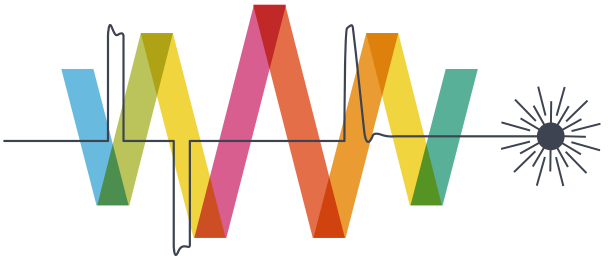
www.eappc-beams2022.org



EAPPC & BEAMS 2022

9th Euro-Asian Pulsed Power Conference
24th International Conference on High-Power Particle Beams

September 18-22, 2022

Seoul Olympic Parktel, Seoul, Korea

PROGRAM BOOK

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PLENARY SPEAKERS

Suk Jae Yoo

Korea Institute of Fusion Energy
Korea

"Outlook for Fusion Energy"

September 19 (Mon) 11:20-12:00

Georg Müller

Karlsruhe Institute of Technology
Germany

"Pulsed Power Research and Applications at KIT"

September 20 (Tue) 11:20-12:00

Guus Pemen

Eindhoven University of Technology
The Netherlands

"Pulsed Power Driven Plasmas for the Electrification of Processes"

September 21 (Wed) 11:20-12:00

Eun Ha Choi

Kwangwoon University
Korea

"High Power Microwave Generation using Virtual Cathode Oscillator and Plasma Medicines for COVID19"

September 22 (Thu) 11:20-12:00

CONFERENCE TOPICS

BEAMS

- Accelerator Technologies
- Gyro-Devices
- High Power Microwaves and Plasmas
- Particle Beams
- Relativistic HPMs
- TWT Technologies

POWER ELECTRONICS

- High Power Converters
- Power Electronics Applications
- Renewable Energy Applications

EAPPC

- EM Launcher & Electromagnetics
- Gas Breakdown and Atmospheric Pressure Plasma
- High-Voltage Power Supplies and Linear Transformer Drives (LTDs)
- Industrial and Commercial Applications
- Pulsed Power Generators and Networks
- Switches
- Underwater Discharge, Wire Explosion and Shock Wave Generation

SESSION TIMETABLE

SEPTEMBER 18 SUNDAY

14:00-18:00	**Registration**	Location Lobby (2F) Sep 18 (Sun) 14:00-18:00 Sep 19-21 (Mon-Wed) 08:00-18:00 Sep 22 (Thu) 08:00-13:00
18:00-19:30	**Welcome Cocktail**	Location Olympia (1F)
24 Hours	**Virtual Poster Session**	

SEPTEMBER 19 MONDAY

	Session Room Olympia (1F)	Session Room London (2F)	Session Room Seoul (2F)
09:00-10:40	**High-Voltage Power Supplies and Linear Transformer Drives (LTDs)** p. 22		
10:40-11:00	Coffee Break		Location Lobby (1F)
11:00-12:00	**Opening Ceremony & Plenary Session 1** Suk Jae Yoo I Korea Institute of Fusion Energy "Outlook for Fusion Energy" p. 20		Location Olympia (1F)
12:00-13:30	Lunch Break		Location Arirang (2F)
13:30-14:30	**In-person Poster Session**		Session Room Athens (4F)
14:30-16:10	**Pulsed Power Generators and Networks 1** p. 23	**Power Electronics Applications 1** p. 24	
16:10-16:30	Coffee Break		Location Lobby (1F&2F)
16:30-18:10	**Pulsed Power Generators and Networks 2** p. 23	**Power Electronics Applications 2** p. 25	
24 Hours	**Virtual Poster Session**		

SEPTEMBER 20 TUESDAY

	Session Room Olympia (1F)	Session Room London (2F)	Session Room Seoul (2F)
09:00-11:00	**Underwater Discharge, Wire Explosion and Shock Wave Generation** p. 26	**Particle Beams** p. 28	
11:00-11:20	Coffee Break		Location Lobby (1F)
11:20-12:00	**Plenary Session 2** Georg Müller I Karlsruhe Institute of Technology "Pulsed Power Research and Applications at KIT" p. 20		Location Olympia (1F)
12:00-13:30	Lunch Break		Location Arirang (2F)
13:30-14:30	**In-person Poster Session**		Session Room Athens (4F)
14:30-16:10	**Gas Breakdown and Atmospheric Pressure Plasma 1** p. 27	**High Power Microwaves and Plasmas** p. 29	
16:10-16:30	Coffee Break		Location Lobby (1F&2F)
16:30-18:10	**Pulsed Power Generators and Networks 3** p. 27	**Accelerator Technologies** p. 29	
18:20-22:20	**Night Tour**		Gather at the main gate of the conference venue by 18:20
24 Hours	**Virtual Poster Session**		

EAPPC & BEAMS 2022

9th Euro-Asian Pulsed Power Conference
24th International Conference on High-Power Particle Beams

SEPTEMBER 21 WEDNESDAY

	Session Room Olympia (1F)	Session Room London (2F)	Session Room Seoul (2F)
09:00-11:00	**EM Launcher & Electromagnetics** p. 31	**Gas Breakdown and Atmospheric Pressure Plasma 2** p. 32	**Relativistic HPMs** p. 34
11:00-11:20	Coffee Break		Location Lobby (1F)
11:20-12:00	**Plenary Session 3** Guus Pemen I Eindhoven University of Technology "Pulsed Power Driven Plasmas for the Electrification of Processes" p. 20		Location Olympia (1F)
12:00-13:30	Lunch Break		Location Arirang (2F)
13:30-14:30	**In-person Poster Session**		Session Room Athens (4F)
14:30-16:10	**Pulsed Power Generators and Networks 4** p. 31	**High Power Converters** p. 33	**TWT Technologies** p. 35
16:10-16:30	Coffee Break		Location Lobby (2F)
16:30-18:10		**Renewable Energy Applications** p. 34	**Gas Breakdown and Atmospheric Pressure Plasma 3** p. 36
18:10-20:00	**Banquet**		Location Olympia (1F)
24 Hours	**Virtual Poster Session**		

SEPTEMBER 22 THURSDAY

	Session Room Olympia (1F)	Session Room London (2F)	Session Room Seoul (2F)
09:00-11:00	**Switches** p. 37	**Industrial and Commercial Applications** p. 38	**Gyro-Devices** p. 38
11:00-11:20	Coffee Break		Location Lobby (1F)
11:20-12:00	**Plenary Session 4** Eun Ha Choi I Kwangwoon University "High Power Microwave Generation using Virtual Cathode Oscillator and Plasma Medicines for COVID19" p. 20		Location Olympia (1F)
12:00-13:30	Lunch Break		Location Arirang (2F)
24 Hours	**Virtual Poster Session**		

ORAL SESSION

SEPTEMBER 19, 2022 (MON)

High-Voltage Power Supplies and Linear Transformer Drives (LTDs)

September 19 (Mon) **Olympia (1F)**

CHAIR Hyoungsuk Kim (Korea Electrotechnology Research Institute, Korea)

1-0287 09:00-09:20
15kV and 4kW High-Precision Capacitor Charging Power Supply Based on LCC Resonant Converter for Kicker Modulator System
Chang-hyun Kwon[1,2], Tae-Hyun Kim[1,2], Seong-Ho Son[1,2], Sung-Roc Jang[1,2], Chan-Hun Yu[2], Jung-Soo Bae[1], Hyoung-Suk Kim[1,2]
[1]University of Science and Technology, Korea, [2]Korea Electrotechnology Research Institute, Korea

1-0158 09:20-09:40
60kV High Voltage Capacitor Charging Power Supply Based on a 24V Battery
Woo-Cheol Jeong, Hong-Je Ryoo
Chung-Ang University, Korea

1-0134 09:40-10:00
Compact Pulsed-Power Modulator Based on Solid-State Switch with Peak Power of 4 MW
Hyun-Bin Jo, Hong-Je Ryoo
Chung-Ang University, Korea

1-0131 10:00-10:20
High Stability Klystron Modulator for Commercial Accelerator Application
Michael Kempkes, Christopher Chipman, Anthany Heindel, Merouane Benjnane, Henry Von Kelsch IV, Ziliang Ruan, Marcel P.J. Gaudreau, Rebecca Simpson
Diversified Technologies, Inc., USA

1-1044 10:20-10:40
A Method to Improve a High-Frequency Transformer Power Density with a B-H Curve Shifting Winding
Gang Seok Lee, Sangheok Ji, Sungwoo Bae
Hanyang University, Korea

Pulsed Power Generators and Networks 1

September 19 (Mon) **Olympia (1F)**

CHAIR Georg Müller (Karlsruhe Institute of Technology, Germany)

1-0711 Solid-State Marx Generator Using Hybrid Energy Storage
14:30-14:50 Xiaojing Ren[1], Taichi Sugai[1], Akira Tokuchi[1,2], Weihua Jiang[1]
VIRTUAL *[1]Nagaoka University of Technology, Japan, [2]Pulsed-Power Japan Laboratory Ltd., Japan*

1-0669 Performance Study of Solid-state Pulse Modulators for DIRAMS Electron Accelerators
14:50-15:10 Heuijin Lim, Dong Hyeok Jeong, Kyoung Won Jang, Sang Koo Kang, Hyun Kim, Sang Jin Lee, Kyohyun Lee, Tae Woo Kang, Seung Wook Kim, Manwoo Lee
Dongnam Institute of Radiological & Medical Sciences, Korea

1-0654 Design and Production of a Low-cost Homemade PCB-mounted Capacitive Divider for Frequencies Up to Hundred MHz
15:10-15:30 VIRTUAL Eric Brune[1], Jean-Marie Larbaig[1], Charly Sigogne[1], Laurent Pecastaing[1], Thierry Ress[1], Antoine Silvestre De Ferron[1], Marc Rivaletto[1], Robert Ruscassie[1], Veronika Gavrilenko[1], Baptiste Cadilhon[2], Laurent Courtois[2], Bruno Cassany[2], Alexandre Goeury[2]
[1]Université de Pau et des Pays de l'Adour, France, [2]French Atomic Energy and Alternative Energies Commission, France

1-0823 Design of a Resonantly Charged Semiconductor-Based Marx Modulator Based on Simulations and Measurements
15:30-15:50 VIRTUAL Martin Sack, Johannes Ruf, Dennis Herzog, Georg Müeller
Karlsruhe Institute of Technology, Germany

1-0665 Pulsed Power Science and Technology in the 19th Century
15:50-16:10 Guus Pemen, Tom Huiskamp, Wilfred Hoeben
Eindhoven University of Technology, The Netherlands

Pulsed Power Generators and Networks 2

September 19 (Mon) **Olympia (1F)**

CHAIR Yunsik Jin (Korea Electrotechnology Research Institute, Korea)

1-0201 Compact Solid State Switched Spiral Generators as Triggers for Pulsed Power Accelerators
16:30-16:50 Simon Bland[1], Susan Parker[1], Jiaqi Yan[2], Simon Bott-Suzuki[3], Jacob Banasek[3], Samuel Cordaro[3], Anton Gusev[4], Ivan Lavrinovich[4]
[1]Imperial College London, UK, [2]Beihang University, China, [3]University of California, San Diego, USA, [4]Pau University, France

1-0395 16:50-17:10 Design and Evaluation of a New 2.2 MV Pulse Generator to Drive Existent EMP Simulators While Reducing SF_6 Emission
Léo Sousbielle[1,2], Francis Lassalle[1], Benjamin Lassalle[1], Thierry Chanconie[1], Laurent Pecastaing[2], Marc Rivaletto[2]
[1]French Alternative Energies and Atomic Energy Commission, France, [2]Université de Pau et des Pays de l'Adour, France

1-0148 17:10-17:30 High-Efficiency Solid-State Pulsed Power Modulator for Driving MW Range Magnetron
Seung-Ho Song[1], Min-Kyu Choi[2], Hong-Je Ryoo[2]
[1]Korea Railroad Research Institute, Korea, [2]Chung-Ang University, Korea

1-0842 17:30-17:50 Development of High Voltage Pulsed Power Supply Using 13kV SiC- MOSFET
Akira Tokuchi[1], Kyosuke Nakata[1], Kiyoshi Tohshi[2], Shinji Kobayashi[2]
[1]Pulsed Power Japan Laboratory Ltd., Japan, [2]Kyoto University, Japan

2-0915 17:50-18:10 Electrical and Acoustical Characteristics of an Underwater Electrical Cu Wire Explosion
VIRTUAL
Yoan Bacqueyrisses[1], Thierry Reess[2], Antoine De Ferron[2], Bucur M. Novac[2,3], Remi Tujague[1], Alain Morell[1]
[1]ITHPP, France, [2]Universite de Pau et des Pays de l'Adour, France, [3]Loughborough University, UK,

Power Electronics Applications 1

September 19 (Mon) **London (2F)**

CHAIR Kyo-Beum Lee (Ajou University, Korea)

5-0978 14:30-14:50 Li-ion Battery Remaining Useful Life Prediction Algorithm Based on EMD-CNN-LSTM
Dong Hwan Kim, Jeyeong Lim, Byoung Kuk Lee
Sungkyunkwan University, Korea

5-0973 14:50-15:10 Clustering Algorithm for Recycling Retired Lithium-ion Batteries Based on DBSCAN
Jeyeong Lim, Dong-Hwan Kim, Byoung-Kuk Lee
Sungkyunkwan University, Korea

5-0759 15:10-15:30 Heatsink Integrated Symmetric Switching Module with Low Parasitic Inductance for Parallel Operation of SiC Power Semiconductor
Sung-Soo Min, Rae-Young Kim
Hanyang University, Korea

5-0756 15:30-15:50 Analysis and Design of LLC Resonant Converter Based on Time-Domain Analysis for Achieving High Efficiency
Su-Seong Park, Min-ho Eom, Rae-Young Kim
Hanyang University, Korea

5-0719 Resonant Inverter with Self-Calibration of Coil Inductance Detuning
15:50-16:10 Dukju Ahn, Saidul Alam Chowdhury
Incheon National University, Korea

Power Electronics Applications 2

September 19 (Mon) **London (2F)**

CHAIR Jeehoon Jung (Ulsan National Institute of Science and Technology, Korea)

5-0934 Single-phase Multi-Level Converter for Distributed Sources (PV and Battery) and Grid Interfacing Application
16:30-16:50 Stephen Arinze Obi, Jae-Jung Jung
Kyungpook National University, Korea

5-0153 Development of Integrated Power Supply System with 3 kV Simmer and 30 kV Trigger for Series-connected Xenon Flash Lamps
16:50-17:10 Jaebeom Ahn, Hong-Je Ryoo
Chung-Ang University, Korea

5-0828 Effective Decoupling Controller Design for Triple-Active-Bridge Converter Based on Its Frequency-Domain Analysis
17:10-17:30 Chano Jeon, Jee-hoon Jung, Changwoo Yun, Hyunji Kim
Ulsan National Institute of Science and Technology, Korea

5-0266 Power Decoupled Multi-port Bidirectional DC-DC Converter for Operating Grid-Connected and Islanding Modes in DC Microgrid Systems
17:30-17:50 Chang-Woo Yun, Jun-Young Lee, Chano Jeon, Jee-hoon Jung, Hyunji Kim
Ulsan National Institute of Science and Technology, Korea

5-0821 Design Methodology of High-frequency Induction Heating System Employing PCB Coils
17:50-18:10 Hyunji Kim, Jeehoon Jung, Chano Jeon, Changwoo Yun
Ulsan National Institute of Science and Technology, Korea

Underwater Discharge, Wire Explosion and Shock Wave Generation

September 20 (Tue) **Olympia (1F)**

CHAIR Jaegu Choi (Korea Electrotechnology Research Institute, Korea)

2-0232 09:00-09:20
Recent Results of the Research of Underwater Electrical Explosion of Wires/Wires Arrays Accompanied by Strong Shock Waves Generation and Applications
Yakov Krasik[1], Simon Bland[2], Daniel Maler[1], Sergey Efimov[1], Alexander Rososhek[1], Savva Theocharous[2], Jergus Struska[2], Yao Yao[2], Bratislav Lukic[3], Alexander Rack[3], Michael Liverts[4], Maksim Kozlov[5]
[1]Technion - Israel Institute of Technology, Israel, [2]Imperial College, UK, [3]European Synchrotron Radiation Facility, France, [4]KTH Royal Institute of Technology, Sweden, [5]Nazarbayev University, Kazakhstan

1-0400 09:20-09:40 VIRTUAL
Development and Test of a 500-kV Compact Marx Operating at 100 Hz
Alexey Zhabin[1], Laurent Ariztia[1], Ivan Lavrinovich[1], Antoine Silvestre de Ferron[1], Marc Rivaletto[1], Bucur Novac[2], Laurent Pecastaing[1]
[1]Université de Pau et des Pays de l'Adour, France, [2]Loughborough University, UK

2-0349 09:40-10:00
A Pulsed Power Platform for Single-shot Multi-frame Hydrodynamic Instability Measurements on a Synchrotron
Jergus Strucka[1], Yifan Yao[1], Savva Theocharous[1], David Yanuka[1], Daniel Maler[2], Sergey Efimov[2], Bratislav Lukic[3], Alexander Rack[3], Jeremy Chittenden[1], Yakov Krasik[2], Simon Bland[1]
[1]Imperial College London, UK, [2]Technion - Israel Institute of Technology, Israel, [3]European Synchrotron Radiation Facility, France

2-0297 10:00-10:20
Pulsed Power Produced Cylindrically Convergent Shockwaves in Water at the Multi-Mega-Ampere Level
Simon Bland[1], Jergus Strucka[1], Savva Theocharous[1], Jeremy Chittenden[1], Luis Sebastian Caballero Bendixsen[2], Joshua Read[2], Cristian Dobranszki[2], Hugo Doyle[2], Yakov Krasik[3], Daniel Maler[3], Alexander Rososhek[3]
[1]Imperial College London, UK, [2]First Light Fusion Ltd, UK, [3]Technion - Israel Institute of Technology, Israel

2-0230 10:20-10:40 VIRTUAL
Peculiarities of Planar Shockwave Interaction with Air-water Interface and Solid Target
Daniel Maler[1], Sergey Efimov[1], Svetlana Gleizer[1], Savva Theocharous[2], Jergus Strucka[2], Yifan Yao[2], Alexander Rack[3], Bratislav Lukic[3], Simon Bland[2], Yakov Krasik[1]
[1]Technion - Israel Institute of Technology, Israel, [2]Imperial College London, UK, [3]European Synchrotron Radiation Facility, France

1-0373 10:40-11:00 VIRTUAL
Influence of Rise Time of Voltage Applied to Electrodes in Water on the Acoustic Wave Produced by Breakdown of the Gap
Jessica M. Stobbs[1], Bucur M. Novac[1], Tom Sommers[2], Tom Huiskamp[2]
[1]Loughborough University, UK, [2]Eindhoven University of Technology, The Netherlands

Gas Breakdown and Atmospheric Pressure Plasma 1

September 20 (Tue) **Olympia (1F)**

CHAIR Jinhyun Jeong (Korea Institute of Fusion Energy, Korea)

2-1099 Evaluating the Effect of Pulse Shape on OH Radical Production at Secondary Streamer Phase
14:30-14:50 Nhat Thanh Phung[1], Taichi Sugai[1], Akira Tokuchi[1, 2], Weihua Jiang[1]
VIRTUAL *[1]Nagaoka University of Technology, Japan, [2]Pulsed Power Laboratory Ltd., Japan*

1-0192 Accumulation Effect of Active Species in Atmospheric Pressure Plasma Jet Driven by Nanosecond
14:50-15:10 High-voltage Pulses with Mhz Pulse Repetition Rate
VIRTUAL Bangdou Huang, Cheng Zhang, Tao Shao
Institute of Electrical Engineering, Chinese Academy of Sciences, China

1-0939 Pulsed Gas Discharge Studied by Bipolar Solid-State LTD
15:10-15:30 Junxiang Yang, Taichi Sugai, Akira Tokuchi, Weihua Jiang
VIRTUAL *Nagaoka University of Technology, Japan*

1-0929 Lifetime-Trap Density Correlation of Metallized Film Pulsed Power Capacitors after γ Irradiation
15:30-15:50 Yucheng Wang, Hua Li, Zhehao Wang, Fuchang Lin, Qin Zhang
VIRTUAL *Huazhong University of Science and Technology, China*

1-0346 Parallel Switching of High-Voltage Thyristors in Impact-Ionization Wave Mode
15:50-16:10 Ejlal Shahriari, Anton Gusev, Thomas Maysonnave, Antoine Silvestre De Ferron, Laurent Pecastaing
Université de Pau et des Pays de l'Adour, France

Pulsed Power Generators and Networks 3

September 20 (Tue) **Olympia (1F)**

CHAIR Sukho An (Pohang Accelerator Laboratory, Korea)

1-0534 New SOS Diode Pumping Circuit Based on an All-Solid-State Spiral Generator for High-Voltage
16:30-16:50 Nanosecond Applications
Anton Gusev[1], Ivan Lavrinovich[1], Antoine De Ferron[1], Laurent Pecastaing[1], Simon Bland[2], Susan Parker[2], Jiaqi Yan[2], Bucur Novac[3]
[1]Université de Pau et des Pays de l'Adour, France, [2]Imperial College London, UK, [3]Loughborough University, UK

1-0514 Impedance Matching in Solid-State Marx Generators
16:50-17:10 J.J. Van Oorschot, A.J.M. Pemen, T. Huiskamp
VIRTUAL *Eindhoven University of Technology, The Netherlands*

1-0468 17:10-17:30
A Saturable Pulse Transformer Based on Nanocrystalline Magnetic Cores for an Adjustable High-Voltage Nanosecond Generator
Mawuena Rémi Degnon[1], Anton Gusev[1], Antoine Silvestre De Ferron[1], Laurent Pecastaing[1], Gaëtan Daulhac[2], Aleksandr Baranov[2], Sébastien Boisne[2], Bucur Novac[3], Michael Barnes[4], Viliam Senaj[4], Thomas Kramer[4]
[1]Université de Pau et des Pays de l'Adour, France, [2]ITHPP, France, [3]Loughborough University, UK, [4]Organisation Européenne pour la Recherche Nucléaire, Switzerland

1-0861 17:30-17:50 VIRTUAL
An Advanced 3D Electromagnetic Analysis and Experimental Validation of a Bipolar Subnanosecond Pulse Generation System for Defense Applications
Njomza Ibrahimi[1], Laurent Ariztia[1], Antoine De Ferron[1], Marc Rivaletto[1], Bucur Novac[2], Laurent Pecastaing[1]
[1]Université de Pau et des Pays de l'Adour, France, [2]Loughborough University, UK

1-0618 17:50-18:10
Design and Simulation of a 500kV Pulse Transformer for Pulsed Power Applications
Hamad Deiban[1], Anatoly Rouba[2], Nicolas Mora[1], Chaouki Kasmi[1]
[1]Technology Innovation Institute, United Arab Emirates, [2]Belarusian State University, Belarus

Particle Beams

September 20 (Tue) **London (2F)**

CHAIR Seong-Tae Han (Korea Electrotechnology Research Institute, Korea)

4-1126 09:00-09:20
Recent Experimental Results of Neutral Beam Injection System on KSTAR
Jinhyun Jeong
Korea Institute of Fusion Energy, Korea

4-0169 09:20-09:40
Investigating the Electronic Emission of a Cold Velvet Cathode in Multi-pulse Regime
Isia Mousseau[1,2], Laurent Courtois[1], Thierry Reess[2]
[1]French Alternative Energies and Atomic Energy Commission, France, [2]University of Pau and Pays de l'Adour, France

4-0545 09:40-10:00
Interaction of an Intense Relativistic Electron Beam in Gas and Preformed Plasma for Flash Radiography Applications
Adrien Dudes, Fabien Dorchies, Claude Fourment
French Alternative Energies and Atomic Energy Commission, France

3-0336 10:00-10:20
Diocotron Instability in the Electron Flow of a Split Cathode Magnetron Source
John Leopold[1], Yuri Bliokh[1], Yakov Krasik[1], Yoav Hadas[2], Svetlana Gleizer[1], Yvgene Flyat[1], Yang Cao[1], Dmitrii Andreev[3], Artem Kuskov[3]
[1]Technion - Israel Institute of Technology, Israel, [2]Rafael, Israel, [3]University New Mexico, USA

4-1111 10:20-10:40 VIRTUAL
Use of the CASTLE Transmission Line Code to Track Changes in Saturn Bremsstrahlung Diode Performance due to Scheduled Hardware Modifications
Timothy Renk[1], Kenneth Struve[1], Jonathan Douglass[1], Brian Hutsel[1], Mark Savage[1], Benjamin Ulmen[1], Bruce Weber[2]
[1]Sandia National Laboratories, USA, [2]Naval Research Laboratory, USA

4-0736 Low Secondary Electron Emission of Vertical Graphene
10:40-11:00 Xiaoning Zhang[1,2]
VIRTUAL *[1]Fudan University, China, [2]China Academy of Engineering Physics, China*

High Power Microwaves and Plasmas

September 20 (Tue) **London (2F)**

CHAIR Seong-Tae Han (Korea Electrotechnology Research Institute, Korea)

3-0439 A Novel High-efficiency S-band Vircator for the Generation of High-power Microwaves
14:30-14:50 Sohail Mumtaz, Eun Ha Choi
Kwangwoon University, Korea

3-1048 Production of Powerful Ultra-Short Microwave Pulses Trains Based on Passive Mode-Locking
14:50-15:10 Naum Ginzburg, Sergey Samsonov, Gregory Denisov, Michael Vilkov, Irina Zotova, Alexander Sergeev,
VIRTUAL Igor Gachev, Alexander Bogdashov, Roman Rozental, Yuri Danilov, Eugene Ilyakov, Igor Kulagin
Institute of Applied Physics of the Russian Academy of Sciences, Russia

3-1017 The Numerical Simulation of a Microwave to Plasma Interaction in the S-band Microwave Pulse Compressor
15:10-15:30
VIRTUAL Zhao Shixin, Vladislav Igumnov, Vasily Kozhevnikov, Yao Jingfeng, Yuan Chengxun
Harbin Institute of Technology, China

3-0809 LDMOS Power Amplifier Failure under External RF Pulse Voltage Across Its Drain-source Terminal
15:30-15:50 Zehai Zhang, Tao Xun, Langning Wang
VIRTUAL *National University of Defense Technology, China*

Accelerator Technologies

September 20 (Tue) **London (2F)**

CHAIR Seunghwan Shin (Pohang Accelerator Laboratory, Korea)

4-0942 Development of a Microtron and a Hybrid Undulator for a Compact THz Free-electron Laser
16:30-16:50 Sangyoon Bae[1], Varun Pathania[1,2], Kyu-Ha Jang[1], Kitae Lee[1,2], Nikolay Vinokurov[3], Young Uk Jeong[1,2]
[1]Korea Atomic Energy Research Institute, Korea, [2]University of Science and Technology, Korea,
[3]Budker Institute of Nuclear Physics, Russia

4-0778 Design and Development of Low Loss Waveguide & Wire-Grid-Polarizer for Resonator of Compact Terahertz Free-Electron-Laser
16:50-17:10
Varun Pathania[1,2], Sangyoon Bae[2], Kyu-Ha Jang[2], Kitae Lee[1,2], Young Uk Jeong[1,2]
[1]University of Science and Technology, Korea, [2]Korea Atomic Energy Research Institute, Korea

4-1012 Bipolar Marx Generator Prototype for the Super MuSR Beamline Electrostatic Chopper at ISIS Based on SiC MOSFETs
17:10-17:30
VIRTUAL
Aleh Kandratsyeu[1], Luis Redondo[2], Jonny Ranner[3]
[1]EnergyPulse Systems, Portugal, [2]Lisbon Engineering Superior Institute, Portugal, [3]Rutherford Appleton Laboratory, UK

3-0223 Verifying the Ultra-high-power Microwave Driven Plasma Wakefield in a Plasma Filled Waveguide, with a Probing Electron Beam
17:30-17:50
VIRTUAL
Yang Cao, Yury Bliokh, John Leopold, Guy Leibovitch, Yakov Krasik
Technion - Israel Institute of Technology, Israel

4-0529 A Preliminary Analysis of Beam Longitudinal Motion in Pulsed Synchronous Linear Accelerator
17:50-18:10
VIRTUAL
Yi Liu, Liansheng Xia, Yi Shen
Institute of Fluid Physics, China Academy of Engineering Physics, China

SEPTEMBER 21, 2022 (WED)

EM Launcher & Electromagnetics

September 21 (Wed) **Olympia (1F)**

CHAIR Markus Schneider (French-German Research Institute of Saint-Louis, Germany)

2-0660 09:00-09:20
An Augmented Multiphase Rail Launcher with a Modular Design: First Experimental Results
Florian Zellmer[1], Markus Löffler[2], Markus Schneider[1], Christian Kreischer[3]
[1]French-German Research Institute of Saint Louis, France, [2]Westphalian University of Applied Sciences, Germany, [3]Helmut Schmidt University, Germany

2-0329 09:20-09:40
Control System Architecture for a 150 kJ Electromagnetic Accelerator
Aaesha Alali, Fernando Albarracin, Gideon Appiah, Nicolas Mora, Chaouki Kasmi
Technology Innovation Institute, United Arab Emirates

2-0115 09:40-10:00
Influence of the Capacitance of the Pulsed Power Source on the Optimum Triggering Position of the Projectile in a Multistage Coilgun to Achieve the Highest Projectile Velocity
Ranashree Ram, Joy Thomas Meledath
Indian Institute of Science, India

2-0121 10:00-10:20
Influence of Preheating of the Workpiece on the Performance of Pulsed Electromagnetic Forming Process
Deepak Kaushik, Joy Thomas M.
Indian Institute of Science, India

2-0899 10:20-10:40
Upgrade of Poloidal Field Coil Power Systems in VEST
Taekyoung Kim[1], JongYoon Park[1], SeulChan Hong[2], Kyoung-Jae Chung[1], Yong-Seok Hwang[1]
[1]Seoul National University, Korea, [2]Korea Institute of Fusion Energy, Korea

Pulsed Power Generators and Networks 4

September 21 (Wed) **Olympia (1F)**

CHAIR Kyoung-Jae Chung (Seoul National University, Korea)

1-0818 14:30-14:50 VIRTUAL
A Compact Repetitive Pulsed Power Generator HEART-20 with Propylene Carbonate Forming Line
Zicheng Zhang, Shifei Liu, Hanwu Yang, Diangeng Li, Yuwei Fan, Jiande Zhang
National University of Defense Technology, China

1-0784 A Novel Avalanche Transistor-based Self-triggering Linear Transformer Driver Pulse Generator
14:50-15:10 Zichen Deng, Qi Yuan, Weidong Ding
VIRTUAL *Xi'an Jiaotong University, China*

1-0651 Review of the Development of Solid-State Impedance-Matched Marx Generators at Eindhoven University of Technology
15:10-15:30 Tom Huiskamp, Jeroen Van Oorschot, Chiel Ton
Eindhoven University of Technology, The Netherlands

1-0343 Damped Sinusoid HV Breakdown Testing for Liquid and Solid Insulators
15:30-15:50 Shaikha Aldhaheri[1], Anatoli Rouba[2], Nicolas Mora[1]
[1]Technology Innovation Institute, United Arab Emirates, [2]Belarusian State University, Belarus

1-0645 Ultrafast Gate Driver to Optimize Dynamic Performance of SiC-MOSFET for ns-Pulse Generator: Design and Comparative Evaluation
15:50-16:10
VIRTUAL Jiuxin Ma, Liang Yu, Dazhao He, Yaobin Jin, Wanli Tan, Shoulong Dong, Chenguo Yao
Chongqing University, China

Gas Breakdown and Atmospheric Pressure Plasma 2

September 21 (Wed) **London (2F)**

CHAIR Heuijin Lim (Dongnam Institute of Radiological & Medical Sciences, Korea)

1-0865 Multilayer Shielding Effectiveness against Intentional Electromagnetic Interferences (IEMI) Using 3D Numerical Modelling Approach
09:00-09:20
VIRTUAL Roman Leduc[1], Robert Ruscassié[1], Jean-Marc Dienot[2]
[1]Université de Pau et des Pays de l'Adour, France, [2]Université Toulouse III - Paul Sabatier, France

1-0211 Lifetime Characteristic and Analysis of Mica Paper Capacitors
09:20-09:40 Shifei Liu, Jiande Zhang, Zicheng Zhang, Diangeng Li
VIRTUAL *National University of Defense Technology, China*

1-0699 Development of a System for SI Traceable Measurements of High Voltage Nanosecond Pulses Up to 500 kV
09:40-10:00
VIRTUAL Mohammad Saif Khan, Mohamed Agazar, Yann Le Bihan
Laboratoire national de métrologie et d'essais, France

2-0847 Pulsed Power Researches at Institute of Electrophysics of the Ural Branch of the Russian Academy of Sciences
10:00-10:20
VIRTUAL Stanislav Chaikovsky
Institute of Electrophysics of the Ural Branch of the Russian Academy of Sciences, Russia

1-0873 10:20-10:40 An Electromagnetic Simulation of Semi Conductive Coaxial Lines for Multi-pulses Radiography Applications

Charly Sigogne[1], Jean-Marie Larbaig[1], Antoine De Ferron[1], Laurent Pecastaing[1], Laurent Courtois[2], Baptiste Cadilhon[2], Eric Brune[1]

[1]Université de Pau et des Pays de l'Adour, France, [2]French Atomic Energy and Alternative Energies Commission, France

1-0635 10:40-11:00 VIRTUAL Similarity Laws in Gas Breakdown Physics

Yangyang Fu

Tsinghua University, China

High Power Converters

September 21 (Wed) **London (2F)**

CHAIR Sungwoo Bae (Hanyang University, Korea)

5-1033 14:30-14:50 A New Grid Voltage Compensation Method of Low Switching Frequency Operation

Joungjin Seo, Hanju Cha

Chungnam National University, Korea

5-1074 14:50-15:10 A Study on the Surplus Wind Farm Power Generation to the Metropolitan Using HVDC Transmisson Lines in the Southwestern Sea of Korea

Joonseok Lim, Sungwoo Bae

Hanyang University, Korea

5-1062 15:10-15:30 Modeling of Parallel Connected Actual Systems for DSSC Analysis

Taehwan Ahn, Younghoon Cho

Konkuk University, Korea

5-0273 15:30-15:50 Current Sharing Control of Paralleled Multi-Modular Four-Leg Inverters for Transformerless Uninterruptable Power Supply

Chang-Yeol Oh, Ki Ryong Kim, Minho Kwon, Jongpil Lee

Korea Electrotechnology Research Institute, Korea

Renewable Energy Applications

September 21 (Wed) **London (2F)**

CHAIR Kyo-Beum Lee (Ajou University, Korea)

5-1060 16:30-16:50
The Transient Response Improvement for Single-Phase Solid-State Transformer Using Power Feedforward
Jaehyeon Bang, Taehwan Ahn, Dohong Lee, Younghoon Cho
Konkuk University, Korea

5-0931 16:50-17:10
A Robust Modeling of ESS and DR Considering Harmonic Distortion for the Enhancement of PVs Hosting Capacity Using IGDT
Hafiz Muhammad Ashraf, Muqaddas Elahi, Chul-Hwan Kim
Sungkyunkwan University, Korea

5-0924 17:10-17:30
An Online Energy Management System of a Cold-chain Center Based on a Digital Twin System with Artificial Intelligence
Sanghyeob Kwon, Donghyuk Shin, Sungwoo Bae
Hanyang University, Korea

5-1042 17:30-17:50 **VIRTUAL**
A Novel Algorithm for Global Maximum Power Point Tracking of Photovoltaic Generation Systems
Chaeeun Lee, Yohan Jang, Sungwoo Bae
Hanyang University, Korea

5-0174 17:50-18:10
55 kW Bidirectional DC-DC Converter for Fuel Cell Vehicle
Su-Mi Park, Woo-Cheol Jeong, Hong-Je Ryoo
Chung-Ang University, Korea

Relativistic HPMs

September 21 (Wed) **Seoul (2F)**

CHAIR Hoechun Jung (Institute for Basic Science, Korea)

3-0656 09:00-09:20
Compact Efficient and Frequency Tunable Relativistic Magnetron with Coaxial Cone-Shaped Waveguide
Yannick Delvert[1], Antoine Chauloux[1], Jean-Christophe Diot[1], Nicolas Ribière-Tharaud[1], Philippe Lévêque[2]
[1]French Alternative Energies and Atomic Energy Commission, France, [2]Université de Limoges, France

3-0334 09:20-09:40
An Advanced Relativistic Magnetron with a Segmented Anode and Fast Magnetic Field
Yakov Krasik[1], Sergey Pavlov[1], John Leopold[1], Yoav Hadas[2], Svetlana Gleizer[1], Yvgene Flyat[1], Yuri Bliokh[1], Yang Cao[1], Dmitrii Andreev[3], Artem Kuskov[3]
[1]Technion - Israel Institute of Technology, Israel, [2]Rafael, Israel, [3]University New Mexico, USA

3-0220 Dynamic Power Coupling within a Relativistic Magnetron System
09:40-10:00 Kern Lee, Sunghoon Hong, Woosnag Lee, Jeong Hyeon Kuk, Jin Soo Choi
Agency for Defense Development, Korea

3-1038 Research of TEM Mode Feedback in an X-Band Triaxial Klystron Amplifier
10:00-10:20 Wei Zhang, Jun Zhang, Jinchuan Ju
VIRTUAL *National University of Defense Technology, China*

3-0830 Particle Simulation and Preliminary Experiment of a Coaxial Long-pulse Relativistic HPM Oscillator with Large Radius
10:20-10:40 Zhenxing Jin, Dian Zhang, Jun Zhang, Shengyue Zhou, Jiayu Wang
VIRTUAL *National University of Defense Technology, China*

TWT Technologies

September 21 (Wed) **Seoul (2F)**

CHAIR Eun-Mi Choi (Ulsan National Institute of Science and Technology, Korea)

3-0123 COBRA DANE Radar Transmitter Group Replacement
14:30-14:50 Michael Kempkes, Timothy Hawkey, Luan Jashari, Kevin Vaughan, Ynnesh Francis, Marcel P.J. Gaudreau, Rebecca Simpson
Diversified Technologies, Inc., USA

3-0640 Progress on the Design of a High Power Multibeam TWT Amplifier
14:50-15:10 Edl Schamiloglu, Khandakar Nusrat Islam, Andrey Andreev, Ahmed Elfrgani
VIRTUAL *University of New Mexico, USA*

3-0519 Staggered Double Vane Slow-wave Structure for V Band Traveling Wave Tube Amplifiers in Space Applications
15:10-15:30 Saranya S, Richards Joe Stanislaus
VIRTUAL *Vellore Institute of Technology, India*

3-0501 Investigation of Sine Waveguide Slow Wave Structure for V Band Traveling Wave Tube Amplifiers
15:30-15:50 Surya Prasath C, Richards Joe Stanislaus
VIRTUAL *Vellore Institute of Technology, India*

Gas Breakdown and Atmospheric Pressure Plasma 3

September 21 (Wed) **Seoul (2F)**

CHAIR Guus Pemen (Eindhoven University of Technology, The Netherlands)

2-0666 Plasma Activated Water Production by Magnetically Driven Gliding Arc
16:30-16:50 Chuhyun Cho, Yun Sik Jin, Chae-Hwa Shon, Daejong Kim
Korea Electrotechnology Research Institute, Korea

1-0378 Transient Plasma for Air Purification Using 400 kV Pulses
16:50-17:10 Chiel Ton, Tom Huiskamp
Eindhoven University of Technology, The Netherlands

2-0194 Pulsed Discharges: Driving Sources and Applications in Energy Conversion
17:10-17:30 Tao Shao, Cheng Zhang, Shuai Zhang, Bangdou Huang
VIRTUAL *Institute of Electrical Engineering, Chinese Academy of Sciences, China*

2-0513 Spatial Observation of Ozone Generation Characteristics in a Cylindrical Reactor Using Nanosecond Pulsed Discharge Plasma
17:30-17:50 Naoya Sumi, Tsubasa Aoyagi, Takao Namihira, Douyan Wang
VIRTUAL *Kumamoto University, Japan*

2-0584 Development of a 500 ka/70 ns X-Pinch Facility with a Low Timing Jitter and Short Insertion Delay
17:50-18:10 Jing Li
VIRTUAL *Institute of Fluid Physics, China Academy of Engineering Physics, China*

SEPTEMBER 22, 2022 (THU)

Switches

September 22 (Thu) **Olympia (1F)**

CHAIR SungRoc Jang (Korea Electrotechnology Research Institute, Korea)

1-0171 10 kV 100A Pulse Discharge Switch with Simple Structure Based on Series-Stacked IGBTs
09:00-09:20 Su-Mi Park, Woo-Cheol Jeong, Hong-Je Ryoo
Chung-Ang University, Korea

1-0355 Investigations on a Semiconductor Switching Array Based on COTS SiC-MOSFET Devices
09:20-09:40 Rainer Bischoff, Ralf Himmelsbach
VIRTUAL *French-German Research Institute of Saint Louis, France*

1-0138 Development of 35kV, 3kA Solid-State Switch Based on Insulated Gate Bipolar Transistor
09:40-10:00 Tae-Hyun Kim[1,2], Jung-Soo Bae[1], Seong-Ho Son[1,2], Chang-Hyun Kwon[1,2], Hyung-Suk Kim[1,2], Chan-Hun Yu[2], Suk-Ho Ahn[3], Sung-Roc Jang[1,2]
[1]University of Science and Technology, Korea, [2]Korea Electrotechnology Research Institute, Korea, [3]Pohang Accelerator Laboratory, Korea

1-0195 Development of 10kV Solid-State Switch with High Repetition Rate
10:00-10:20 Seong-Ho Son[1], Jung-Soo Bae[1], Tae-Hyun Kim[1], Chang-Hyun Gwon[1], Sung-Roc Jang[1,2], Chan-Hun Yu[2], Hyoung-Suk Kim[1,2]
[1]University of Science and Technology, Korea, [2]Korea Electrotechnology Research Institute, Korea

1-0181 Compact SCR Gate Driver Unit for High Pulsed Power Modulators
10:20-10:40 Gideon Nimo Appiah, Fernando Albarracin, David Martinez, Chaouki Kasmi, Nicolas Mora
Technology Innovation Institute, United Arab Emirates

1-0571 Study of a Si-based Light Initiated Multi-gate Semiconductor Switch for High Temperature Application
10:40-11:00 Chongbiao Luan, Hongwei Liu, Jiabin Fu, Yang He, Le Xu, Lingyun Wang
VIRTUAL *Institute of Fluid Physics, China Academy of Engineering Physics, China*

Industrial and Commercial Applications

September 22 (Thu) **London (2F)**

CHAIR Yunsik Jin (Korea Electrotechnology Research Institute, Korea)

2-0715 09:00-09:20 VIRTUAL
Design of a Water Purification Reactor Using Plasma on Surface of Water Droplets
Taichi Sugai[1], Akira Tokuchi[2], Weihua Jiang[1], Yasushi Minamitani[3]
[1]Nagaoka University of Technology, Japan, [2]Pulsed Power Japan Laboratory Ltd., Japan, [3]Yamagata University, Japan

2-1085 09:20-09:40
Surface Modification of Carbon Felt Materials (CFM) by Plasma Treatment and Its Application in Adsorption of Heavy Metal Contaminants
Chandrika Pal[1], Yu-Lim Choi[1], Junmyong Lee[2], Jae Kyu Yang[1], Janardhan Koduru Reddy[1], Yoon Young Chang[1]
[1]Kwangwoon University, Korea, [2]Bareun Engineering Consultants Co., Ltd., Korea

2-0548 09:40-10:00
CMR-B-Scalar Magnetic Field Meter for Microsecond Pulse Measurement
Nerija Zurauskiene[1, 2], Voitech Stankevic[1, 2], Skirmantas Kersulis[1], Justas Dilys[1], Vakaris Rudokas[1], Vytautas Bleizgys[1], Vilius Vertelis[1, 2], Valentina Plausinaitiene[3]
[1]Center for Physical Sciences and Technology, Lithuania, [2]Vilnius Gediminas Technical University, Lithuania, [3]Vilnius University, Lithuania

1-0567 10:00-10:20 VIRTUAL
Development of High Power Optically Triggered Semiconductor Switches: From PCSS to LIMS
Jianqiang Yuan, Hongwei Liu, Chongbiao Luan, Lingyun Wang, Jiabin Fu, Yang He, Le Xu
China Academy of Engineering Physics, China

1-0588 10:20-10:40 VIRTUAL
Investigation on Stacked Blumlein Pulsed-forming Network with Light Initiated Multi-gate Switch
Hongwei Liu, Chongbiao Luan, Jianqiang Yuan, Lingyun Wang, Jiabin Fu, Yang He, Le Xu
China Academy of Engineering Physics, China

Gyro-Devices

September 22 (Thu) **Seoul (2F)**

CHAIR Jinhyun Jeong (Korea Institute of Fusion Energy, Korea)

3-0987 09:00-09:20 VIRTUAL
Development of High Power, High Frequency Gyrotrons for Various Applications: IAP RAS&GYCOM Ltd Results
Mikhail Glyavin[1], Grigory Denisov[1], Eugeniy Tai[1, 2]
[1]Institute of Applied Physics of the Russian Academy of Sciences, Russia, [2]GYCOM Ltd., Russia

3-0985 Efficient Fifth-Harmonic Multiplication in Gyrotron

09:20-09:40 Mikhail Glyavin, Grigory Denisov, Irina Zotova, Andrey Malkin, Alexander Sergeev, Andrey Fokin,

VIRTUAL Roman Rozental, Vladimir Belousov, Mikhail Shmelev, Alexey Chirkov, Alexander Tsvetkov, Ilya Bandurkon

Institute of Applied Physics of the Russian Academy of Sciences, Russia

3-0937 Frequency Tunable Gyrotron with External Mirror

09:40-10:00 Andrei Savilov, Ilya Bandurkin, Yuriy Kalynov, Nikolai Peskov, Ivan Osharin, Dmitriy Shchegolkov

VIRTUAL *Institute of Applied Physics of the Russian Academy of Sciences, Russia*

IN-PERSON POSTER SESSION

SEPTEMBER 19, 2022 (MON)

Pulsed Power Applications

September 19 (Mon) **Athens (4F)**

13:30-14:30

CHAIR Chuhyun Cho (Korea Electrotechnology Research Institute, Korea)

2-0160 3kV Damped Sinusoidal Impulse Generation Circuits
Woo-Cheol Jeong, Su-Mi Park, Hong-Je Ryoo
Chung-Ang University, Korea

2-0240 Design of Electron Beam Applicators for FLASH Preclinical Studies Using MCNP Code
Dong Hyeok Jeong, Manwoo Lee, Heuijin Lim, Hyun Kim, Sang Koo Kang, Sang Jin Lee, Kyohyun Lee, Tae Woo Kang, Seung Wook Kim, Woo-Kyung Han, Kyoung Won Jang
Dongnam Institute of Radiological & Medical Sciences, Korea

2-0261 Measurement on the Electrical Conductivity of the Dense Copper Plasma from Underwater Wire Explosion
Sungbin Park, Hakmin Lee, Y. S. Hwang, Kyoung Jae Chung
Seoul National University, Korea

2-0264 Small and Medium Caliber Railgun Experiments Using Copper Alloy Rails
Seongho Kim[1], Younghyun Lee[1], Byungha Lee[1], Yong-Gi Baek[2], In-Su Koo[2], Gyu-Jin Han[2]
[1]Agency for Defense Development, Korea, [2]Hyundai Wia Corporation, Korea

2-0338 Correlation between Circuit Parameters and Peak Pressure of Shock Wave Generated by Underwater Wire Explosion
Hakmin Lee, Sungbin Park, Kyoung-Jae Chung
Seoul National University, Korea

2-0436 Estimation of Cu Plasma Parameters on SNU X-pinch Using a Filtered AXUV Diode Array and the FLYCHK Code
Seunggi Ham[1], Jonghyeon Ryu[1], Hakmin Lee[1], Sungbin Park[1], Y.-C. Ghim[2], Y. S. Hwang[1], Kyoung-Jae Chung[1]
[1]Seoul National University, Korea, [2]Korea Advanced Institute of Science and Technology, Korea

2-0471 Pulsed Power System for Simulating Reactivity Initiated Accident
Sanguk Lee, Yu Yeon Kim, Kyoung-Jae Chung
Seoul National University, Korea

2-0520 Characteristics of Pulsed Dielectric Barrier Discharges Depending on Electrode Geometry
Yuyeon Kim[1], Sanguk Lee[1], Joonseon Jeong[2], Dong-Wook Kim[2], Jaiyoung Chung[2], Wonwook Lee[3], Kyoung-Jae Chung[1]
[1]Seoul National University, Korea, [2]Samsung Advanced Institute of Technology, Samsung Electronics, Korea, [3]Hanyang University, Korea

2-0625 A Study on the Sterilization and Insecticidal Properties of Plasma Activated Water
Chae-Hwa Shon, Yunsik Jin, Chuhyun Cho, Daejong Kim, Seong-Tae Han
Korea Electrotechnology Research Institute, Korea

2-0673 Design and Fabrication of a High-voltage Divider for an Electron-gun
Dong Hyeok Jeong, Heuijin Lim, Manwoo Lee, Sang Koo Kang, Sang Jin Lee, Hyun Kim, Kyohyun Lee, Tae Woo Kang, Seung Wook Kim, Kyoung Won Jang
Dongnam Institute of Radiological & Medical Sciences, Korea

2-0678 Experimental Evidence of Longitudinal ElectroMagnetic(EM) Force
Neal Graneau
Atomic Weapons Establishment, UK

2-0684 A Sonata for Pulsed Power and Plasma
Guus Pemen, Marco De Peuter, Jeroen Van Oorschot, Maxime Gendre, Wilfred Hoeben, Tom Huiskamp
Eindhoven University of Technology, The Netherlands

2-0717 Influence of Positive and Negative Polarities of High Voltage Pulses on Plasma Discharges in a Helium Atmospheric Pressure Plasma Jet
Tuyen Ngoc Tran, Wonwook Lee, Cha-Hwan Oh
Hanyang University, Korea

2-0879 Plasma Active Water Production from Gliding Arc Plasmatron
Yun-Sik Jin, Chuhyun Cho, Chae-Hwa Sohn, Daejong Kim, Seong-Tae Han
Korea Electrotechnology Research Institute, Korea

2-0946 High Energy Femtosecond Laser System Based on Yb:YAG Amplifier with Electro-optic Modulator
Juhee Yang, Guang-Hoon Kim, Jun-Wan Kim, Seolwon Park
Korea Electrotechnology Research Institute, Korea

2-1027 Protein Treatment and Extraction by Using Solid-state Marx Generator
Nerija Zurauskiene[1, 2], Ahmed Taha[1], Kamile Jonaityte[1], Arunas Stirke[1], Aldas Dervinis[1], Voitech Stankevic[1, 2]
[1]Center for Physical Sciences and Technology, Lithuania, [2]Vilnius Gediminas Technical University, Lithuania

2-1081 Rafira Railgun Tests in View of Launch Package Efficiency
Bernhard Reck, Farid Alouahabi, Quentin Hassler, Markus Schneider
French-German Research Institute of Saint Louis, France

Power Electronics

September 19 (Mon) **Athens (4F)**

13:30-14:30

CHAIR Minsung Kim (Dongguk University, Korea)

5-0140 Design Method for AC Power Supply Based on Series-parallel Resonant Inverter for Ferrite Enhanced ICP
Tae-Hyun Kim[1,2], Jung-Soo Bae[1], Seong-Ho Son[1,2], Chang-Hyun Kwon[1,2], Hyung-Suk Kim[1,2], Chan-Hun Yu[2], Sung-Roc Jang[1,2]
[1]University of Science and Technology, Korea, [2]Korea Electrotechnology Research Institute, Korea

5-0178 Position Sensorless Control Algorithm with Improved Low-speed Generation Efficiency for Permanent Magnet Synchronous Generators
Kyoung-Min Choo, Young-Kwang Son, Choon-Kyung Kim, Hyun-Goo Lee
Korea Electrotechnology Research Institute, Korea

5-0227 Output Characteristics of an Active Electrosurgical Unit (ESU) Prototype
Jaegu Choi, Juwon Baek
Korea Electrotechnology Research Institute, Korea

5-0311 Comprehensive Study of SDBD Plasma Properties under Pulse and Sinusoidal Excitation
Wellawattage Thusitha Wellawatta, Jun Choi, Shin Kim, Suhan Kim
Korea Institute of Industrial Technology, Korea

5-0413 Influence of Fault Tolerant Methods on Reliability of DC-Link Capacitor in Three-Level Hybrid ANPC Inverter
Jun-Ho Hwang[1], YoungJong Ko[2], Kyo-Beum Lee[1]
[1]Ajou University, Korea, [2]Pukyong National University, Korea

5-0418 Modified Finite-Set Model Predictive Current Control of Three-Level Inverters with Reduced DC-Link Ripple Current
Sang-Hyeon Lee, Kyo-Beum Lee
Ajou University, Korea

5-0428 Finite-Set Model Predictive Control of Current Source Thyristor Converters for Improving Dynamic Response
Ju-Yoen Baek, Eun-Kyeol Shin, Kyo-Beum Lee
Ajou University, Korea

5-0452 The Performance Improvement Report of Thyratron System
Sang Hee Kim
Pohang Accelerator Laboratory, Korea

5-0538 Development of 30kW DC-DC Converter for Fuel Cell Applications
Seong-Ho Son[1, 2], Tae-Hyun Kim[1, 2], Chang-Hyun Gwon[1, 2], Chan-Hun Yu[2], Sung-Roc Jang[1, 2], Hyoung-Suk Kim[1, 2]
[1]University of Science and Technology, Korea, [2]Korea Electrotechnology Research Institute, Korea

5-0694 Modeling and Design of Wireless Power Transfer System with Double-sided LCC Compensation Topology Considering Switched Capacitor
Jong-Soo Kim, Cheol-Min Kim
Daejin University, Korea

5-0750 Reducing the DC Link Current Ripple in Five-Level Hybrid ANPC Converters Using Enhanced PWM Switching Scheme
Laith M. Halabi, Kyo-Beum Lee
Ajou University, Korea

5-0883 Bidirectional Resonant DC/DC Converter Using Dual-Transformer Structure
Cheol-Hwan Kim, Minsung Kim
Dongguk University, Korea

5-0887 Highly Efficient Resonant DC/DC Converter with Minimum Switching Loss
Jae-Woong Park, Minsung Kim
Dongguk University, Korea

5-0903 Highly Efficient AC-DC Converter Using Secondary-Side Switching
Ji-Ho Choi, Minsung Kim
Dongguk University, Korea

5-0906 Bridgeless Neutral-Point-Clamped AC/DC Converter
Myeong-Hwan Kim, Minsung Kim
Dongguk University, Korea

5-0992 Output Voltage Synthesis and DC Link Voltage Balancing Method Based on Offset Voltage Considering Nonlinearity of Three-Level Inverters
Youngchan Jung, Young-Doo Yoon
Hanyang University, Korea

5-0996 Three-Level Inverter DC Link Voltage Balancing and Switching Loss Reduction Method
Youngchan Jung, Young-Doo Yoon
Hanyang University, Korea

5-1077 Back-to-Back Six-Level T-Type Active Neutral-Point-Clamped (6L-TANPC) Converters for Power Conversions at Various Medium-Voltage and Low-Voltage DC and AC Grids
Jonathan Pribadi, Dong-Choon Lee
Yeungnam University, Korea

Pulsed Power Generators and Components

September 20 (Tue) **Athens (4F)**

13:30-14:30

CHAIR Chuhyun Cho (Korea Electrotechnology Research Institute, Korea)

1-0145 Design of DCM Series Resonant Converter for Plasma Activated Water Using Gliding Arc Discharge
Tae-Hyun Kim[1,2], Jung-Soo Bae[1], Seong-Ho Son[1,2], Chang-Hyun Kwon[1,2], Hyung-Suk Kim[1,2], Chan-Hun Yu[2], Yun-Sik Jin[2], Chu-Hyun Cho[2], Suk-Ho Ahn[3], Sung-Roc Jang[1,2]
[1]University of Science and Technology, Korea, [2]Korea Electrotechnology Research Institute, Korea, [3]Pohang Accelerator Laboratory, Korea

1-0197 Development of 120kV and 60kW Three Phase Resonant Converter for Electron Beam Welding
Seong-Ho Son[1,2], Tae-Hyun Kim[1,2], Chang-Hyun Gwon[1,2], Chan-Hun Yu[1], Sung-Roc Jang[1,2], Jong-Soo Kim[1], Seong-Tae Han[1,2], Hyoung-Suk Kim[1,2]
[1]Korea Electrotechnology Research Institute, Korea, [2]University of Science and Technology, Korea

1-0218 Design of 800 kA Linear Transformer Driver Cavity
Jonghyeon Ryu[1], Hakmin Lee[1], Juhyeong Lee[1], Kern Lee[2], Kyoung-Jae Chung[1]
[1]Seoul National University, Korea, [2]Agency for Defense Development, Korea

1-0221 Analysis of Electrical Characteristics of 2500V Class MOS Controlled Thyristor (MCT) Device for Pulse Power Applications
Doohyung Cho[1], Kun Sik Park[1], Dong Yun Jung[1], Jong Il Won[1], Sungkyu Kwon[1,2], Hyun Gyu Jang[1], Jong-Won Lim[1]
[1]Electronics and Telecommunications Research Institute, Korea, [2]Key Foundry, Korea

1-0278 Development of 50kV and 44kW Capacitor Charging Power Supply for Klystron Modulator System
Chang-hyun Kwon[1,2], Tae-Hyun Kim[1,2], Seong-Ho Son[1,2], Sung-Roc Jang[1,2], Chan-Hun Yu[2], Jung-Soo Bae[1], Hyoung-Suk Kim[1,2]
[1]University of Science and Technology, Korea, [2]Korea Electrotechnology Research Institute, Korea

1-0301 Development of 20kV Pulse Power Supply and Experiment with Industrial Ordor Removal Using Plasma
Shin Kim[1], Woojin Jeon[1,2], Jun Choi[1], Suhan Kim[1]
[1]Korea Institute of Industrial Technology, Korea, [2]Hanyang University, Korea

1-0324 Design and Performance Test of Kicker Modulator for PLS-II 3-GeV Injector
Yoon-Kyoo Son, Sung Ju Park, Seung Hwan Shin, Sung-Duck Jang
Pohang Accelerator Laboratory, Korea

1-0449 Comparison of Electromagnetic Field Distribution and Beam Trajectory Analysis for 120kV-60kW Electron Gun

Chae-Hwa Shon[1], Seong-Tae Han[1], Eunjoo Kim[2], Yunsik Jin[1], Joo-Hong Cha[1], Jong-Soo Kim[1], Hyunsoo Yoon[2]
[1]Korea Electrotechnology Research Institute, Korea, [2]EMAG TECH Co., Ltd., Korea

1-0464 Super-Boosted SiC MOS Generator with an Ultra-Fast Marx Generator Boosting Stage for Impact Ionization Triggering

Viliam Senaj[1], Alicia Ana Del Barrio Montanes[1], Thomas Kramer[1], Martin Sack[2], Michael Barnes[3]
[1]Conseil Européen pour la Recherche Nucléaire, Switzerland, [2]Karlsruhe Institute of Technology, Germany, [3]European Council for Nuclear Research, Switzerland

1-0480 Test of Solid Pulse Modulator for Euv

Soung-Soo Park, Sang Hee Kim, Yong Jung Park, Juho Hong
Pohang Accelerator Laboratory, Korea

1-0605 Design, Testing and Manufacture of Beam Screen for a CERN SPS Injection Kicker Magnet

Michael Barnes, Wolfgang Bartmann, Miguel Diaz, Laurent Ducimetière, Luis Feliciano, Thomas Kramer, Vasco Namora, Dylan Standen, Tobias Stadlbauer, Pavlina Trubacova, Francesco Velotti, Carlo Zannini
European Council for Nuclear Research, Switzerland

1-0622 Open-ferromagnetic Core Designs for Tesla transformer-based Pulse Generators

Gideon Nimo Appiah, Hamad Deiban, Fernando Albarracin, Nicolas Mora, Chaouki Kasmi
Technology Innovation Institute, United Arab Emirates

1-0841 Development of an All-Solid-State Crowbar Switch with Self-Power Feeding for Klystron Power Supplies

Naoya Ikoma[1], Hiroaki Kamezaki[1], Hitoshi Mori[1], Akira Tokuchi[1], Ayato Ono[2], Tomohiro Takayanagi[2], Yasuhiro Fuwa[2], Shinichi Shinozaki[2], Koki Horino[3], Tomoaki Ueno[3]
[1]Pulsed Power Japan Laboratory Ltd., Japan, [2]Japan Atomic Energy Agency, Japan, [3]NAT Corporation, Japan

1-0849 Development of a High-Repetition, High-Voltage and Bipolar Marx Generator

Kyosuke Nakayama, Akira Tokuchi
Pulsed Power Japan Laboratory Ltd., Japan

1-0851 Performance Results of a Semiconductor LTD Type Pulsed Power Supply for a Kicker Magnet

Hiroaki Kamezaki[1], Naoya Ikoma[1], Yoichi Mushibe[1], Kyosuke Nakata[1], Akira Tokuchi[1], Tomohiro Takayanagi[2], Ayato Ono[2], Moe Sugita[2], Koki Horino[3], Tomoaki Ueno[3]
[1]Pulsed Power Japan Laboratory Ltd., Japan, [2]Japan Atomic Energy Agency, Japan, [3]NAT Corporation, Japan

1-0874 A Study on the Degradation Characteristics of ACSR-OC Wires According to Over Current

Seunghee O[1], Afif Bimaridi[1], Younghun Park[1], Jinhyung Park[1], Uhyeon Jo[1], Woochur Shin[1], Ragil Handito[1], Seongkeon Park[2], Dong-Myung Kim[3], Younghwa Kim[4], Hyoungku Kang[1]
[1]Korea National University of Transportation, Korea, [2]Kangwon National University, Korea, [3]DAE YOUNG General Industrial Equipment Co., Ltd., Korea, [4]ASSEMBBLE Co., Ltd., Korea

1-0990 Development of High Power Pulse Modulator for DAWONMEDAX LINAC-based BNCT Neutron Source

Hyoungjin Yun
DAWON MEDAX, Korea

1-1096 Measurements of Pressure and Impulse Caused by Large Area Pulsed Power Exploding Metal Foils
David Zajac
Atomic Weapons Establishment, UK

Particle Beam Technology

September 20 (Tue) **Athens (4F)**

13:30-14:30

CHAIR Chae-Hwa Shon (Korea Electrotechnology Research Institute, Korea)

4-0183 Development of Thyratron Driving Power Supplies for Jitter Improvement
Tae-Hyun Kim[1, 2], Shin Kim[3], Jung-Soo Bae[1], Seong-Ho Son[1, 2], Chang-Hyun Kwon[1, 2], Hyung-Suk Kim[1, 2], Chan-Hun Yu[2], Suk-Ho Ahn[4], Sung-Roc Jang[1, 2]
[1]University of Science and Technology, Korea, [2]Korea Electrotechnology Research Institute, Korea, [3]Korea Institute of Industrial Technology, Korea, [4]Pohang Accelerator Laboratory, Korea

4-0215 Periodic Structure for a Co-linear Wakefield Accelerator and THz Generation
Hyungsup Kong[1], Seunghwan Shin[1], Seung-Hwan Kim[1], Jong Hyun Kim[1], Hyeong-Cheol Ri[2], Gwanghui Ha[3], EunMi Choi[4], Hong Eun Choi[4]
[1]Pohang Accelerator Laboratory, Korea, [2]Kyoungpook National University, Korea, [3]Argonne National Laboratory, USA, [4]Ulsan National Institute of Science and Technology, Korea

4-0245 Achievement and Prospect of PAL-XFEL
Heung-Sik Kang, Young Gyu Jung, Seoung Hoon Jung, Chang-Ki Min, Young Jong Park
Pohang Accelerator Laboratory, Korea

4-0277 Magnet Power Supply Concepts for Korea 4th Generation Storage Ring
Sukho An, Minjae Kim
Pohang Accelerator Laboratory, Korea

4-0412 Proton Injector Test Stand at KOMAC
Hyeok-Jung Kwon, Han-Sung Kim, Dong-Hwan Kim, Jeong-Jeung Dang, Seunghyun Lee, Sang-Pil Yun
Korea Atomic Energy Research Institute, Korea

4-0441 AlN Wall Temperature Effect on the Hydrogen Negative Ion Density in an RF Negative Ion Beam Source
Min Park[1], Byungkeun Na[1], J.H. Jeong[1], SeulChan Hong[1, 2], JaeYoung Jang[1, 2], Jong-Gu Kwak[1]
[1]Korea Institute of Fusion Energy, Korea, [2]Seoul National University, Korea

4-0458 Investigation on the Phase Locking-Time of a Magnetron Driving a Surface-Wave Plasma as a Load
Dohan Kim[1], Ju-Hong Cha[2], Chae-Hwa Shon[2], Jong-Soo Kim[2], Seong-Tae Han[2]
[1]University of Science and Technology, Korea, [2]Korea Electrotechnology Research Institute, Korea

4-0506 Calculation of Pressure Distribution Using Finite Element Analysis Based on the Continuity of Gas Flow
Hyeongrae Noh[1,2], Se-Hyun Kim[1,3], Jeehoon Kim[2], Chongdo Park[1], Taekyun Ha[1]
[1]Pohang Accelerator Laboratory, Korea, [2]Pohang University of Science and Technology, Korea, [3]Kyungpook National University, Korea

4-0508 Neutral Beam Energy Fraction in KSTAR NBI
Byungkeun Na[1], Junghee Kim[1], Minho Kim[1], Jinseok Ko[1], Juyoung Ko[1], JaeYoung Jang[1,2], SeulChan Hong[1,2], Min Park[1], Jin-Hyun Jeong[1], Son-Jong Wang[1], Jong-Gu Kwak[1]
[1]Korea Institute of Fusion Energy, Korea, [2]Seoul National University, Korea

4-0531 Generation of a Pulsed, Low Pressure Plasma for Beam Propagation Experiments
Claude Fourment, Adrien Dudes, Fabien Dorchies
French Alternative Energies and Atomic Energy Commission, France

4-0624 Pulsed Modulator System of PLS-II Test Lab for 80-MW Klystron Test
Sung-Duck Jang, Yoon-Kyoo Son, Sung-Ju Park
Pohang Accelerator Laboratory, Korea

4-0646 Development Status of 1 MeV/n RFQ at KOMAC
Han-Sung Kim, Jeong-Jeung Dang, Dong-Hwan Kim, Sang-Pil Yun, Seung-Hyun Lee, Hyeok-Jung Kwon, Hae-Seong Jeong, Won-Hyeok Jung, Young-Gi Song, Kyung-Hyun Kim
Korea Atomic Energy Research Institute, Korea

4-0780 Multipactor Suppression with DC Offset in Coaxial Fundamental Power Coupler for Single Spoke Cavities
H. Do, M. O. Hyun, H. C. Jung
Institute for Basic Science, Korea

4-0787 Fabrication of Low Beta Superconducting Cavities for RAON
Jongdae Joo, H. C. Jung, M. O. Hyun
Institute for Basic Science, Korea

4-0793 FLASH Beam Irradiation Technique for DIRAMS 9 MeV Electron Accelerator
Manwoo Lee, Dong Hyeok Jeong, Kyoung Won Jang, Sang Koo Kang, Hyun Kim, Sang Jin Lee, Kyohyun Lee, Tae Woo Kang, Seung Wook Kim, Heuijin Lim
Dongnam Institute of Radiological & Medical Sciences, Korea

4-0796 Characteristics of Flattening Filter Free Beam of an X-band Linear Accelerator for the High-precision Radiotherapy System
Sanghoon Kim[1], Geun-Ju Kim[1], Kwang Ho Jang[1], Jeong-Hun Lee[1], Insoo S. Kim[1], Yunji Seol[2], Na-Young An[2], Young-Nam Kang[2], Jung-Il Kim[1]
[1]Korea Electrotechnology Research Institute, Korea, [2]The Catholic University of Korea, Korea

4-0836 Commissioning of the Second Neutral Beam Injector in KSTAR
Wook Cho[1,2], Byungkeun Na[1], Jinhyun Jeong[1], Jongsu Kim[1], Hyun-Teak Park[1], Young-Ju Lee[1], Hyun Sik Ahn[1], Kwang Pyo Kim[1], Jong Gu Kwak[1], Yaung Soo Kim[1], Si-Woo Yoon[1], Bong-Geun Hong[2]
[1]Korea Institute of Fusion Energy, Korea, [2]Chonbuk National University, Korea

4-0889 Cyclotron Development Plan for Accelerator-Driven System

Seunghwan Shin[1], Moses Chung[2], Ga-Ram Hahn[1], Seungyong Hahn[3], Jeonghwan Park[3], Taeyeon Lee[1]
[1]Pohang Accelerator Laboratory, Korea, [2]Ulsan National Institute of Science and Technology, Korea, [3]Seoul National University, Korea

4-0902 Multipaction in 162.5MHz Superconducting Cavities

H. C. Jung, Jongdae Joo, H. Do, M. O. Hyun, Moosang Kim
Institute for Basic Science, Korea

4-1024 Design of 10th Harmonic Cyclotron for 14C Accelerator Mass Spectromertry

Ho Namgoong, JongSeo Chai, Donghyup Ha, Mitra Ghergherehchi, Hyojeong Choi
Sungkyunkwan University, Korea

4-1067 Fabrication Process of Single Spoke Resonator Type-1 (SSR1) Superconducting Cavity Prototype for RISP

Myung Ook Hyun, Jongdae Joo, Hoechun Jung
Institute for Basic Science, Korea

SEPTEMBER 21, 2022 (WED)

High Power Electromagnetic Waves

September 21 (Wed) **Athens (4F)**

13:30-14:30

CHAIR Chae-Hwa Shon (Korea Electrotechnology Research Institute, Korea)

3-0127 X-Band TWT Transmitter
Michael Kempkes, Marcel P.J. Gaudreau, Luan Jashari, John Kinross-Wright, William Lindsay, Kevin Vaughan, Timothy Hawkey, Rebecca Simpson
Diversified Technologies, Inc., USA

3-0259 Investigation of Reflection Characteristics of Deformed Coupling System of a Helix Traveling Wave Tube
Chirag Prakashchandra Mistry, Raktim Guha, Sanjay Kumar Ghosh
Central Electronics Engineering Research Institute, India

3-0269 Evaluation of the Output Beam Characteristics of W-band Short Pulse Gyrotron
TaeGyu Han, Hong Eun Choi, EunMi Choi
Ulsan National Institute of Science and Technology, Korea

3-0359 Experimental Analysis of Third Harmonic Signal from Graphene-based Metastructure with W-band Gyrotron
Hong Eun Choi, TaeGyu Han, Daelk Kim, JongWon Lee, EunMi Choi
Ulsan National Institute of Science and Technology, Korea

3-0733 S-band Waveguide Water Load Using 3D Printed Elastomer Water Container for High Power Microwave
Taekheon Kim, Up Namkoong, Seung-Kab Ryu
Electronics and Telecommunications Research Institute, Korea

3-0773 Investigation of a Medical 2.0 MW 40-Vane X-Band Coaxial Magnetron Using Three-Dimensional Particle-In-Cell Simulation
Jeong Hun Lee[1], Geun Ju Kim[1], Sanghoon Kim[1], Yong Seok Lee[2], Insoo Kim[1], Kwang Ho Jang[1], Jung Il Kim[1]
[1]Korea Electrotechnology Research Institute, Korea, [2]Pohang Accelerator Laboratory, Korea

3-0792 Graphene Nonlinear Metasurface to Extremely Enhance High-harmonic Generations at Terahertz Region
Daeik Kim, Jongwon Lee
Ulsan National Institute of Science and Technology, Korea

3-0834 Realization of a Coaxial Ku-Band Transit Time Oscillator with Optimized Mechanical Alignment
Antoine Chauloux, Jean-Christophe Diot, Yannick Delvert, Nicolas Ribiere-tharaud
French Alternative Energies and Atomic Energy Commission, France

3-0854 Experimental Investigation of W-band Folded Waveguide TWT
Kwang-Ho Jang[1], Jin-Joo Choi[2], Jong-Hyun Kim[3], Geun-Ju Kim[1], Sanghoon Kim[1], Jeong-Hun Lee[1]
[1]Korea Electrotechnology Research Institute, Korea, [2]Kwangwoon University, Korea, [3]Pohang Accelerator Laboratory, Korea

3-0893 Small Waveguide Structure as THz Radiation Source
Seunghwan Shin, Hyungseop Kong, Jonghyun Kim, Seunghwan Kim
Pohang Accelerator Laboratory, Korea

3-1075 Design and Performance Study of Electron-gun for DIRAMS Electron Accelerators
Sang Koo Kang[1], Heuijin Lim[1], Manwoo Lee[1], Dong Hyeok Jeong[1], Kyoung Won Jang[1], Sang Jin Lee[1], Hyungsup Kong[2], Seung-Hwan Kim[2], Sukho Ahn[2], Youngdo Joo[2]
[1]Dongnam Institute of Radiological & Medical Sciences, Korea, [2]Pohang Accelerator Laboratory, Korea

Power Electronics

September 21 (Wed) **Athens (4F)**

13:30-14:30

CHAIR Young-Doo Yoon (Hanyang University, Korea)

5-0393 Double Step-Up PFC Converter Using Asymmetrical PWM Scheme
Yeongjin Kim, Jaeseong Lim, Honnyong Cha
Kyungpook National University, Korea

5-0423 Combining Volt-VAR and Volt-Watt Control of a Smart Inverter for PCC Voltage Stabilization
Dong-Ho Won, Jee-Yoon Cha, Kyo-Beum Lee
Ajou University, Korea

5-0509 Study on Coupled Inductor for Boost-SEPIC Interleaved Converter
Juyeong Park, Honnyong Cha
Kyungpook National University, Korea

5-0525 Feature Selection for Long-term Distribution Line Peak Load Forecast Model
Yeunggurl Yoon, Yongju Son, Sungyun Choi
Korea University, Korea

5-0530 Grounding Coordination and Assessment of Distributed Generations through Zig-Zag Transformers
Myungseok Yoon, Sungyun Choi
Korea University, Korea

5-0553 Stochastic Optimization for Optimal Sizing of DGs and EV Charging Station
Hyeon Woo, Yongju Son, Sungyun Choi
Korea University, Korea

5-0554 Comparison of the Correlation of Solar Power Generation by the Time Interval of Meteorological Variables for Selecting Optimal Input Variables
Yongju Son, Yeunggurl Yoon, Sungyun Choi
Korea University, Korea

5-0558 Scenario Generation and Probabilistic Forecasting of Wind Power with Multivariate Normal Distribution
Jaehyun Yoo, Sungyun Choi
Korea University, Korea

5-0560 Probabilistic Hosting Capacity Method in Network Distribution System
Juan Noh, Junwoo Lee, Sungyun Choi
Korea University, Korea

5-0564 Common-Ground-Structured Buck-Boost PFC Rectifiers
Jeonghun Kim, Honnyong Cha
Kyungpook National University, Korea

5-0576 Tap-changing Algorithm of Series Reactor for Controlling the Power Flow of Networked Distribution Systems
Junwoo Lee, Juan Noh, Sungyun Choi
Korea University, Korea

5-0581 Development of a Simulation Platform for Distribution Systems with High Penetration of Distributed Energy Resources
Xuehan Zhang, Hyeon Woo, Sungyun Choi
Korea University, Korea

5-0681 Design of Floating Power Supply with Bipolar Output for Electron-gun Beam Control
Heuijin Lim, Dong Hyeok Jeong, Kyoung Won Jang, Manwoo Lee, Sang Koo Kang, Sang Jin Lee, Hyun Kim, Kyohyun Lee, Tae Woo Kang, Seung Wook Kim
Dongnam Institute of Radiological & Medical Sciences, Korea

5-0698 IPT Rx-Sensorless Control Through Advanced Modeling
Jong-Soo Kim, Jaegon Yoo
Daejin University, Korea

5-0734 Appropriate Protection Circuit Implementation of GaN HEMT Through Short-circuit Resistance Time Analysis Due to Internal Factors of 650V Class Si MOSFET and GaN HEMT
Jong-Soo Kim, Min-Gyu Lee
Daejin University, Korea

5-0738 A Comparative Study of Predictive Current Control Schemes for Improved FOC of PMSM
Hasan Ali Gamal Alkaf, Kyo-Beum Lee
Ajou University, Korea

5-0754 A Robust Adaptive MPC to Mitigate Impact of Distorted Model Parameters and Disturbances for IPMSM Drives
Sadeq Ali Qasem Mohammed, Kyo-Beum Lee
Ajou University, Korea

5-0877 Switching-Cell Back-to-Back Current Source Converter with Modified SVPWM
Daheon Hong, Honnyong Cha
Kyungpook National University, Korea

5-0910 Soft-Switching Auxiliary Current Control for Faster Load Transient Response of Buck Converter
Dongwook Kim, Jong-Won Shin
Chung-Ang University, Korea

5-0935 Estimation of d-q Inductances and Initial Rotor Position Considering Voltage Distortion for High-Speed Motor Drive Systems
Minseong Lee, Tae-Gyeom Woo, Young-Doo Yoon
Hanyang University, Korea

5-0938 Analysis of the Input Voltage and Output Current Sharing of the Common-Switching-Frequency Input-Series Output-Parallel LLC Converter
Seung-woo Baek, Hag-wone Kim, Kwan-Yuhl Cho
Korea National University of Transportation, Korea

5-0956 Integrated Coupled-Inductor Based Current and Voltage Balancing Technique for Parallel-Connected Triple-Active-Bridge Converters
Seunghoon Lee, Honnyong Cha
Kyungpook National University, Korea

5-0994 Estimation of SynRM Flux Saturation Model at Standstill Using Artificial Neural Network(ANN)
Minseong Lee, Yune-Jae Lee, Young-Doo Yoon
Hanyang University, Korea

5-1032 Exponent Selection Technique of Polynomial Flux Saturation Models for Synchronous Motors
Yun Jai Oh, Young Doo Yoon
Hanyang University, Korea

5-1053 Decapsulation Process and Fault Diagnosis of High-Power LEDs
Herie Park[1], Sue-Hyun Lim[2], Eun-Hyeok Choi[3], Sanghyo Kim[1], Su-Ho Lee[1]
[1]Dong-A University, Korea, [2]Korea Conformity Laboratories, Korea, [3]Kyungil University, Korea

VIRTUAL POSTER SESSION

SEPTEMBER 18-22, 2022 (SUN-THU)

Pulsed Power Generators and Components

September 18-22, 2022 (Sun-Thu) **Virtual Website**

1-0476 Study on 40 kV/1 MHz Repetitive Solid-state Inductive Voltage Adder
VIRTUAL
Lechen Ma, Xuandong Liu
Xi'an Jiaotong University, China

1-0515 An On-Line Monitoring Method of Metallized Film Pulse Capacitor State Based on Characteristic of Self-Healing Discharge
VIRTUAL
Jiaqing Yin, Xuandong Liu, Xianfei Liu, Hongzhuang He
Xi'an Jiaotong University, China

1-0616 High Pulsed Power Amplification Method with Multi-mode, Multi-material, Precise Synchronization
VIRTUAL
Lingyun Wang, Jianqiang Yuan, Hongwei Liu
Institute of Fluid Physics, China Academy of Engineering Physics, China

1-0813 A Self-Coupling High Voltage Square Wave Pulse Transformer
VIRTUAL
Shangdong Jin[1], Jingming Gao[1], Shuang Yang[2], Song Li[1], Zehai Zhang[1], Hanwu Yang[1], Chengwei Yuan[1]
[1]National University of Defense Technology, China, [2]College of Advanced Interdisciplinary Studies, China

1-0820 Research on Key Factors Affecting Synchronization of Multiple Spark-gap Switches in Single-stage FLTD
VIRTUAL
Yanbo Liu, Zhiguo Wang, Chen Li, Weihao Shi, Yushu Zhang, Zhaohui Wang
Xi'an Jiaotong University, China

1-1051 Uncovering the Fundamental Effects of a Non-Maxwellian Distribution Function in Vacuum Electronics Simulation
VIRTUAL
Zhou Chen, Vasily Kozhevnikov, Vladislav Igumnov, Yao Jingfeng, Yuan Chengxun
Harbin Institute of Technology, China

Pulsed Power Applications

September 18-22, 2022 (Sun-Thu) **Virtual Website**

2-0165 Infrared Signal of Electrical Explosion of Wires in Air
VIRTUAL
Yang Meng, Mengyuan Tang, Weidong Ding
Xi'an Jiaotong University, China

2-0204 Ring-opening Reaction of Diketopiperazines and Formation of Oligopeptides by Pulsed discharge Over Water under Acidic Conditions
VIRTUAL
Ryo Yamada, Mitsuru Sasaki
Kumamoto University, Japan

2-0206 Reaction Behavior of Diketopiperazine When Applying Pulsed Discharge Over the Water Surface Under Atmospheric Conditions
VIRTUAL
Natsuko Tashiro, Mitsuru Sasaki
Kumamoto University, Japan

2-0306 Development of Pulsed Magnet for Collisionless Shock Experiment Using High-power Laser
VIRTUAL
Taichi Takezaki[1], Takuya Oguchi[1], Hiroaki Ito[1], Ryo Yamazaki[2], Shuta J. Tanaka[2], Taichi Morita[3], Shuichi Matsukiyo[3], Shogo Isayama[3], Youichi Sakawa[4]
[1]University of Toyama, Japan, [2]Aoyama Gakuin University, Japan, [3]Kyushu University, Japan, [4]Osaka University, Japan

2-0322 Measurement of Characteristics of Fast Plasma Flow Driven by Plasma Focus Device Using Biased Ion Collector
VIRTUAL
Takuya Oguchi[1], Jun Matsuyama[1], Taichi Takezaki[1], Toru Sasaki[2], Hiroaki Ito[1]
[1]University of Toyama, Japan, [2]Nagaoka University of Technology, Japan

2-0403 Transfer of Energy from an Aluminum Underwater Exploding Wire to an Acoustic Pressure Wave
VIRTUAL
Thanasi Frost, Bucur Novac, Peter Senior
Loughborough University, UK

2-0408 Gurney Characteristic Energy of the Pulsed Power-driven Chemical Reaction of an Aluminum Exploding Wire with Water
VIRTUAL
Thanasi Frost, Bucur Novac
Loughborough University, UK

2-0704 Investigation of Effect of Gas Species and Magnetic Field on Plasma Flow Velocity and Ion Density Driven by Tapered Cone Plasma Focus Device
VIRTUAL
L. Malith M. De Silva[1], Shuto Watanabe[1], Taichi Takezaki[2], Kazumasa Takahashi[1], Toru Sasaki[1], Takashi Kikuchi[1]
[1]Nagaoka University of Technology, Japan, [2]University of Toyama, Japan

2-0807 Simulation of Field Reversed Configuration Formation-Merging Process on HUST-FRC Device
VIRTUAL
Yuesong Jia[1], Yang Xianjun[2]
[1]Institute of Fluid Physics, China Academy of Engineering Physics, China, [2]Institute of Applied Physics and Computational Mathematics, China

2-0845 Energy Losses in Metals at Current Density up to 5 MA/cm in Microsecond Range
VIRTUAL
Stanislav Chaikovsky[1], Vladimir Oreshkin[2], Alexander Rousskikh[2], Alexander Zhigalin[2], Vladimir Kokshenev[2], Timur Cherdizov[2]
[1]Institute of Electrophysics of the Ural Branch of the Russian Academy of Sciences, Russia, [2]Institute of High Current Electronics of the Siberian Branch of the Russian Academy of Sciences, Russia

2-0852 The Creation of an Equipment for Electron-beam Exposure to Solutions of Organic Compounds
VIRTUAL
Olga Tchaikovskaya[1,2], Vladimir Solomonov[2], Elena Bocharnikova[1], Georgy Mayer[1], Vladimir Osipov[2], Stanislav Chaikovsky[2], Anna Makarova[2]
[1]Tomsk State University, Russia, [2]Institute of Electrophysics of the Ural Division of the Russian Academy of Sciences, Russia

High Power Electromagnetic Waves

September 18-22, 2022 (Sun-Thu) **Virtual Website**

3-0318 Operating Characteristic of Reflex Triode Virtual Cathode Oscillator with Asymmetric Velvet-Surface Cathode
VIRTUAL
Yusei Fukada, Hiroaki Ito, Taichi Takezaki
University of Toyama, Japan

3-0453 Output Field Patterns of Magnetron with Diffraction Output
VIRTUAL
Shen Shou Max Chung[1], Shih-Chung Tuan[2]
[1]National Pingtung University of Science and Technology, Chinese Taipei, [2]Asia Eastern University of Science and Technology, Chinese Taipei

3-0461 Comparison of Solid Anode and Thin Foil Anode in Particle-In-Cell Simulation of Virtual Cathode Oscillator
VIRTUAL
Shen Shou Max Chung[1], Shih-Chung Tuan[2]
[1]National Pingtung University of Science and Technology, Chinese Taipei, [2]Asia Eastern University of Science and Technology, Chinese Taipei

3-0492 Simulation of Cathode Plasma Generation and Expansion in Magnetic Insulated Transmission Lines Under Repetitive Multiple Pulses
VIRTUAL
Cao Cong[1], Liu Xuandong[1], Wei Hao[2], Wu Hanyu[2], Liu Meiqin[1]
[1]Xi'an Jiaotong University, China, [2]Northwest Institute of Nuclear Technology, China

3-0592 Design of Vlasov Type Launcher with Mirror System for TE02 Mode
VIRTUAL
Hasina Khatun
Central Electronics Engineering Research Institute, India

3-0964 Powerful Auto-Modulation Oscillations in a Gyrotron with a Complicated Cavity
VIRTUAL
Andrei Savilov, Ivan Osharin, Roman Rozental
Institute of Applied Physics of the Russian Academy of Sciences, Russia

3-1023 Quasi-periodic Formation of Rogue-waves in Gyrotrons Powered by a Train of High-current Extended Electron Bunches
VIRTUAL
Irina Zotova[1], Roman Rozental[1], Susanna Rozental[2], Naum Ginzburg[1], Alexander Sergeev[1]
[1]Institute of Applied Physics of the Russian Academy of Sciences, Russia, [2]Moscow Institute of Physics and Technology, Russia

3-1069 Project of W-band Short Pulse Generator Based on Two Helical Gyro-TWTs Operating as Amplifier and Nonlinear Absorber
VIRTUAL
Michael Vilkov, Naum Ginzburg, Irina Zotova, Alexander Sergeev
Institute of Applied Physics of the Russian Academy of Sciences, Russia

Particle Beam Technology

September 18-22, 2022 (Sun-Thu) **Virtual Website**

4-0176 Investigating the Electron Beam Transport in a Linear Induction Accelerator for X-Ray Flash Radiography
VIRTUAL
Clara-Marie Alvinerie, Rudy Delaunay, Rémi Maisonny
French Alternative Energies and Atomic Energy Commission, France

4-0199 A Pulsed Synchronous Linear Accelerator for Low-energy Proton
VIRTUAL
Yi Shen, Yi Liu, Pan Dong, Mao Ye, Huang Zhang, Liansheng Xia, Jinshui Shi, Jianjun Deng
Institute of Fluid Physics, China Academy of Engineering Physics, China

4-0247 Preliminary Study of Dual Annular Multi-beam Cathode for V-Band TTO
VIRTUAL
Fanbo Zeng, Jiande Zhang, Juntao He, Junpu Ling, Yufang He, Zhenxing Jin
National University of Defense Technology, China

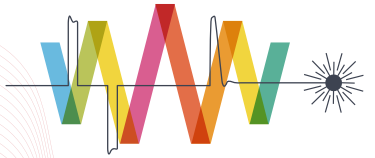
4-0587 Feasibility Study of X-Band Metal-Dielectric Based PBG Structure for Industrial Applications
VIRTUAL
Hasina Khatun
Central Electronics Engineering Research Institute, India

4-0729 Study on Explosion Emission and Field Emission of the Cathode Made by Semiconductor Technology
VIRTUAL
Xiaoyu Peng[1,2], Guangyao Feng[1], Jidong Long[2], Xiaoning Zhang[2], Zhen Qin[2], Yi Chen[2]
[1]University of Science and Technology of China, China, [2]China Academy of Engineering Physics, China

4-1008 Marx Generator Developments as Power Supply for Kicker Magnets Based on SiC MOSFETs
VIRTUAL
Aleh Kandratsyeu[1], Luis Redondo[2], Mike Barnes[3]
[1]EnergyPulse Systems, Portugal, [2]Lisbon Engineering Superior Institute, Portugal, [3]Organisation Européenne pour la Recherche Nucléaire, Switzerland

4-1088 Pulsed Power Electronics Development for Kicker Magnets at DESY
VIRTUAL
Frank Obier, Achim Jahn, Joachim Kahl, Gregor Loisch, Lukas Teichgraeber, Simon Wendt, Manfred Wiesenberg
Deutsches Elektronen-Synchrotron DESY, Germany

4-1089 Pulsed Power Electronics to Drive Plasma Sources for Future Particle Accelerators
VIRTUAL
Gregor Loisch, Achim Jahn, Joachim Kahl, Frank Obier, Lukas Teichgraeber, Simon Wendt, Manfred Wiesenberg
Deutsches Elektronen-Synchrotron DESY, Germany



EAPPC & BEAMS 2022

9th Euro-Asian Pulsed Power Conference
24th International Conference on High-Power Particle Beams