conducted on 12kV, 630A, 21kArms, RVAV-K Ring Main Unit of M/s. Eaton Power Quality Pvt. Ltd., Pudicherry



Visit of Mr. Md. Habibur Rahman, Engineer & Mr. T Selvanathan from M/s. Energypac Engineering Ltd. for witnessing the Short-time current test” at 31.5kA rms for 3 s with 78.75kA peak carried out on 11kV Indoor Resin Cast Current Transformer as per IEC 61869-1 & IEC 61869-2



Visit of Mr. Mohamad Zakir Abd Rashid & Mr. Muhammad Yasser Bin Mohd Sabri, M/s. Tenaga Nasional Berhad, Malaysia., Ms. Nurul Faza Nabilah Binti Muhamad, Mr. Ahmad Asyraf Izzuddin Bin Abu Bakar & Mr. Puli Narayana M/s. LARICO-LISB Joint Venture, Malaysia and Mr. Muhammad Saffa Abqari Bin Azmi M/s. Rohas-Euco Industries BHD, Malaysia for witnessing the testing of 275 / 132kV M/C Type "3423PS+0M" Tension Pole



Visit of Mr. Kornchan Jeeyachok & Mr. Kittipong Pradidkaew from M/s. Precise Electric Manufacturing Co. Ltd., Thailand for witnessing the Ability to withstand the dynamic effects of short circuit test & Temperature-rise tests carried out on 160kVA 22/0.400kV & 160kVA 33/0.400kV Three Phase Distribution Transformers for M/s. Precise Electric Manufacturing Co. Ltd., Thailand

## Power Station Related Field Services

S/N	Field Services	Organisation for which carried out
1.	Condition Monitoring Test on Generator Transformers	M/s. Teesta-V Power Station, NHPC, East Sikkim
2.	Condition Monitoring Test on Generator Transformers (2No.s) & Hydro Generators (2 Nos.)	M/s. Tehri Hydro Development Corporation of India (THDC) Ltd., Rishikesh, Uttarakhand
3.	Failure analysis of 3R Moving blade of IP Rotor	M/s. MSPGCL, Chandrapur TPS (LT-269) Unit no.7,
4.	Analysis and status of the damaged transformer at 220kV substation, Jhajhra, Dehradun	M/s. Power Transmission Corporation of Uttarakhand Ltd., Dehradun, Uttarakhand
5.	Power flow analysis from Gen. terminal to X bus of RBPH of SSHEP-simulation work is in progress	M/s. Sardar Sarovar Hydro Project Kavdia, Gujarat
6.	Metallurgical Analysis of Boiler Tubes (LT-279)	M/s. NTPC-Sail Power Co. Ltd., CPP-II, Durgapur Steel Plant Durgapur
7.	Metallurgical Analysis of failed Water Wall Tubes Unit #8, No.T1, WSB 42 (LT-264)	Chandrapur Super Thermal Power Station, Chandrapur
8.	Metallurgical Analysis of Water Wall Tubes, U#3	M/s. MSPGCL, Khaperkheda
9.	Condition Monitoring/ Diagnostic testing on Power Transformers & Lighting Arresters	M/s. NPCIL, Tarapur Atomic Power Station 1&2, Tarapur, BOISAR, Maharashtra



10	Condition Monitoring Tests on HV Equipment	M/s. NHPC, Tanakpur Power Station, Banbassa, Uttarakhand
11	Metallurgical analysis of railed water wall tubes	M/s. Hasdeo Thermal Power Station, Korba
12	Root cause analysis of failed boiler high pressure cold drawn seamless tubes samples for Unit 8 & 9 (2x500MW)	M/s. MSPGCL, Chandrapur Super Thermal Power Station, Chandrapur
13	Metallurgical analysis of failed front water wall S panel tube no.2 (LT -287)	M/s. MSPGCL, Khaperkheda Thermal Power Station, Khaperkheda
14	Oxide scale thickness measurement & hardness checking	M/s. Sipat Super Thermal Power Project Bilaspur
15	In-situ Oxide scale thickness measurement, hardness testing & material mixup (TOS-216)	M/s. Sipat Super Thermal Power Project Bilaspur
16	Oxide scale thickness measurement & Mobilization charges (TOS-226)	M/s. Jindal Super Thermal Power Plant, Raigarh
17	Studies of corrosion mapping of water wall tubes of Unit # 6	M/s. HPGCL, (Haryana), Panipat Thermal Power Station, Panipat
18	Studies of oxide scale thickness measurement of super heater boiler tubes of Unit # 1 (300 MW)	M/s. HPGCL, Haryana Deen Bandhu Chhotu Ram Thermal Power Project, Yamunanagar
19	Failure analysis of water wall tube	Neyveli TPS-II, Neyveli
20	RLA inspection of turbine and Generator shaft	M/s.KSEB, Sabarigiri Hydro plant, Unit #6, Sabarigiri
21	Protection Audit review for Generator unit, GT and 400 kV substation of TPCL plant	M/s Sembcorp Thermal Powertech Corporation India Ltd., Nellore
22	Generator unit loss computed with simulation studies and verified with manual calculations (Power flow analysis from Gen. terminal to X bus of RBPH of SSHEP)	M/s. SardarSarovar Hydro Project Narmada
23	Energy audit works	M/s. GMR, Warora, Nagpur, Maharashtra Thermal Power Plant
24	Inside oxide scale measurement, Microstructure replication, Hardness test and Fluorescent Magnetic particle test of boiler components of 500 MW Boiler	M/s. Rihand Super Thermal Power Station, NTPC, Rihand Unit no.2, ,
25	Corrosion mapping of water wall tube	M/s.NTPC, FarakkaUnit no.4,
26	Diagnostic study of chemical parts of hydro turbine components	M/s. THDC, Tehri, Rishikesh
27	Metallurgical analysis of failed platen water wall tube No.7 & No.10 (LT-288)	M/s. Nashik Thermal Power Station, Unit No.3, MSPGCL, Nashik
28	Metallurgical analysis of failed water wall tubes (LT-280)	M/s. Koradi Thermal Power Station, Koradi
29	Ultrasonic test of mud drum of HRSG-4	M/s. HPCL-Mumbai Refinery, Mumbai
30	Inspection of failed tubes & Sec. failure during boiler tube leakage (LT-272)	M/s. Khaperkheda Thermal Power Station, Khaperkheda



31	Power flow analysis from Gen. terminal to X bus of RBPH of SSHEP	M/s. SardarSarovar Hydro Project
32	Protection Audit of Sarni Power generating plant	M/s. Madhya Pradesh Power Generating company
33	Metallurgical analysis of failed Reheater Tube, Unit No.3	M/s. MSPGCL, Kharpekheda Thermal Power Station, Kharpekheda
34	Metallurgical analysis of reheater tube and final super heater tube	M/s. Sanjay Gandhi Thermal Power Station, Birsingpur Unit No.1 & 2,
35	RLA of turbine and generator shafts	M/s. KSEB, Neriamangalam, Unit #2
36	Visual inspection of corroded conductors	M/s. PGCIL, Tejpur
37	Earth Resistance measurement at the site of Koteshwar Hydro Electric Project	M/s. THDC, Tehri, Uttrakhand
38	RLA study of boiler	M/s. Rihand Super Thermal Power Station Rihand (R-177) Unit no. 3,
39	Metallurgical analysis of failed reheater tubes	M/s. Sanjay Gandhi Thermal Power Station MPPGCL, Birsinghpur (LT-295)
40	Metallurgical analysis of failed water wall tubes	M/s. Paras Thermal power Station, Paras, Akola Unit No.4

### Research Papers Published / Presented

CPRI has published technical papers on the following topics during January - June 2018.

S.N.	Topic / Title S/Shri/Smt./Kum.	Authors
1	Power Loss in series connected Short String Photovoltaic Modules due to Partial Shading Conditions	P. Elenchezian SRF, ERED
2	Comparative Analysis of selective harmonic elimination for Multilevel Inverter with CSA, PSO, BAT and SA	N. Vinothkumar, V. Kumar Chinnaiyan, Pradish M , Prabhakar Karthikeyan
3	Poster presentation of technical paper entitled Experimental Studies on Silicone Composite Insulator Material for Hydrophobicity Recovery under Severe Corona Conditions	Pushpa Y.G.A.M. Diffni Gomes Rafiq Mathersa AB, Dr. N. Vasudev
4	Transformer Noise level analysis and Reduction Techniques	S. Arjuna Rao, G. Girija Swaraj Kumar Das , R A Deshpande
5	Electroless silver coated Nanocenosphere/ Polymer composite for EMI shielding effectiveness	S.Vynatheya, Dr. Bheema Raju Dr. Chandra Sagar Sushma
6	The effect of Ba <sub>0.85</sub> Ca <sub>0.15</sub> Ti <sub>0.90</sub> O <sub>3</sub> (BCZT) nanoparticles on the critical parameters of synthetic ester based nanofluids	Dr. P. Thomas Nandini E Hudedmani



7	An innovative online scheme for testing of power transformer	Dr. Manohar Singh, Vishnuvardhan T K. S Meera
8	A Snapshot of Research and Development Projects undertaken by CPRI during the 12th Five Year Plan	Arka Chakraborty R A Deshpande
9	A Scheme for Harmonic Reduction with Multilevel inverter in large synchronous machine powered by static drive	Dr. Arun Kumar Datta
10	The effect of CaFeO <sub>3</sub> nanoparticles on the thermal and electrical properties of insulating fluids	Nandini E Hudedmani Dr. P Thomas
11	CPRI Article on "Bridging the Gap between Academic and Industrial Research in Power Sector"	Arka Chakraborty ,R A Deshpande
12	Optimal PMU Placement Methodology by Integer Linear Programming.	Dr. Amit Jain
13	A pragmatic approach and quantitative assessment of silt erosion characteristics of HVOF and HVOF processed WC-CoCr coatings and 16Cr5Ni steel for hydro turbine applications	R K Kumar, Kamaraj M Anand Kumar S
14	A Novel Switching Strategy for DC Link Voltage Balance in Parallel Connected Three-Level Diode Clamped Back-to-Back Converter Systems Serving to Variable Speed Pumped Storage Plant	Raghu Selvaraj Thanga Raj Chelliah Deepak Khare
15	A robust decentralized wide area damping controller for wind generators and FACTS controllers considering load model uncertainties	V. Vignesh, S. C. Srivastava S. Chakrabarti
16	An exhaustive search based topology error detection method and its validation in real time digital simulator	A. Srivastava, A. Dubey S. Chakrabarti
17	Synchrophasor based three-phase state estimator	A. Dubey, S. Chakrabarti
18	Overview of different overhead transmission line conductor	Rashmi, G.S. Shivashankar, Poornima,
19	Electrical and mechanical properties of unidirectional ECR glass fiber reinforced epoxy composite	Rashmi, Poornima Chithaj Mallikarjun
20	Application of Superconducting Fault Current Limiter to cloud the presence of Distributed Generation	Pradeep Kumar Reddy Manigilla Nikhil Kumar Sharma, S. R. Samantaray
21	Electrical and Thermal conductivity behavior of Synthetic Ester based nanofluids	Nandini E Hudedmani M. Padmini, Dr. P. Thomas
22	Additive-free electrode fabrication with reduced graphene oxide using supersonic kinetic spray for flexible lithium-ion batteries.	SD Kim, J G Lee Kuldeep Singh Rana et.al.
23	Role of Graphene oxide and additional of MoS <sub>2</sub> in HDPE matrix for improved tribological properties	G J Naveen, Dr. P Sampath Kumaran Prajwal Badrinath, S Vynatheya R R N Sailaja, Dr. S Seetharamu M V Deepthi, H B Niranjana



**New Test Facility**

\* Biodegradable Test Facility on Natural easter as per OECD 301 B: Test facility for carrying out tests on natural easter as per IEC 62770 / IS 16659 at DMD, Banglaore.



• **Automatic Calorie Meter for unused synthetic organic easter as per ISO 2211**



• **Dynamic Mechanical Analyzer Q800** measures glass transition temperatures and secondary transitions, orientation caused by processing, cold crystallization, cure optimization, filler effects in composites, material stiffness (modulus), mechanical properties such as damping, creep, and stress relaxation of materials as a function of time, at various temperature from -150 to 6000C and at different frequencies from 0.01 to 200 Hz as per ASTM D 7028.



• **Frequency Analyzer:** Measures impedance at various frequencies from 100 Hz to 1 MHz and at different temperatures from ambient to 300°C



• **Simultaneous DSC-TGA (SDT) Q600** measures both the heat flows (DSC) and weight changes (TGA) associated with transitions in a material as a function of temperature and time in a controlled atmosphere from ambient to 1500 °C





- \* Endurance test facility has been installed and commissioned for all types of batteries. Batteries up to 2000 Ah can be tested as per various national and international standard at EATD, Bangalore.



- \* High pressure washing test facility for composite insulators added and test conducted in UHVRL.



- \* During the Institute Day Celebration Shri B.M. Naidu Award for the best research paper of the year based on testing clues/data, was awarded to Shri T. Mallikarjuna Rao, Joint Director, CPRI, Bangalore, for the Paper titled "Coal washing: A sustainable approach towards Green Environment", presented in 5<sup>th</sup> International Conference on "Coal Washing: A sustainable approach towards Green Environment", held at New Delhi, on 6<sup>th</sup> & 7<sup>th</sup> November 2017.



Shri T. Mallikarjuna Rao, Joint Director, CPRI, Bangalore receiving Shri B.M. Naidu Award from the Chief Guest

**Accolades**

- During the Institute Day Celebration Mylavarapu Subbalakshamma Award was awarded to Smt. K P Meena, Joint Director, CPRI, Bangalore being the best Lady Scientific/Engineering Officer for the most significant work done by her during the year 2017. This award was constituted by CPRI former Director General Dr. M. Ramamurthy, for the best lady scientist of the year.



Smt. K P Meena, Joint Director, CPRI, Bangalore receiving the Mylavarapu Subbalakshamma Award from the Chief Guest

- STDS-CPRI, Bhopal was awarded the 2<sup>nd</sup> prize for the commendable work done in implementing the Official Language Hindi. The shield was given to the Unit Head Shri J. Santhosh, Additional Director by the Chief Guest His Highness Governor of Maharashtra Shri C Vidhyasagar Rao at a function held at Mumbai, on 12<sup>th</sup> January 2018.

