

ICLP—SIPDA 2021  
Detailed Program

# Lightning Physics and phenomenology (Session A1)

Monday 20th September 2021 : 16.20—18.20 (IST), 19.50—21.50 (JST), 10.50—12.50 (GMT), 07.50—09.50 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
A:1:1	259	Supercell Storm Producing Positive Lightning Strokes Sharing the Same Channel to Ground	Yanan Zhu, Phillip Bitzer Vladimir Rakov Michael Stock, Jeff Lapierre, Elizabeth DiGangi	University of Alabama in Huntsville  University of Florida, Earth Networks	United States
A:1:2	272	Comparison of Far Electric Field Waveforms Produced by Rocket-Triggered Lightning Strokes and Subsequent Strokes in Natural Lightning	Ziqin Ding, Si Chen, Vladimir Rakov, Istvan Kereszy  Yanan Zhu	University of Florida  University of Alabama in Huntsville	United States
A:1:3	200	Very High Frequency and Microwave Radiation Associated with Initial Breakdown Process	Muhammad Haziq Mohammad Sabri MOHD RIDUAN AHMAD Ammar Ahmed Al-Kahtani Muhammad Abu Bakar Sidik Shamsul Ammar Shamsul Baharin Sulaiman Ali Mohammad Nik Hakimi Nik Ali Vernon Cooray Mohd Zainal Abidin Ab-Kadir	Universiti Tenaga Nasional  Universiti Teknikal Malaysia Universiti Tenaga Nasional Universitas Sriwijaya  Universiti Teknikal Malaysia  Universiti Kebangsaan Malaysia Universiti Tenaga Nasional Uppsala University Universiti Tenaga Nasional	Malaysia       Indonesia Malaysia  Sweden Malaysia

# Lightning Physics and phenomenology (Session A1)

Monday 20th September 2021: 16.20—18.20 (IST), 19.50—21.50 (JST), 10.50—12.50 (GMT), 07.50—09.50 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
A:1:4	19	High-speed Video Observations of Unusual Dart Leaders in Two Natural Lightning Flashes Striking on Canton Tower	Hansheng Cai Xiaolei Wang Gang Liu Minchuan Liao, Lu Qu Yu Liu	State Key Laboratory of HVDC, Electric Power Research Institute, China Southern Power Grid Guangzhou Power Supply Bureau Co. Ltd.	China
A:1:5	94	Preliminary Breakdown Electric Field Signatures of Positive Ground Flash Incidents Recorded During 2019 Thunderstorm Season in Warsaw Region	Piotr Baranski  Grzegorz Karnas, Grzegorz Maslowski	Institute of Geophysics Polish Academy of Sciences Rzeszow University of Technology	Poland
A:1:6	290	A Current Propagation Type Return Stroke Model Consistent with the Leader Charge Distribution	Vernon Cooray Marcos Rubinstein  Farhad Rachidi	Uppsala University HEIG-VD, University of Applied Sciences Western Switzerland Swiss Federal Institute of Technology (EPFL), Lausanne	Sweden Switzerland

# Lightning Physics and phenomenology (Session A2)

Tuesday 21st September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
A:2:1	141	Säntis Lightning Research Facility Instrumentation	Antonio Sunjerga, Amirhossein Mostajabi, Mario Paolone, Farhad Rachidi Mohammad Azadifar, Abraham Rubinstein, Marcos Rubinstein Carlos Romero David Pavanello, Pasan Hettiarachchi, Vernon Cooray David Smith	Electromagnetic Compatibility Laboratory, Swiss Federal Institute of Technology EPFL University of Applied Sciences of Western Switzerland Armasuisse Institute of Sustainable Energy Uppsala University Institute for Particle Physics and Department of Physics	Switzerland      Sweden  United States
A:2:2	294	Observation of lightning occurrence surrounding Antarctica Peninsula	Sulaiman Ali Mohammad Mardina Abdullah Mohd Riduan Ahmad Shamsul Ammar Shamsul Baharin Sang-Jong Park Vernon Cooray	Universiti Kebangsaan Malaysia (UKM)  CeTRI Korea Polar Research Institute Uppsala University	Malaysia   South Korea Sweden

## Lightning Physics and phenomenology (Session A2)

Tuesday 21st September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
A:2:3	146	Study on the location of thunderclouds based on irradiance characteristics under lightning meteorological conditions	Yunfeng Cai Wenbo Li Chong Tong Jian Xu, Siyang Liao, Tian Dong	Suzhou Power Supply Company, State Grid Jiangsu Electric Power Company School of Electrical Engineering and Automation, Wuhan University Suzhou Power Supply Company, State Grid Jiangsu Electric Power Company School of Electrical Engineering and Automation, Wuhan University	China
A:2:4	116	A Study on the First Return Stroke in a Thunderstorm Cell	Dongdong Shi, Daohong Wang Ting Wu, Nobuyuki Takagi	Gifu University	Japan

# Lightning Physics and phenomenology (Session A3)

Tuesday 21st September 2021 : 16.10—18.10 (IST), 19.40—21.40 (JST), 10.40—12.40 (GMT), 07.40—09.40 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
A:3:1	256	Relationship between the activity of thunderstorms and ionospheric oscillation during RELAMPAGO Project.	Constanza I. Villagrán Asiares M. Gabriela Nicora  Amalia Meza, M. Paula Natali Eldo E. Ávila	FCAG (UNLP) / UNIDEF, MINDEF, CONICET, DEILAP UNIDEF, MINDEF, CONICET, DEILAP Laboratorio MAGGIA, (FCAG – UNLP). CONICET FAMAF, Universidad Nacional de Córdoba, IFEG- CONICET. Argentina	Argentina
A:3:2	228	Construction of an Electrostatic Sensor Network to Estimate Total Charge in an Isolated Thundercloud	Kozo Yamashita Hironobu Fujisaka Hiroyuki Iwasaki Kakeru Kanno Masashi Hayakawa	Ashikaga University Fujisaka Technology Office Gunma University Ashikaga University University of Electro-Communication	Japan
A:3:3	73	ICCD Images of Leader Corona in a 4 m Rod-Plane Gap Discharge	Jianwei Gu, Shengxin Huang Yufei Fu Weidong Shi, Kai Bian, Wei Jiang Chen	China Electric Power Research Institute Hefei University of Technology China Electric Power Research Institute State Grid Corporation of China	China

# Lightning Physics and phenomenology (Session A3)

Tuesday 21st September 2021 : 16.10—18.10 (IST), 19.40—21.40 (JST), 10.40—12.40 (GMT), 07.40—09.40 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
A:3:4	187	A Review of the Modeling Approaches for the Lightning M-Component Mode of Charge Transfer	Quanxin Li, Jianguo Wang Marcos Rubinstein Li Cai Mohammad Azadifar Mi Zhou, Yadong Fan Farhad Rachidi	School of Electrical Engineering and Automation, Wuhan University University of Applied Sciences of Western Switzerland (HES-SO) School of Electrical Engineering and Automation, Wuhan University University of Applied Sciences of Western Switzerland (HES-SO) School of Electrical Engineering and Automation, Wuhan University Electromagnetic Compatibility Laboratory, Swiss Federal Institute of Technology (EPFL)	China Switzerland China Switzerland China Switzerland
A:3:5	201	Microwave and Very High Frequency Radiations of The First Narrow Initial Breakdown Pulses	Shamsul Ammar Shamsul Baharin, MOHD RIDUAN AHMAD Muhammad Abu Bakar Sidik Muhammad Haziq Mohammad Sabri, Ammar Ahmed Al-Kahtani Taha Raad Khaleel Sulaiman Ali Mohammad Vernon Cooray	UNIVERSITI TEKNIKAL MALAYSIA MELAKA UNIVERSITAS SRIWIJAYA UNIVERSITI TENAGA NASIONAL UNIVERSITI TEKNIKAL MALAYSIA MELAKA UNIVERSITI KEBANGSAAN MALAYSIA Uppsala University	Malaysia     Sweden

## Lightning Physics and phenomenology (Session A3)

Tuesday 21st September 2021 : 16.10—18.10 (IST), 19.40—21.40 (JST), 10.40—12.40 (GMT), 07.40—09.40 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
A:3:6	113	Discontinuous modes of positive leaders in lightning and long sparks	Xiankang Wang, Junjia He Daohong Wang, Nobuyuki Takagi	Huazhong University of Science and Technology Gifu University	China Japan



# Lightning discharge (Session A4)

Wednesday 22nd September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
A:4:1 18	Optical Characteristics of Recoil Leader Activity in one Positive Cloud-to-ground Lightning Flash	Gang Liu, Xiaolei Wang, Hansheng Cai Minchuan Liao, Shangmao Hu Yu Liu	State Key Laboratory of HVDC, Electric Power Research Institute, China Southern Power Grid  Guangzhou Power Supply Bureau Co. Ltd.	China
A:4:2 267	Lightning in the eruption of the Volcán de Fuego 2018 - seeing from earth and space	Daiana M. Baissac, M. Gabriela Nicora Eldo E. Ávila Gabriela A. Badi	DEILAP, Instituto de Investigaciones Científicas y Técnicas para la Defensa / FCAG. UNIDEF, CONICET, UNLP Facultad de Matemática, Astronomía y Física-FAMAF. UNC, IFEG-CONICET. Facultad de Ciencias Astronómicas y Geofísicas/OAVV. UNLP, SEGEMAR	Argentina
A:4:3 138	An Interesting Discharge Progression Mode Observed in a Multi Branched Upward Lightning	Haitao Huang, Daohong Wang, Ting Wu, Nobuyuki Takagi	Gifu University	Japan
A:4:4 117	Return Strokes with Abnormal Electric Field Change Waveforms	Daohong Wang, Ting Wu, Masaki Urada, Nobuyuki Takagi	Gifu University	Japan

# Lightning discharge (Session A5)

Wednesday 22nd September 2021 : 16.10—18.30 (IST), 19.40—22.00 (JST), 10.40—01.00 (GMT), 07.40—10.00 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
A:5:1	133	Self-initiated Upward Lightning: Terrain and Seasonal Effects	Marley Becerra Daohong Wang Gerhard Diendorfer Nicolau Pineda	KTH Royal Institute of Technology Gifu University OVE Service GmbH Servei Meteorològic de Catalunya	Sweden Japan Austria Spain
A:5:2	4	High-Speed Schlieren Photographic Observations of Space Stems in Negative and Positive Sparks	Xiangen Zhao Juhyeong Lee Junjia He	Huazhong University of Science and Technology Utah State University Huazhong University of Science and Technology	China United States China
A:5:3	119	Characteristics of current and electric field waveforms of high current upward lightning flashes in winter	Mikihisa Saito Masuru Ishii	CRIEPI The University of Tokyo	Japan
A:5:4	48	Estimation of Time Variation of Current Density in a 50 kA Lightning Impulse Arc using High Speed Cameras	Tomoyuki Nakano, Masashi Kotari, Toshiya Ohtaka Yutaka Goda, Mikimasa Iwata	Central Research Institute of Electric Power Industry	Japan
A:5:5	49	Observations of x-rays in 4-meters long laboratory sparks under positive lightning impulse	Chin-Leong Wooi Mahbubur Rahman Pasan Hettiarachchi Vernon Cooray André Lobato	Universiti Malaysia Perlis Department of Electrical Engineering, Uppsala University Department of Medical Sciences, Uppsala University Department of Electrical Engineering, Uppsala University	Malaysia Sweden

## Lightning discharge (Session A5)

Wednesday 22nd September 2021 : 16.10—18.30 (IST), 19.40—22.00 (JST), 10.40—01.00 (GMT), 07.40—10.00 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
A:5:6	277	The Mechanism of the Origin and Development of Lightning From Initiating Event to Initial Breakdown Pulses	ALEXANDR KOSTINSKIY Thomas Marshall, Maribeth Stolzenburg	Moscow Institute of Electronics and Mathematics, National Research University Higher School of Economics Department of Physics and Astronomy, University of Mississippi	Russia United States

## Lightning discharge (Session A6)

Thursday 23rd September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
A:6:1	66	Corona Discharges from Grounded Rods under High Ambient Electric Field and Lightning Activity	Marcelo Arcanjo, Joan Montanyà Michele Urbani, Pol Fontanes Victor Lorenzo, Enric Pons	UPC DENA	Spain
A:6:2	75	Modelling the Odds of Occurrence of Positive Narrow Bipolar Pulses Based on the Wave Characteristics	Anupama Thabrew, Amila Vayanganie Lasitha Gunasekara, Ruwan Abeywardhana, Mahendra Fernando	Sri Lanka Technological Campus University of Colombo	Sri Lanka
A:6:3	79	Characteristics of Lightning Discharges Observed in Ningxia, China	Panliang Gao, Ting Wu Daohong Wang	Gifu University	Japan
A:6:4	101	Preliminary results on discharge characteristics of a thunderstorm in South China by GD_LMA	Yang Zhang Yijun Zhang YanFeng Fan	Chinese Academy of Meteorological Sciences Fudan University Chinese Academy of Meteorological Sciences	China

# Lightning discharge (Session A7)

Thursday 23rd September 2021 : 16.10—18.10 (IST), 19.40—21.40 (JST), 10.40—12.40 (GMT), 07.40—09.40 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
A:7:1	246	The Johannesburg Lightning Research Laboratory	HUGH GP HUNT, CARINA SCHUMANN, JASON R SMIT, Chandima Gomes, Kenneth Nixon, Ian Jandrell Marcelo M. F. Saba Tom Warner	University of Witwatersrand  INPE ZTRResearch	South Africa  Brazil United States
A:7:2	283	Remote measurements of lightning return stroke peak currents based on Electric and Acoustic signals	Adonis Leal	FEDERAL UNIVERSITY OF PARA	Brazil
A:7:3	180	Research on Lightning Rod initial Stage of Streamer Formation under Positive Polarity Thundercloud	Zicheng Li  Guohua Yang	The Engineering & Technical College of Chengdu University of Technology Zhongguang Hi-tech Industry Group	China
A:7:4	289	First lightning current measurements to the Sentech tower, South Africa	Jason Smit, Hugh Hunt, Carina Schumann	The university of the Witwatersrand	South Africa

## Lightning discharge (Session A8)

Friday 24th September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
A:8:1 153	Attachment process of the discharge of competing grounded electrodes – Experimental observations and modeling	Liliana Arevalo, Andre Lobato, Vernon Cooray, Pasan Hettiarachchi, Mahbubur Rahman	ABB Power Grids - HVDC Uppsala University	Sweden
A:8:2 264	Streamer-to-leader transition in a sphere-to-plane air gap tested with switching impulses	Oscar Diaz Liliana Arevalo	HVDC, PGGI, Hitachi ABB Power-grids	Sweden
A:8:3 270	Statistical analysis on preliminary breakdown pulses in negative cloud-to-ground flashes occurred in Colombia	Camilo Alejandro Granados Herbert Enrique Rojas Francisco José Román	Universidad Nacional de Colombia Universidad Distrital Francisco José de Caldas Universidad Nacional de Colombia	Colombia
A:8:4 288	Space-leader characteristics in negative stepped-leaders followed by return strokes with significantly different peak currents	Hamza Khounate, Amitabh Nag, Mathieu Plaisir, Abdullah Imam, Christopher Biagi Hamid Rassoul	Florida Institute of Technology NASA Florida Institute of Technology	United States

# Lightning safety, medicine and education (Session A9)

Friday 24th September 2021 : 16.10—17.50 (IST), 19.40—21.20 (JST), 10.40—12.20 (GMT), 07.40—9.20 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
A:9:1	164	Analysis of the Certified Lightning Fatalities and their Relation with Rainfall in Colombia for the Period 2008-2018	Jiver Barreto, Juan Fernandez Daniel Villamil, Herbert Rojas, Francisco Santamaria	Universidad Distrital Francisco José de Caldas	Colombia
A:9:2	160	Behavior of an Electroconductive Rip-stop Fabric under 8/20 $\mu$ s Lightning Current: Preliminary Results	Jorge Alejandro Cristancho C., Jorge Enrique Rodriguez M., Carlos Andrés Rivera G., Francisco Román, Alexandre Piantini, Miltom Shigihara Clóvis Y. Kodaira	Universidad Nacional de Colombia University of São Paulo	Colombia Brazil
A:9:3	106	Life on Siwalik and Lesser Himalayas under the extreme threat of lightning	Shriram Sharma	Dept of Physics, Amrit Campus, Tribhuvan University	Nepal
A:9:4	203	Lightning Risk and Disaster Risk Management at the beginning of the 2020s	Daniel Villamil, Herbert Rojas Francisco Santamaria, Wilson Diaz	Universidad Distrital Francisco José de Caldas	Colombia
A:9:5	240	Revisiting a case of lightning-caused trauma in a pregnant woman	Jorge Alejandro Cristancho, Jorge Enrique Rodriguez M., Francisco Roman	Universidad Nacional de Colombia	Colombia

# Lightning safety, medicine and education (Session A10)

Saturday 25th September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
A:10:1 284	Public Beliefs and Lightning Safety Education in Amazon Region	Luan Gonçalves, Wendler Matos, Adônis Leal, Eduardo Ferreira	Federal University of Para	Brazil
A:10:2 248	GeoRayos Web and App. Lightning Protection in Argentina to Increase Awareness	M. Gabriela Nicora, Mariana Falco M. Florencia Barle Florencia I. Solari, Daiana Baissac, Constanza Villagran Raul Raul Delia	UNIDEF, CONICET, Facultad de Ingeniería, Universidad Austral Facultad de Ciencias Astronómicas y Geofísicas UNIDEF, CONICET, UNLP UNIDEF, CONICET,	Argentina
A:10:3 181	A Study of Earth Potential Rise Shock in Lightning Injury	Professor Christopher Andrews	University of Queensland	Australia
A:10:4 110	Investigation of Lightning Mass Casualty Incident at Mongoyo School, Uganda	Richard Tushemereirwe, Mary Ann Cooper, Ronald Holle	ACLENet	Uganda United States



# Lightning Protection and lightning testing standards (Session A11)

Saturday 25th September 2021 : 16.10—18.10 (IST), 19.40—21.40 (JST), 10.40—12.40 (GMT), 07.40—09.40 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
A:11:1	53	Comparison of energy presence in IEC and real transient impulses	Nilantha Sapumanage Sankha Nanayakkara Sidath Abeygunawardana Mahendra Fernando Vernon Cooray	Department of Physics, University of Colombo  Department of Engineering Science, Uppsala University	Sri Lanka  Sweden
A:11:2	54	Empirical Model of the Impulse Voltage-Time Characteristic of Gas Discharge Tube	Cong Duc Pham, Vincent Crévenat, Yves Gannac	CITEL	France
A:11:3	177	Indirect electrode or direct electrode?: A revisitiation of electrode configuration in simulated lightning damage testing	Yakun Liu Earle Williams Zhengcai Fu	Shanghai Jiao Tong University & Massachusetts Institute of Technology Massachusetts Institute of Technology Shanghai Jiao Tong University	United States China
A:11:4	3	Threat for human beings due to touch voltages and body currents caused by direct lightning strikes in case of non-isolated lightning protection systems using natural components, e.g. steel columns, metal façades	Alexander Dr. Kern Anahita Imani Vashini Tobias Timmermanns	Aachen University of Applied Sciences (FH Aachen) TEN Ingenieure GmbH	Germany

# Lightning Protection and lightning testing standards (Session A11)

Saturday 25th September 2021 : 16.10—18.10 (IST), 19.40—21.40 (JST), 10.40—12.40 (GMT), 07.40—09.40 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
A:11:5 292	Specifications and Performance Verification Methods of Lightning Detection System for Wind Turbines to be Newly Specified in JIS C 1400-24	Kazuo Yamamoto Yoh Yasuda Nobuyuki Honjyo Shingo Ono, Jun Hashimoto	Chubu University Kyoto University J-Wind Service Co., Ltd. JEMA	Japan
A:11:6 186	Equivalent Circuit Identification of An Air-Core Reactor for Lightning Impulse Voltage Tests	Peerawut Yutthagowith Piyapon Tuetong	KMITL	Thailand

## Lightning safety, medicine and education (Session A12)

Sunday 26th September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
A:12:1	45	Lightning Deaths and Injuries while Tending Animals and Fishing	Ronald Holle	Holle Meteorology & Photography	United States
A:12:2	69	African Centres for Lightning and Electromagnetics Network (ACLENet) - Progress Report	Mary Ann Cooper Richard Tushemereirwe Ronald Holle	ACLENet	United States Uganda
A:12:3	245	On Anticipated Lightning Ventricular Fibrillation Current for Selected African Game Species	Pieter H Pretorius	TERRATECH	South Africa
A:12:4	30	Statistical Analysis of Deaths and Damages Caused by Lightning Strikes in Greece	Konstantinos Koutras, Evgenia Kasfiki, Eleftheria Pyrgioti	University of Patras	Greece

# Lightning electromagnetic impulse (LEMP) and lightning-induced effects (Session B1)

Monday 20th September 2021 : 16.20—18.20 (IST), 19.50—21.50 (JST), 10.50—12.50 (GMT), 07.50—09.50 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
B:1:1	142	Revision of separation distances on a reinforced concrete tower	Josef Birkl, Martin Hannig, Bernd Moosburger Josef Bayer Ottmar Beierl Eduard Shulzhenko	DEHN SE + Co KG  MAX BÖGL University of Applied Sciences Nuremberg Technische Universität Ilmenau	Germany
B:1:2	147	Influence of the Electromagnetic Pulse on the Overvoltages Due to Direct Lightning to Lines over Soils with Different Ground Conductivity	Kazuyuki Ishimoto  Fabio Tossani Fabio Napolitano Alberto Borghetti Carlo Alberto Nucci	Central Research Institute of Electric Power Industry University of Bologna	Japan  Italy
B:1:3	12	FDTD simulations of lightning electromagnetic fields over irregular terrain using MEEP	Hannes Kohlmann Wolfgang Schulz Thomas Auzinger	OVE Service GmbH  IST Austria	Austria
B:1:4	28	A Method for the Improvement of the Stability in FDTD-Based Numerical Codes Evaluating Lightning-Induced Voltages	Daniele Metriner Massimo Brignone Renato Procopio Farhad Rachidi Alexandre Piantini	University of Genoa – DITEN  EPFL - EMC Group University of Sao Paulo - IEE	Italy  Switzerland Brazil
B:1:5	163	Lightning-Induced Voltage on an Overhead Transmission Line Terminated with Non-vertical Risers	Jun Guo Marcos Rubinstein  Vernon Cooray	Xi'an Jiaotong University University of Applied Sciences and Arts Western Switzerland Uppsala University	China Switzerland Sweden

# Lightning electromagnetic impulse (LEMP) and lightning-induced effects (Session B2)

Tuesday 21st September 2021 : 14.40—16.00 (IST), 09.10—10.30 (GMT), 18.10—19.30 (JST), 06.10—07.30 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
B:2:1 32	An integrated sensor for lightning warning and lightning activity trajectory detection	Yan Zheng, Jianpei Zhang, Jinyu Zhang, Guohua Yang	Sichuan Zhongguang Lightning Protection Technologies Co., Ltd	China
B:2:2 71	Lightning-induced Overvoltage of 10 kV Distribution Line Based on Electromagnetic Return-stroke Model Using FDTD	Jian Sun, Qing Yang Wenhua Xu Zhong Qin, Ke Wang	State Key Laboratory of Power Distribution Equipment & System Security and New Technology Lijiang Huaping Power Supply Company of Yunnan Power Grid Co., Ltd. Electric Power Research Institute of Yunnan Power Grid Co., Ltd.	China
B:2:3 104	3D-FDTD Calculation of Lightning-Induced Voltages on an Overhead Wire in Presence of a Tower and a Mountain	Kaddour ARZAG Zin-Eddine AZZOUZ Yoshihiro BABA	UTMS of Saida and LDEE lab. of USTO of Oran LDEE lab. and USTO of Oran Doshisha university	Algeria Japan
B:2:4 205	Measurements of surface breakdown voltage of a creeping discharge spark air gap using POM as insulation material	Luis Ignacio Colina, Jimenez, Michael Rock	Technische Universität Ilmenau	Germany

# Lightning electromagnetic impulse (LEMP) and lightning-induced effects (Session B<sub>3</sub>)

Tuesday 21st September 2021 : 16.10—18.10 (IST), 10.40—12.40 (GMT), 19.40—21.40 (JST), 07.40—09.40 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
B:3:1	249	Modelling Transient Response of Nonuniform Transmission Lines Due to Nearby Lightning Strike	Manuja Gunawardana Behzad Kordi	University of Manitoba	Canada
B:3:2	67	Simulation of indirect effects caused by lightning strikes in aeronautical structures	Renan Callegari, José Pissolato, Ricardo Araujo	University of Campinas	Brazil
B:3:3	178	Lightning-Induced Voltages on Overhead Distribution Lines Computed through Analytical Expressions for the Electromagnetic Fields	Massimo Brignone, Renato Procopio, Daniele Mestriner, Mansueto Rossi, Federico Delfino	University of Genoa - DITEN	Italy
			Farhad Rachidi Marcos Rubinstein	EMC Group, Swiss Federal Institute of Technology, EPFL University of Applied Sciences, Western Switzerland	Switzerland
B:3:4	230	Reconstruction of Channel Base Current Waveforms From Electromagnetic Field Waveforms Degraded by Propagation Effects	Masahiro Fukuyama Shunsuke Koike Yoshihiro Baba	Doshisha University	Japan
			Toshihiro Tsuboi Vladimir Rakov	Tokyo Electric Power Company Holdings University of Florida	United States

# Lightning electromagnetic impulse (LEMP) and lightning-induced effects (Session B3)

Tuesday 21st September 2021 : 16.10—18.10 (IST), 10.40—12.40 (GMT), 19.40—21.40 (JST), 07.40—09.40 (BST)

Paper ID	Paper ID	Title	Authors	Affiliations	Country
B:3:5	78	Effects of Soil Uniformity on Radial Electric Field of Lightning Electromagnetic Pulse	Mohammed Imran Mousa Zulkurnain Abdul-Malek Mona Riza M. Esa	Institute of High Voltage and High Current, School of Electrical Engineering, Faculty of Engineering, Universiti Teknologi Malaysia	Malaysia

# Lightning protection of buildings (Session B4)

Wednesday 22nd September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
B:4:1	184	Lightning protection for buildings with CFRP-reinforcements	Ralph Brocke, Siegfried Seger	DEHN SE + Co KG	Germany
B:4:2	253	Clear Evidence of Lightning Strikes to a Building Installed with Multiple ESE Air Terminals	Zainal Abidin HARTONO	Lightning Research Pte Ltd	Malaysia
B:4:3	36	Lightning Risk Assessment of Selected Buildings in Cyberjaya: A Case Study	Hasan E.H. Abulaban Chun Lim Siow Mohammed Hussein, Saleh Mohammed Haram	Faculty of Engineering, Multimedia University Faculty of Engineering, Multimedia University Faculty of Engineering, Multimedia University	Palestine Malaysia Yemen



## Practical lightning protection (Session B5)

Wednesday 22nd September 2021 : 16.10—18.30 (IST), 19.40—22.00 (JST), 10.40—01.00 (GMT), 07.40—10.00 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
B:5:1 286	10/350 $\mu$ s Lightning Impulse Current Behavior of a Conductive Fabric	Francisco Roman, Daniel Rodríguez, Jorge Rodríguez, Jorge A. Cristancho, Cristian Acosta Mahbubur Rahman, Andre Lobato	Universidad Nacional de Colombia Uppsala University	Colombia Sweden
B:5:2 255	A power flow transfer optimization strategy for important transmission channels based on lightning early warning	Chong Tong Jun Wang, Jian Xu Yunfeng Cai, Yang Xu, Xia Hua Siyang Liao, Tao Wang	JiangSu Electric Power Co., Ltd Suzhou Branch SGCC(State Grid Corporation of China) School of Electrical Engineering Wuhan University JiangSu Electric Power Co., Ltd Suzhou Branch SGCC(State Grid Corporation of China) School of Electrical Engineering Wuhan University	China
B:5:3 50	Electromagnetic simulation calculation and experimental research of high amplitude lightning current on long-distance oil and gas pipelines	Yingjie ZHANG, Xiaolei BI, Changxiu ZHANG, Jian GAO, Hui JIANG, Mengbai MA	Sinopec Research Institute of Safety Engineering	China

# Lightning Protection of power systems (Session B6)

Thursday 23rd September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
B:6:1 132	Protection Measures against Wire Breaking due to Lightning on Overhead Power Distribution Lines	Shigeru Yokoyama Tomoyuki Sato	Shizuoka University Tohoku Electric Power Co.,Inc.	Japan
B:6:2 242	Development and Application of the High-Gradient Zinc Oxide Varistor	Wei Cao, Zihao Liu, Xiumin Chen, Shanqiang Gu, Shuai Wan Yueting Zhu	Wuhan NARI Limited Liability Company, State Grid Electric Power Research Institute Mechanical and Electrical Engineering Division of Wenhua College	China
B:6:3 275	Application of Non-Gapped Line Surge Arresters to the 150 kV Overhead Lines of Rhodes: An Investigation through ATP-EMTP Simulations	Zacharias G. Datsios, Pantelis N. Mikropoulos Thomas E. Tsovilis Emmanuel Thalassinakis Grigorios Pagonis	High Voltage Laboratory, School of Electrical & Computer Engineering, Aristotle University of Thessaloniki Islands Network Operation Department, Hellenic Electricity Distribution Network Operator S.A.	Greece
B:6:4 278	Influence of First Return Stroke Current Distributions of Tropical and Temperate Regions on the Assessment of Backflashover Occurrence of Transmission Lines	Fernando Henrique Silveira Frederico Almeida Silverio Visacro	UFMG - Federal University of Minas Gerais	Brazil

# Lightning Protection of power systems (Session B7)

Thursday 23rd September 2021 : 16.10—18.10 (IST), 19.40—21.40 (JST), 10.40—12.40 (GMT), 07.40—9.40 (BST)

Paper ID	Paper ID	Title	Authors	Affiliations	Country
B:7:1	124	Damage Threshold of Surge Arrester Depending on Configuration of Power Distribution Line	Hirofumi Fujita, Koji Michishita, Shigeru Yokoyama Kenichi Kanatani, Susumu Matsuura	Shizuoka University  Hokuriku Electric Power Co.	Japan
B:7:2	165	Effects of RTV Coating Materials and Test Configuration on Polymer Insulator under Lightning Impulse	Farah Adilah Jamaludin  Mohd Zainal Abidin Ab-Kadir  Mahdi Izadi, Norhafiz Azis, Jasronita Jasni, Muhammad Syahmi Abd Rahman	UCSI University and CELP-ALPER, Universiti Putra Malaysia, Malaysia CELP-ALPER, Universiti Putra Malaysia, Malaysia and Institute of Power Engineering (IPE), Universiti Tenaga Nasional, Malaysia CELP-ALPER, Universiti Putra Malaysia, Malaysia	Malaysia
B:7:3	266	Direct Lightning Performance on 10kV Overhead Distribution Lines with Counterpoise Wires	Jinxin Cao, Yaping Du, Yuxuan Ding, Binghao Li  Ruihan Qi  Zhe Li	Department of Building Service Engineering, The Hong Kong Polytechnic University State Key Laboratory of HVDC Transmission Technology, China Southern Power Grid Shenzhen Power Supply Bureau, China Southern Power Grid	China
B:7:4	254	Behaviour of a GDT at high current surges due to the gas pressure	Yves Gannac, Guillaume Leduc, Cong Duc Pham, Vincent Crévenat	CITEL 2CP	France

# Lightning Protection of power systems (Session B7)

Thursday 23rd September 2021 : : 16.10—18.10 (IST), 19.40—21.40 (JST), 10.40—12.40 (GMT), 07.40—09.40 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
B:7:5	280	Characterization of the Span Factor for the Assessment of the Lightning Performance of High-Voltage Transmission Lines	Rafael Gomes, Fernando Silveira, Silvério Visacro	Federal University of Minas Gerais - UFMG	Brazil
B:7:6	285	An Investigation into the Effect of the Probabilistic Distribution of Lightning Current Amplitude on a Transmission Line Backflashover Rate	Daiane Conceição Rafael, Ivan J. S. Lopes, Rafael Silva Alipio	Federal University of Minas Gerais - UFMG Federal Center of Technological Education of Minas Gerais - CEFET MG	Brazil

# Lightning Protection of power systems (Session B8)

Friday 24th September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
B:8:1	115	Computing Grounding Impedance of Rods Buried in Frequency Dependent Stratified Soils	Anderson Ricardo Justo de Araújo, Walter Luiz Manzi Azevedo, José Pissolato Filho	University of Campinas	Brazil
B:8:2	155	Lightning performance of 400 kV transmission lines in Poland in years 2016-2019	Marek Loboda Krzysztof Lenarczyk	Warsaw University of Technology Polish Transmission System Operator (PSE)	Poland
B:8:3	120	Arrester Damage on 6.6 kV Power Distribution Line in Japan by Winter Lightning	Koji Michishita, Takaya Ohmura, Shigeru Yokoyama Koji Takano, Masateru Ikuta Michihiro Matsui	Shizuoka University Kyushu Electric Power Co. Franklin Japan	Japan
B:8:4	274	On the Assessment of a New Stopping Criterion for the Monte Carlo Method Applied to the Analysis of the Lightning Performance of Transmission Lines	Frederico Almeida, Fernando Henrique Silveira, Silverio Visacro	Federal University of Minas Gerais - UFMG	Brazil

# Lightning Protection of power systems (Session B9)

Friday 24th September 2021 : 16.10—17.50 (IST), 19.40—21.20 (JST), 10.40—12.20 (GMT), 07.40—9.20 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
B:9:1	121	Simulation of High-Frequency Transients in Overhead Lines Including Frequency-Dependent Soil Parameters: an FDTD Approach	Rafael Alipio Alberto De Conti Farhad Rachidi	Federal Center of Technological Education (CEFET-MG) Federal University of Minas Gerais (UFMG) Swiss Federal Inst. of Technology	Brazil Brazil Switzerland
B:9:2	127	Frequency Dependence of Multilayer Soil Electrical Parameters: Effects on Ground Potential Rise	Mohammad Ghomi Claus Leth Bak Filipe Faria da Silva	Aalborg University	Denmark
B:9:3	293	On the Influence of Peak Current Distribution on the Lightning Incidence to Transmission Lines	Halana Hess, Rafael Alipio, Miguel Guimarães	Federal Center of Technological Education of Minas Gerais (CEFET-MG)	Brazil
B:9:4	189	A Method of Dynamic Control of the Power Grid based on Real-time Lightning Tracking	Min Xiang, Yang Xu, Yunfeng Cai, Jianqiang Miao, Chong Tong	State Grid Jiangsu Electric Power Co., Ltd Suzhou Branch	China
B:9:5	225	Multi-Chamber Disc-Type Lightning Arrester for Medium Voltage Overhead Lines	Georgy Podpoirkin Evgeniy Enkin	Streamer Electric Company	Russia

# Lightning Protection of power systems (Session B10)

Saturday 25th September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
B:10:1 281	Lightning Current on the Frequency-Dependent Lumped Parameter Model Representing Short Transmission Lines	Jaimis Sajid Leon Colqui, Sérgio Kurokawa Anderson Ricardo Justo de Araújo, José Pissolato Filho Luis Carlos Timaná Eraso	São Paulo State University State University of Campinas University of Sao Paulo	Brazil
B:10:2 59	Investigation of Lightning Overvoltages on a mixed HVDC Transmission Line taking into Account of different Sheath-Bonding Types and the Grounding System	Simon Papenheim, Pawel Malicki, Nils Pfeifer, Mustafa Kizilcay	Chair of Electrical Power Systems, University of Siegen	Germany
B:10:3 60	A Statistical Method to Evaluate the Working Life of MOV	Qibin ZHOU, Xin Huang Nanfa Zhang Linlong Ye	School of Mechatronic Engineering and Automation Shanghai University Changzhou Chuangjie Lightning Protection Electronics Co. Ltd. Guanxi New Future Information Industry Co. Ltd.	China
B:10:4 183	Impacts of Earthing Arrangement on Lightning Protection Efficiency of Grid Connected PV System	Zmnako Mohammed Khurshid Chandima Gomes	College of Engineering, Universiti Tenaga Nasional School of Electrical and Information Engineering, University of Witwatersrand	Malaysia South Africa

# Lightning Protection of power systems (Session B11)

Saturday 25th September 2021 : 16.10—18.10 (IST), 19.40—21.40 (JST), 10.40—12.40 (GMT), 07.40—9.40 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
B:11:1	279	Direct Lightning Impact Assessment on a Rural Minigrid of Nepal	Nasib Khadka, Aayush Bista, Diwakar Bista Shriram Sharma Brijesh Adhikary	Kathmandu Univerisity Amrit Science Campus, Tribhuvan University Kathmandu Univerisity	Nepal
B:11:2	108	Effects of high altitude on multi-chamber arrester performance.	Alexander Chusov Mikhail Pinchuk, Dmitry Ivanov Vladimir Frolov	Streamer Electric Inc. Institute for Electrophysics and Electric Power RAS Peter the Great St.Petersburg Polytechnic University	Russia
B:11:3	14	Lightning Risk of a Distribution Line by Excluding a GW Line and Current-Limiting Arcing Horns	Shinji Yasui, Masakazu Tanida, Masaya Nakagawa Hirokazu Uenishi, Yasuyuki Kunii, Yuuki Kanazawa	Nagoyta Institute of Technology Chubu Electric Power Co., Inc.	Japan



# High-voltage/triggered lightning experiments for simulation of lightning effects (Session B12)

Sunday 26th September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
B:12:1	92	Luminosity Characteristics of Dart Leader and Attempted Leader in a Rocket Triggered Lightning	Rui Su, Jianguo Wang, Li Cai, Yadong Fan, Mi Zhou, Fukun Wang, Junlin Wang	Wuhan University	China
B:12:2	62	Characteristics of Wire Destruction in Negative Artificially-Triggered Lightning Flashes	Fukun Wang, Jianguo Wang, Li Cai, Rui Su, Zhiling Xu, Junlin Wang	Wuhan University	China

# Lightning Occurrence Characteristics (Session C<sub>1</sub>)

Monday 20th September 2021 : 16.10—18.30 (IST), 19.40—22.00 (JST), 10.40—13.00 (GMT), 7.40—10.00 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
C:1:1 273	Incidence of Upward Lightning Triggered by Nearby Lightning: A Monte Carlo Simulation	Antonio Sunjerga Farhad Rachidi Marcos Rubinstein  Vernon Cooray	EPFL EPFL - EMC Group University of Applied Sciences of Western Switzerland  Uppsala University	Switzerland    Sweden
C:1:2 197	Preliminary Study on A Lightning Location Algorithm with Voronoi Diagram as the Constraint for Nonlinear Optimization	Yu Wang, Shanqiang Gu, Gang Meng, Jian Li Zhiqiang Feng, Chang Li	NARI Group (State Grid Electric Power Research Institute) State Grid Hubei Electric Power Research Institute	China
C:1:3 41	Specific Ground Truth Data Analysis of Lightning Discharges in Austria	Lukas Schwalt, Stephan Pack Wolfgang Schulz	Graz University of Technology  ALDIS OVE Service GmbH	Austria
C:1:4 250	Metric collection on semantically segmented high- speed lightning footage with machine learning	Jason R Smit, Hugh GP Hunt, Carina Schumann, Tom Warner	University of Witwatersrand	South Africa

# Lightning Occurrence Characteristics (Session C1)

Monday 20th September 2021 : 16.10—18.30 (IST), 19.40—22.00 (JST), 10.40—13.00 (GMT), 7.40—10.00 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
C:1:5 269	On the use of space-based lightning detection in electric power systems	Joan Montanyà Carlos Morales Silverio Visacro Steven J. Goodman Earle Williams Michael Peterson Nicolau Pineda Marcelo Arcanjo  Oscar van der Velde, Gloria Solà, David Romero Daniel Aranguren	Universitat Politècnica de Catalunya Universidade de São Paulo Federal University of Minas Gerais Thunderbolt Global Analytics Massachusetts Institute of Technology Los Alamos National Laboratory Servei Meteorològic de Catalunya Dena Desarrollos S.L. and Universitat Politècnica de Catalunya Universitat Politècnica de Catalunya  Keraunos SAS	Spain Brazil  United States  Spain  Colombia
C:1:6 70	A Total Lightning Activity Process and Parameter Characteristics at Pearl River Delta in China	Si Cheng, Jianguo Wang, Li Cai	Wuhan University	China

# Lightning Occurrence Characteristics (Session C<sub>2</sub>)

Tuesday 21st September 2021: 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
C:2:1 252	Time delay measurement based on analytic signal for lightning interferometer	Fernando Diaz Francisco Roman Carlos Gomez	Universidad de Cundinamarca Universidad Nacional de Colombia Universidad Central	Colombia
C:2:2 263	Cloud-to-Ground lightning nowcasting using Machine Learning	Alice La Fata Federico Amato Marina Bernardi Mirko D'Andrea Renato Procopio Elisabetta Fiori	DITEN - University of Genoa IDYST - University of Lausanne CESI - s.p.a. Milan CIMA Foundation, Savona DITEN - University of Genoa CIMA Foundation Savona	Italy Switzerland Italy
C:2:3 239	AKUNU Atmospheric Network as Part of the GeoRays Project in Argentina	Adrián Stacul, Daniel Pas- tafiglia Ariel Dalmas Di Giovanni, Martín Morales,  Gabriela Nicora Marcos Rubinstein	CITEDEF  University of Applied Sciences and Arts, Western	Argentina  Switzerland
C:2:4 39	Research and application model of disaster risk optimization based on lightning data	Fengjiao Liu Ming Xue Defeng Xue, Yun Xiao Qiuyan He	Hunan Lightning Protection Center Jingzhou Meteorological Bureau Huaihua Meteorological Bureau Hunan Lightning Protection Center	China

# Lightning protection of electronic systems (Session C<sub>3</sub>)

Tuesday 21st September 2021: : 16.10—17.30 (IST), 19.40—21.00 (JST), 10.40—12.00 (GMT), 07.40—09.00 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country	
C:3:1	56	Map SPD clamping voltages on to spectral clusters generated by Wavelet transformation	Nilantha Sapumanage, Sankha Nanayakkara, Sidath Abeygunawardana, Mahendra Fernando Vernon Cooray	Department of Physics, University of Colombo Department of Engineering Science, Uppsala University	Sri Lanka Sweden
C:3:2	257	Experimental Characterization of Reinforced Concrete Cable Ducts	Susana Naranjo Villamil, Eric Piedallu, Julien Gazave Christophe Guiffaut, Alain Reineix	EDF Group Institut de recherche XLIM	France
C:3:3	265	Surge protection concepts under changed grid conditions	Ralph Brocke	DEHN SE + Co KG	Germany
C:3:4	34	Lightning Protection of Distributed Charging piles for Electric Vehicle	Jing Zhao, Hongwen Zhang, Qiang Lu, Guohua Yang, Qiao Zhang	Sichuan Zhongguang Lightning Protection Technologies Co. Ltd	China

# Lightning attachment (Session C4)

Wednesday 22nd September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
C:4:1	139	The undesirable interaction of lightning strike and floating roof tanks	Aderibigbe Adekitan Michael Rock	TU ilmenau Germany
C:4:2	159	Upward Leader Currents Measured at the Kennedy Space Center Industrial Area Tower	Amitabh Nag, Kenneth L. Cummins, Mathieu Plaisir Jennifer Wilson, David Crawford, Robert Brown Carl Noggle, Hamid K. Rassoul	Florida Institute of Technology NASA Kennedy Space Center Florida Institute of Technology United States
C:4:3	261	Striking distance to flat ground estimated from the bipolar leader model and the influence of the lightning channel radius	Kamila Costa, Miguel Guimarães, Rafael Alipio Marcelo Arcanjo	Federal Center of Technological Education of Minas Gerais Universitat Politècnica de Catalunya Brazil Spain
C:4:4	82	Laboratorial Comparison of Non-conventional Air-termination Systems	Zhehao Pei Weijiang Chen Shengxin Huang Qiaogen Zhang	Xi'an Jiaotong University State Grid Corporation of China China Electric Power Research Institute Xi'an Jiaotong University China

# Lightning protection of renewable energy systems (Session C5)

Wednesday 22nd September 2021 : 16.10—18.30 (IST), 19.40—22.00 (JST), 10.40—01.00 (GMT), 07.40—10.00 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
C:5:1 291	Modeling Lightning Current Distribution in Tower Base of Wind Turbine	Eduard Shulzhenko Kazuo Yamamoto Michael Rock	DEHN SE + Co KG  Group for Lightning and Overvoltage Protection, Technische Universität Ilmenau	Germany Japan Germany
C:5:2 185	A Novel E-Field Activity Detector Based on Gas Ionization for Wind Turbine Rotor Blades	Yarú Méndez, Francisco González, Ismael Acosta Marcos Rubinstein	Universidad Simón Bolívar  Institute for Information and Communication Technologies School of Management and Engineering Vaud	Venezuela  Switzerland
C:5:3 143	Experiments lifting vertical wires with drones to study wind turbines current induction and charging	Pol Fontanes Joan Montanyà Marcelo Arcanjo Michele Urbani	Universitat Politècnica de Catalunya	Spain  Brazil Italy
C:5:4 271	Model-based Risk Assessment on Wind Turbine Blade's Failure Caused by Composite Material's Dielectric Strength Breakdown During Lightning	Florian Preis Yarú Méndez	Allianz Risk Consulting GmbH Universidad Simón Bolívar (USB)	Germany Venezuela

# Lightning protection of renewable energy systems (Session C5)

Wednesday 22nd September 2021 : 16.10—17.30 (IST), 19.40—21.00 (JST), 10.40—12.00 (GMT), 07.40—9.00 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
C:5:5 276	Zone-based Lightning Protection Method for High-performance Photovoltaic Power Plants	György Kálec, Zoltán Tóth, Norbert Szedenik, Bálint Németh, István Kiss	Budapest University of Technology and Economics	Hungary
C:5:6 112	Simulation of Lightning Overvoltages in Substation for Lightning Strike to Wind Turbine	Shozo Sekioka	Shonan Institute of technology	Japan
C:5:7 10	Experimental Study of the Lightning Stroke to GFRP Material of Wind Turbines	Yang ZHAO Yao ZHANG	Shanghai Center for Meteorological Disaster Prevention Technology Electrical Engineering College Shanghai University of Electric Power	China



# Lightning down-conductors and grounding (Session C6)

Thursday 23th September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
C:6:1	105	Meshed Ring Earth Electrode below Potential Control Conductor in Insulated Concrete Foundation	Michael Rock Christian Drebenstedt	Technische Universitaet Ilmenau	Germany
C:6:2	247	Lightning performance and 'formula description of a Y-shaped composite pylon considering the effect of tower-footing impedance	Kai Yin, Mohammad Ghomi, Filipe Faria da Silva, Claus Leth Bak, Hanchi Zhang, Qian Wang Henrik Skouboe	Aalborg University  Bystrup Architecture Design & Engineering	Denmark
C:6:3	161	The behavior of an earthing system under low-frequency and impulse signals	Lasantha Chandimal Manoj Rajakaruna Sankha Nanayakkara Ruwan Abeywardhana Mahendra Fernando Vernon Cooray	University of Colombo  Uppsala University	Sri Lanka  Sweden
C:6:4	260	Transmission Line Modeling Applied to Grounding Systems Design: State-of-the-Art Review	Lucas T.C. Pulz, Daniel S. Gazzana, Victor B. Telló Marcos Telló  Arturo S. Bretas David W. P. Thomas	Universidade Federal do Rio Grande do Sul Companhia Estadual de Energia Elétrica – CEEE-D University of Florida University of Nottingham	Brazil  United States United Kingdom

# Lightning down-conductors and grounding (Session C7)

Thursday 23th September 2021 : 16.10—18.10 (IST), 19.40—21.40 (JST), 10.40—12.40 (GMT), 07.40—09.40 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country	
C:7:1	282	Prompt Calculation of Tower-footing Impulse Impedance considering Different Levels of Conservativeness for the Frequency Dependence of Soil Parameters	Rafael Alipio, Miguel Guimarães, Naiara Duarte Maria Teresa Correia de Barros	Federal Center of Technological Education of Minas Gerais (CEFET-MG) Federal University of Minas Gerais Instituto Superior Técnico (IST)	Brazil Portugal
C:7:2	287	Computation of Surge Voltages on Transmission Tower Located Above Frequency-Dependent Soils	Anderson Ricardo Justo de Araújo, Walter Luiz, Manzi de Azevedo, José Pissolato Filho Jaimis Sajid Leon Colqui, Sérgio Kurokawa Behzad Kordi	UNIVERSITY OF CAMPINAS São Paulo State University University of Canada	Brazil Canada
C:7:3	83	The Simulation Model and Analysis of Transient Ground Potential Rise of GIS Equipment in Lightning Impact Test	Jialun Li, Tao Yuan, Wenxia Sima, Ming Yang, Potao Sun, Xiaochuan Li	Chongqing University	China
C:7:4	157	Multi-Region Soil Model for Transmission Line Backflashover Analysis	François GRANGE, Diego PEREIRA-BOTHELO Sébastien JOURNET, Simon FORTIN, Farid DAWALIBI	SES-EUROPE Safe Engineering Services & technologies ltd	France Canada

# Lightning down-conductors and grounding (Session C7)

Thursday 23th September 2021 : 16.10—18.10 (IST), 19.40—21.40 (JST), 10.40—12.40 (GMT), 07.40—09.40 (BST)

Paper	Paper ID	Title	Authors	Affiliations	Country
C:7:5	229	An Original Setup to Measure Grounding Resistances Using Auxiliary Circuits Buried Vertically in the Ground	José Osvaldo Saldanha Paulino, Carlos Ermídio Ferreira Caetano, Celio Fonseca Barbosa Maurissone Ferreira Guimarães	Federal University of Minas Gerais CEMIG	Brazil
C:7:6	258	An experimental study for development of a novel grounding material to synthesize an environment friendly backfill material	Arunima Shukla, Vikas Almadi, Devesh Jaiswal, Sunil Saini	DEHN India	India

# Lightning down-conductors and grounding (Session C8)

Friday 24th September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
C:8:1 244	An Application of the System Identification Method to Modeling the Transient Response of Grounding Plate	Yantao Huang Shinji Yasui	Nagoya Insititue of Technology Nagoya Insititue of Technology	China Japan
C:8:2 295	Effects of transmission line tower grounding improvements on its lightning performance.	Luis Diaz  Francois Grange, Sebastien Journet Farid Dawalibi	RTE France. Centre National d'Expertise de Réseau SES Europe  Safe Engineering Services and Technologies	France  Canada
C:8:3 58	New Earthing System Inspection Circuit Structure for the Evaluation of Lightning Protection	Gaku Morita  Hiroki Tanaka, Koji Michishita	Railway Technical Research Institute / Shizuoka University West Japan Railway Company Shizuoka University	Japan
C:8:4 162	Potential variation for different earthing profiles	Lasantha Chandimal Kaviranga Gajanayake Manoj Rajakaruna Ruwan Abeywardhana Sidath Abeygunawardana Mahendra Fernando Vernon Cooray	University of Colombo     Uppsala University	Sri Lanka     Sweden

# Lightning down-conductors and grounding (Session C8)

Friday 24th September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
C:8:5174	Frequency Dependent Resistivity of Soil, Bentonite and Soil-Bentonite Mixes: With Special Attention to Electrical Grounding Systems	Riyadh Z. Sabry Ashen Gomes Chandima Gomes	Department of Electrical Engineering, University of Mosul School of Electrical Engineering and Computer Science, Royal Institute of Technology (KTH) School of Electrical and Information Engineering, University of Witwatersrand	Iraq Sweden South Africa

# Lightning protection of transportation systems (Session C10)

Saturday 25th September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper ID	Paper Title	Authors	Affiliations	Country
C:10:1 199	Tropical Lightning Damage on Various Commercial Aircraft Shapes and Sizes	Wisnu Adyatma, Bryan Denov, Syarif Hidayat, Reynaldo Zoro	Bandung Institute of Technology	Indonesia
C:10:2 98	Simulation Calculation of Maximum Lightning Attachment Distance of Aviation Aircraft	Dongyang Yang, Cien Xiao, Yakun Liu, Jian Chen, Zhengcai Fu, Zhijian Jin	Shanghai Jiao Tong University	China
C:10:3 217	Electrical Characteristic of Polymer-Insulated Rail Brackets of the Light Rail Transit Subjected to Lightning Induced Overvoltage	Farah Asyikin Abd. Rahman, Mohd Zainal Abidin Ab Kadir, Ungku Anisa Ungku Amirulddin, Miszaina Osman	Universiti Tenaga Nasional (Uniten)	Malaysia

# Lightning Protection of telecommunication systems (Session C12)

Sunday 26th September 2021 : 14.40—16.00 (IST), 18.10—19.30 (JST), 09.10—10.30 (GMT), 06.10—07.30 (BST)

Paper	Paper	Title	Authors	Affiliations	Country
C:12:1	114	The Use of Local Thunderstorm Warning System in Order to Improve Broadcasting Security and Service Continuity for Digital Satellite Platforms	Mirosław Zielenkiewicz Jarosław Kordalewski	Center of Protection against Overvoltages and Electromagnetic Interferences - RST sp. z o.o. CANAL+ Poland	Poland
C:12:2	220	PCB Mounted Disconnect Technology for the Overload Protection of SPDs Connected to Powerful Telecommunications and Signaling Networks	Gernot Finis, Martin Wetter, Steffen Pförtner	Phoenix Contact GmbH & Co. KG	Germany