2010 International Power Modulator and High Voltage Conference

May 23 - 27, 2010

Atlanta, GA

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WELCOME

On behalf of the International Power Modulator and High Voltage Conference Organizing and Technical Program Committees, we would like to welcome you to the 2010 IEEE IPMHVC. This year we have received a record number of ~300 abstract submissions. Almost 60% of these abstracts were sent in from our international colleagues from 25 different countries, which emphasize the international character of this conference. Significant participation came from China, Japan, Korea, United Kingdom, Russia, India, Germany, and France. Countries from the far-East region showed the largest growth in abstract submissions this year. The most popular technical topics were Solid State Modulators and Switches and Compact Pulsed Power Systems followed by Breakdown and Insulating Materials; High Power Microwaves and Radiating Structures; and Biological, Medical, and Environmental Applications. Abstracts were also collected in the areas of Analytical Methods, Modeling, and Simulation; High Voltage Design and Analysis; High Current Systems and EM Launchers; Energy Storage Devices; High Voltage Testing and Diagnostics; Accelerators, Radar, and Laser Applications; Plasma Opening and Closing Switches; and Reliability and Transient Suppression.

The technical program of the 2010 IEEE IPMHVC is being held at AmericasMart, and the adjacent Westin Peachtree Plaza serves as the conference hotel. Downtown Atlanta provides a unique sightseeing opportunity with the CNN Headquarters, the Georgia Aquarium, the World of Coca-Cola, the Centennial Olympic Park, and the Georgia Dome only a few steps away from the conference. The social program opens with the welcome reception on Sunday evening in the exhibit area (AmericasMart), followed by an excursion dinner at the Georgia Aquarium on Monday evening, and a reception and conference awards banquet on Tuesday evening (Westin Peachtree Plaza). In addition, the companion program includes a tour / shopping opportunity at AmericasMart - Bldg. 3, on Monday at 10:00 AM (meet at the conference registration desk). AmericasMart Atlanta is an order-writing facility, and it is the largest permanent wholesale marketplace for apparel, jewelry, and gifts of its kind.

The conference is fully sponsored by the IEEE Dielectrics and Electrical Insulation Society and technically co-sponsored by the IEEE Nuclear and Plasma Sciences Society and the IEEE

Electron Devices Society. We also gratefully acknowledge the sponsorship from government, university, and industry, and the support from the exhibitors. We encourage you to visit the booths and talk to the exhibitors.

We would like to express our sincere gratitude to the entire Conference Organizing Committee for their tireless efforts, and we also extend our sincere thanks to all the members of the Technical Program Committee for their hard work in reviewing the abstract submissions and defining an outstanding technical program. Finally, we thank each and every presenter and all attendees for contributing to the ongoing success of this conference and look forward to seeing you in San Diego in 2012.

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GENERAL INFORMATION

Onsite Conference Registration Desk
AmericasMart, Bldg. 2 West, 4th floor

Sunday, May 23, 2010	2:00 PM - 8:00 PM
Monday, May 24, 2010	7:30 AM - 5:30 PM
Tuesday, May 25, 2010	7:30 AM - 5:30 PM
Wednesday, May 26, 2010	7:30 AM - 3:30 PM

Exhibit Times
AmericasMart, Bldg. 2 West, 4th floor

Sunday	6:00 PM - 8:00 PM
Monday	7:30 AM - 12 PM and 1:30 PM - 5:30 PM
Tuesday	7:30 AM - 12 PM and 1:30 PM - 5:30 PM
Wednesday	7:30 AM - 12 PM and 1:30 PM - 3:30 PM

Companion Program
Tour / Shopping Opportunity at AmericasMart - Bldg. 3
Monday, May 24, 2010
Time: 10:00 AM to 4:00 PM
Starting point: Conference Registration Desk
AmericasMart, Bldg. 2 West, 4th floor

In addition, the Conference Registration Desk will provide information for self-guided tours. The *CNN Headquarters*, the *World of Coca-Cola*, and the *Centennial Olympic Park* are in walking distance from the conference hotel.

Social Events
Welcome Reception
AmericasMart, Bldg. 2 West, 4th floor, Exhibit Area
Sunday, May 23, 2010 6:00 PM - 8:00 PM

Off-site dinner at the Georgia Aquarium
Monday, May 24, 2010 7:00 PM - 9:00 PM

Conference Awards Dinner
Tuesday, May 25, 2010
Westin Peachtree Plaza (conference hotel)

Reception	6:30 PM - 7:30 PM
Dinner	7:30 PM - 10:00 PM

For conference registrants only
AmericasMart, Bldg. 2 West, 4th floor, Exhibit Area
Monday, Tuesday, and Wednesday

Continental Breakfast	7:30 AM - 8:30 AM
Coffee Break	9:40 AM - 10:00 AM
Afternoon Break	3:00 PM - 3:30 PM

2010 IEEE IPMHVC SCHEDULE-AT-A-GLANCE

Location: AmericasMart, Bldg. 2 West, 4th floor
(unless otherwise noted)

Sunday, May 23, 2010

2:00 – 8:00 PM	Registration
6:00 – 8:00 PM	Welcome reception

Monday, May 24, 2010

7:30 – 8:30 AM	Breakfast (registrants only)
8:30 – 8:45 AM	Welcome Room A
8:45 – 9:40 AM	Plenary 1 Room A
9:40 – 10:00 AM	Break
10:00 – 12:00 PM	Oral Session 1 Solid State Modulators and Switches 1 Room A
10:00 – 12:00 PM	Oral Session 2 Breakdown 1 Room B
12:00 – 1:30 PM	Lunch (on your own)
1:30 – 3:00 PM	Poster Session 1 Solid State Modulators and Switches, Compact Pulsed Power Systems
3:00 – 3:30 PM	Break
3:30 – 5:30 PM	Oral Session 3 Compact Pulsed Power Systems 1 Room A
3:30 – 5:30 PM	Oral Session 4 High Voltage Design Room B
7:00 – 9:00 PM	Off-site dinner at the Georgia Aquarium

Tuesday, May 25, 2010

7:30 – 8:30 AM	Breakfast (registrants only)

8:30 – 8:45 AM	Conference Updates Room A
8:45 – 9:40 AM	Plenary 2 Room A
9:40 – 10:00 AM	Break
10:00 – 12:00 PM	Oral Session 5 Compact Pulsed Power Systems 2 Room A
10:00 – 12:00 PM	Oral Session 6 Breakdown 2 Room B
12:00 – 1:30 PM	Lunch (on your own)
1:30 – 3:00 PM	Poster Session 2 Breakdown, High Voltage Design, Plasma Opening and Closing Switches, High Current Systems and EM Launchers
3:00 – 3:30 PM	Break
3:30 – 5:30 PM	Oral Session 7 Solid State Modulators and Switches 2 Room A
3:30 – 5:30 PM	Oral Session 8 High Power Microwaves and Radiating Structures Room B
6:30 – 7:30 PM	Reception Westin Peachtree Plaza
7:30 – 10:00 PM	Conference Awards Banquet Westin Peachtree Plaza

Wednesday, May 26, 2010

7:30 – 8:30 AM	Breakfast (registrants only)
8:30 – 8:45 AM	Conference Updates Room A
8:45 – 9:40 AM	Plenary 3 Room A
9:40 – 10:00 AM	Break
10:00 – 12:00 PM	Oral Session 9 Biological Applications Room A
10:00 – 12:00 PM	Oral Session 10 Energy Storage Devices Room B
12:00 – 1:30 PM	Lunch (on your own)
1:30 – 3:00 PM	Poster Session 3 Biological Applications, Accelerators, High Power Microwaves and Radiating Structures, Energy Storage Devices, Analytical Methods, Modeling, and Simulations
3:00 – 3:30 PM	Break
3:30 – 5:30 PM	Oral Session 11 Analytical Methods, Modeling, and Simulations Room A
3:30 – 5:30 PM	Oral Session 12 Accelerators and Other Applications Room B

Thursday, May 27, 2010

8:00 – 8:30 AM	Breakfast for Short Course Attendees Vinings I&II, Westin Peachtree Plaza
8:30 – 12:00 PM	Short Course 1 Electrical Safety in the R&D Laboratory Lloyd B. Gordon Los Alamos National Laboratory Vinings I, Westin Peachtree Plaza
8:30 – 12:00 PM	Short Course 2 High Voltage Testing Jim McBride JMX Services, Inc. Vinings II, Westin Peachtree Plaza
12:00 – 1:30 PM	Lunch (on your own)
1:30 – 5:00 PM	Technical Tour NEETRAC High Voltage Laboratory Bus departs from the Westin Peachtree Plaza

2010 IEEE IPMHVC TECHNICAL PROGRAM

Location: AmericasMart, Bldg. 2 West, 4th floor
(unless otherwise noted)

Monday, May 24, 2010

8:30 Welcome Room A

Plenary 1

Monday, May 24, 2010 8:45 – 9:40 AM Room A

THE SCIENCE, TECHNOLOGY, AND APPLICATIONS OF TERAWATT-CLASS PULSED POWER DRIVERS AT SANDIA NATIONAL LABORATORIES
Keith Matzen, Sandia National Laboratories

Oral Session 1: Solid State Modulators and Switches 1

Monday, May 24, 2010 10:00 AM – 12:00 PM Room A

Session Chair: Bill Reass, Los Alamos National Laboratory

10:00 1O1,2 (Invited)
A DURABLE, REPETITIVELY PULSED, 180 KV, 5.5 KA, 300 NS SOLID STATE PULSED POWER SYSTEM
Frank Hegeler[2], John D. Sethian[1], Malcolm W. McGeoch[3], Howard D. Sanders[4], Steven Glidden[4], Matthew C. Myers[1], Matthew F. Wolford[1]
[1]Naval Research Laboratory, Plasma Physics Division, Washington, DC, USA, [2]Commonwealth Technology, Inc. Alexandria, VA, USA, [3]PLEX LLC Fall River, MA, USA, [4]Applied Pulsed Power, Inc. Freeville, NY, USA

10:30 1O3
P1-MARX MODULATOR FOR THE ILC
Craig Burkhart, Tony Beukers, Mark Kemp, Ray Larsen, Minh Nguyen, Jeff Olsen, Tao Tang
SLAC National Accelerator Laboratory, Power Conversion, Menlo Park, CA, USA

10:45 1O4
STATUS UPDATE ON THE SECOND-GENERATION ILC MARX MODULATOR PROTOTYPE
Mark Kemp, Andrew Benwell, Craig Burkhart, Ray Larsen, Koen Macken, Dave MacNair, Minh Nguyen, Jeff Olsen
SLAC National Accelerator Laboratory, Power Conversion Department, Menlo Park, CA, USA

11:00 1O5
DESIGN AND EVALUATION OF A PEBB MODULE FOR A MARX-ARCHITECTURE KLYSTRON MODULATOR
Koen Macken, Minh Nguyen, Dave MacNair, Mark Kemp, Jeff Olsen, Craig Burkhart, Andrew Benwell
SLAC Menlo Park, CA, USA

11:15 1O6
A SOLID STATE MARX MODULATOR THAT CAN DRIVE A MAGNETRON IN A REMOTE LOCATION
Richard Cassel
Stangenes Industries Inc. Palo Alto, CA, USA

11:30 1O7
TRANSIENT ANALYSIS OF SILICON CARBIDE MOSFET SWITCHES
Kevin Lawson, Stephen Bayne
Center for Pulsed Power and Power Electronics, Texas Tech University, Lubbock, TX, USA

11:45 1O8
CARRIER LIFETIME STUDIES OF SEMI-INSULATING SILICON CARBIDE FOR PHOTOCONDUCTIVE SWITCH APPLICATIONS
Cameron Hettler, Colt James, James Dickens
Texas Tech University, Center for Pulsed Power and Power Electronics, Lubbock, TX, USA

Oral Session 2: Breakdown and Insulation

Monday, May 24, 2010 10:00 AM – 12:00 PM Room B

Session Chair: Dan Schweickart, Wright Patterson AFB

10:00 2O1
FUNDAMENTALS FOR THE COMPOUNDING OF NANOCOMPOSITES TO ENHANCE ELECTRICAL INSULATION PERFORMANCE
Christopher Calebrese, Le Hui, Linda Schadler, J. Keith Nelson
Rensselaer Polytechnic Institute Troy, NY, USA

10:15 2O2
DETERMINATION OF GEOMETRICAL DESCRIPTION IN NANODIELECTRICS
Enis Tuncer[1], Lawrence Drummy[2]
[1]Oak Ridge National Laboratory Oak Ridge, TN, USA, [2]Air Force Research Laboratory Dayton, OH, USA

10:30 2O3
FAILURE MECHANISM OF POLYMERIC INSULATION UNDER HIGH FREQUENCY PULSED VOLTAGES
Weijun Yin[1], Fengfeng Tao[1], George Chen[2], Daniel Schweickart[3]
[1]GE, Global Research Center, Niskayuna, NY, USA, [2]University of Southampton, School of Electronics and Computer Science, Southampton, United Kingdom, [3]Air Force Research Laboratory, Wright Patterson Air Force Base, Dayton, OH, USA

10:45 2O4
ATMOSPHERIC FLASHOVER IN A SYMMETRIC ELECTRIC FIELD GEOMETRY
Garrett Rogers, Andreas Neuber, Lynn Hatfield, George Laity, Klaus Frank, James Dickens
Texas Tech University, Center For Pulsed Power and Power Electronics, Lubbock, TX, USA

11:00 2O5
MONTE CARLO SIMULATION OF HIGH POWER MICROWAVE SURFACE FLASHOVER UNDER UV ILLUMINATION
John Krile, Jonathan Foster, Mark Thomas, Andreas Neuber
Texas Tech University, Electrical & Computer Engineering, Lubbock, TX, USA

11:15 2O6
SIMULATION OF HIGH-VOLTAGE DC BREAKDOWN FOR ANGLED DIELECTRIC INSULATOR INCLUDING SPACE-CHARGE EFFECTS
Manuel Aldan[1], John Verboncoeur[1], Lawrence Ives[2]
[1]UC Berkeley, Nuclear Engineering, Berkeley, CA, USA, [2]Calabazas Creek Research, Inc. San Mateo, CA, USA

11:30 2O7
A DIELECTRIC BREAKDOWN MODEL FOR CRYSTALLINE INSULATORS: ELECTRO-THERMAL INSTABILITY COUPLED TO INTERBAND IMPACT IONIZATION
Antonio Marcus Nogueira Lima[1], Arlindo Garcia de Sá Barreto Neto[1], Elmar Mecher[2], Helmut Neff[3]
[1]Universidade Federal de Campina Grande, Electrial Engineering, Campina Grande, Brazil, [2]Universidade Federal de Campina Grande, Computer Science, Campina Grande, Brazil, [3]Center for Strategic Research, Laboratory for Integrated Circuits and Systems, Campina Grande, Brazil

11:45 2O8
FLASHOVER PHENOMENA ACROSS SOLID DIELECTRICS IN VACUUM: MECHANISM AND SUPPRESSION
Guan-Jun Zhang, Kai-Kun Yu, Nan Zheng, Xi-Wei Hao, Hai-Bao Mu
Xi'an Jiaotong University, School of Electrical Engineering, Xi'an, China

Poster Session 1: Solid State Modulators and Switches, Compact Pulsed Power Systems

Monday, May 24, 2010 1:30 – 3:00 PM Exhibit Area

Session Chairs: Raymond Allen, Naval Research Laboratory
Bucur Novac, Loughborough University

1P1 SOLID STATE CLOSING SWITCHES FOR USE IN POWER MODULATOR APPLICATIONS
Ronald J. Focia
Pulsed Power Laboratories, Inc. Edgewood, NM, USA

1P2 NUMERICAL VALIDATION OF AMORPHOUS CORE PULSE TRANSFORMER
H.P. Taskar[1], M.A. Dorlikar[1], M.H. Patil[1], H.A. Mangalvedekar[1], D.P. Chakravarthy[2]
[1]V.J.T.I. Matunga, Mumbai (Pin 400019), India, Electrical Engineering, Mumbai, India, [2]BARC, APPD, Mumbai, India

1P3 SOLID-STATE MARX TECHNIQUE FOR UNIFORM VOLTAGE DISTRIBUTION IN SERIES STACK SEMICONDUCTOR SWITCHES
Luis Redondo[1.2], Hiren Canacsinh[1.2], Nuno Ferrão[1.2], Carlos Mendes[1.2], José Silva[3.4]
[1]Instituto Superior de Engenharia Lisboa, ISEL/DEEA Lisbon, Portugal, [2]Nuclear Physics Center from Lisbon University, CFNUL Lisbon, Portugal, [3]Instituto Superior Técnico, IST/DEEC Lisbon, Portugal, [4]Center for Innovation in Electrical and Energy Engineering, CIEEE Lisbon, Portugal

1P4 COMPARISON BETWEEN TWO SOLID-STATE TRANSFORMERLESS MODULATORS FOR CAPACITIVE TYPE LOAD APPLICATIONS
Luis Redondo[1.2], Hiren Canacsinh[1.2], Manuel Silva[2]
[1]Instituto Superior de Engenharia Lisboa, ISEL/DEEA Lisbon, Portugal, [2]Nuclear Physics Center from Lisbon University, CFNUL Lisbon, Portugal

1P5 DEVELOPMENT OF A HIGH-POWER SOLID-STATE SWITCH MODULE DESIGNED FOR REPETITIVE APPLICATION
Chuanwei Wang, Hongtao Li, Qing Tian, Ping Jiang, Wenfeng Dai, Weiping Xie
China Academy of Engineering Physics, Institute of Fluid Physics, P.O.Box 919-108, Mianyang 621900, China

1P6 A NOVEL HIGH VOLTAGE SWITCH USING SERIES CONNECTED IGBT WITH ONE ACTIVE GATE DRIVER
K.S Sangwan, Rahul Varma
Central Electronics Engineering Research Institute (CEERI/CSIR), Industrial Electronics, Pilani-333031, India

1P7 HIGH-PURITY SEMI-INSULATING 4H-SIC AS A HIGH-VOLTAGE SWITCH MATERIAL
Colt James, Cameron Hettler, James Dickens
Texas Tech University, Center for Pulsed Power and Power Electronics, Lubbock, TX, USA

1P8 AN ACTIVE VOLTAGE CLAMPING METHOD IN SERIES CONNECTION OF IGBTS WITH PASSIVE NETWORK
Bongseong Kim, Kwang-Cheol Ko
Hanyang Univiersity, Electrical Engineering, Seoul, South Korea

1P9 AN EASY APPROACH TO THE INSTANTANEOUS JUNCTION TEMPERATURE EVALUATION OF HIGH POWER THYRISTORS DURING NONREPETITIVE CURRENT PULSE
Wanxin Lu, Wenting Li, Qin Zhang, Lin Dai, Hanbin Dong
Huazhong University of Science and Technology, College of Electrical and Electronic Engineering, Wuhan, China

1P10 DESIGN AND TESTS OF A 15KA-8.5KV THYRISTOR SWITCH FOR A PULSED INDUCTIVE PLASMA SOURCE
Christian Teske, Byung-Joon Lee, Joachim Jacoby, Waldemar Schweizer, Jun Chao Sun
University, Institute of Applied Physics, Frankfurt, Germany

1P11 NOVEL SWITCHING POWER SUPPLY FOR A DIGITAL ACCELERATOR
Katsuya Okamura[1], Hiroshi Tanaka[2], Keiichi Ise[2], Koichi Takaki[2], Weihua Jiang[3], Masayoshi Wake[1], Taiki Iwashita[1], Ken Takayama[1]
[1]KEK, Accelerator Division, Tsukuba, Japan, [2]Iwate University, Faculty of Engineering, Morioka, Japan, [3]Nagaoka University of Technology, Extreme Energy-Density Research Institute, Nagaoka, Japan

1P12 UNDERSEA HVDC POWER DISTRIBUTION
Michael Kempkes, Richard Myer, Neal Butler, James Petry, Michael Mulvaney, Marcel Gaudreau
Diversified Technologies, Inc. Bedford, MA, USA

1P13 DESIGN PROCEDURE FOR COMPACT PULSE TRANSFORMERS WITH RECTANGUALR PULSE SHAPE AND FAST RISE TIMES
Bortis Dominik, Juergen Biela, Johann W. Kolar
ETH Zurich, Power Electronic Systems Laboratory, Zurich, Switzerland

1P14 SWITCH TECHNOLOGIES FOR A 180MW, 450kV SOLID STATE MODULATOR
Gabriel Ortiz, Juergen Biela, Bortis Dominik, Johann W. Kolar
ETH Zurich, Power Electronic Systems Laboratory, Zurich, Switzerland

1P15 A SOLID-STATE NANOSECOND KICKER PULSER BASED ON THE DSRD SWITCH
Anatoly Krasnykh[1], Ronald Akre[1], Craig Burkhart[1], Alexei Kardo-Sysoev[2], Tao Tang[1]
[1]SLAC National Accelerator Lab Menlo Park, CA, USA, [2]Ioffe Physical Technical Institute St. Petersburg, Russia

1P16 LASER PUMPING OF 5KV SILICON THYRISTORS FOR FAST HIGH CURRENT RISE-TIMES
Howard Sanders, Steven Glidden, Daniel Warnow
Applied Pulsed Power, Inc. Freeville, NY, USA

1P17 125KV, 100KA, 150NS, 5PPS TEST FACILITY WITH SOLID STATE SWITCHED DISTRIBUTED PULSE COMPRESSION MARX
Howard Sanders, Steven Glidden, Daniel Warnow
Applied Pulsed Power, Inc. Freeville, NY, USA

1P18 A SOLID STATE PULSED POWER CONVERTER-MODULATOR TO DRIVE A MAGNETRON
Claudio Motta
University of Sao Paulo, Power Microwave Laboratory, Sao Paulo, Brazil

1P19 HYBRID MOSFET/DRIVER SWITCHING MODULE FOR ILC DAMPING RING KICKER MODULATORS
Tao Tang, Craig Burkhart
SLAC National Accelerator Laboratory, Power Conversion Department, Menlo Park, CA, USA

1P20 1.0 CM^2 SILICON CARBIDE P-I-N DIODES FOR PULSED POWER APPLICATIONS
Heather O'Brien[1], William Shaheen[2], Aderinto Ogunniyi[1], Charles Scozzie[1], Anant Agarwal[3], Victor Temple[4]
[1]US Army Research Laboratory Adelphi, MD, USA, [2]Berkeley Research Associates Beltsville, MD, USA, [3]Cree Durham, NC, USA, [4]Silicon Power Clifton Park, NY, USA

1P21 THE DESIGN AND DEVELOPMENT OF THE EBIS LEBT SOLENOID POWER SUPPLY
Yugang Tan, John Addessi, James Alessi, Robert Lambiase, Chong-Jer Liaw, Alexander Pikin, Jon Sandberg, Wu Zhang, Valerie Zubets
Brookhaven National Laboratory, Collider-Accelerator, Upton, NY, USA

1P22 NOVEL HIGH VOLTAGE CAPACITOR CHARGER FOR PULSED POWER MODULATOR
Sung Roc Jang[1], Hong Je Ryoo[2], Suk Ho Ahn[1], Geun Hie Rim[2]
[1]KERI Campus, University of Science & Technology, Dept. of Energy Conversion, Changwon, South Korea, [2]KERI, Electric Propulsion Research Center, Changwon, South Korea

1P23 A COMPARATIVE STUDY OF THE GATE DRIVER CIRCUITS FOR SERIES STACKING OF SEMICONDUCTOR SWITCHES
Sung Roc Jang[1], Hong Je Ryoo[2], Suk Ho Ahn[1], Geun Hie Rim[2]
[1]KERI Campus, University of Science & Technology, Dept. of Energy Conversion, Changwon, South Korea, [2]KERI, Electric Propulsion Research Center, Changwon, South Korea

1P24 COMPACT POWER SUPPLIER FOR SNUBBER
GE LI[1], Liang Cao[2], Haitian Wang[2], Peng FU[1], Xiaodong Zhang[1]
[1]Institute of Plasma Physics Hefei, China, [2]Shanghai Jiaotong University, Department of Electrical Engineering, Shanghai, China

1P25 100KV PSM POWER SUPPLIER FOR EAST
Peng Fu
Institute of Plasma Physics, Chinese Academy of Sciences Hefei, China

1P26 NEW GENERATION OF HIGH FREQUENCY AND HIGH POWER NANO- AND PICOSECONDS PULSERS BASED ON FID TECHNOLOGY
Vladimir Efanov, Mikhail Efanov, Alexander Kricklenko, Alexande Komashko, Sergey Zazoulin
FID GmbH Burbach, Germany

1P27 APPLICATION OF ENERGY RECOVERY CONCEPT ON PULSE MODULATOR
Wen-Ching Tsai, Calvin W. Domier, Larry R. Barnett, Neville C. Luhmann
UC Davis, Electrical and Computer Engineering, Davis, CA, USA

1P28 DESIGN OF AN OSCILLATOR WITH OFF-TIME MODULATION FOR AC-DC CONVERTER
Yongtao Geng[1], Guoying Wu[2], Bo Zhang[2]
[1]Clemson University, Department of Electrical and Computer Engineering, Clemson, SC, USA, [2]University of Electronic Science and Technology of China, School of Microelectronics and Solid-state Electronics, Chengdu, China

1P29 DETERMINATION OF MODELING PARAMETERS FOR POWER IGBTS UNDER PULSED POWER CONDITIONS
James VanGordon[1], Scott Kovaleski[1], Gregory Dale[2]
[1]University of Missouri, Electrical and Computer Engineering, Columbia, MO, USA, [2]Los Alamos National Laboratory, High Power Electrodynamics Group, Los Alamos, NM, USA

1P30 HIGH VOLTAGE PRODUCTION FROM SHAPED PIEZOELECTRIC TRANSORMERS AND PIEZOELECTRIC TRANSFORMER BASED CIRCUITS
James VanGordon, Brady Gall, Scott Kovaleski, Emily Baxter, Riberet Almeida, Jae Kwon
University of Missouri, Electrical and Computer Engineering, Columbia, MO, USA

1P31 AN IMPLEMENTATION AND SWITHCING CHARACTERISTICS COMPARISON OF POWER SEMICONDUCTOR BASED MARX GENERATOR USING BY SI-THYRISTOR AND IGBT
Jeong-Ho Park, Bongseong Kim, Kwang-Cheol Ko
Hanyang University, Dept. of Electrical Engineering, Seoul, South Korea

1P32 A NEW MODELING AND GATE DRIVER DESIGN OF SI-THYRISTOR USING BY 2-PORT NETWORK
Bongseong Kim, Jeong-Ho Park, Kwang-Cheol Ko
Hanyang University, Dept. of Electrical Engineering, Seoul, South Korea

1P33 HIGH-VOLTAGE PULSED-POWER SOURCES FOR HIGH-ENERGY EXPERIMENTATION
Bucur Novac[1], Ivor Smith[1], Peter Senior[1], Gerry Louverdis[2]
[1]Loughborough University, Electronic and Electrical Engineering, Loughborough, United Kingdom, [2]Dstl, Security Services, Fort Halstead, United Kingdom

1P34 DESIGN OF COMPACT PULSED POWER SOURCE WITH PULSE TRANSFORMER
Wu Youcheng, Geng Lidong, Yang Yu, Hao Shirong, Xie Weiping
Institute of Fluid Physics, CAEP Mianyang, China

1P35 COMPACT AND PORTABLE, REPETITIVE HIGH PEAK POWER GENERATOR FOR AN ULTRA WIDEBAND SOURCE
Bruno Cassany[1], Baptiste Cadilhon[1], Laurent Pecastain[2], Antoine Silvestre de Ferron[2], Marc Rivaletto[2], Patrick Modin[1], Michael Teboul[3]
[1]CEA-CESTA Le Barp, France, [2]Pau University, Electrical Engineering Laboratory, Pau, France, [3]Technix Creteil, France

1P36 SYNCHRONIZED SPARK GAPS COMBINED TO MULTI-PRIMARY WINDINGS RESONANT TRANSFORMER FOR WIDEBAND APPLICATIONS
Romain Pecquois[2], Laurent Pecastaing[1], Marc Rivaletto[1], Antoine De Ferron[1], Pascal Pignolet[1], Jean-Marc Duband[2], Laurent Caramelle[2], René Vezinet[3]
[1]Laboratoire de Génie Electrique PAU, France, [2]Hi Pulse PONT de PANY, France, [3]DGA/DET/SCET/CEG GRAMMAT, France

1P37 A VERY-COMPACT 50-kJ PFN GENERATOR
R. E. Beverly III[1], D. Åberg[2], F. Olsson[2], M. E. Jansson[2], M. U. Karlsson[2]
[1]R. E. Beverly III and Associates Lewis Center, OH, USA, [2]BAE Systems Bofors AB Karlskoga, Sweden

1P38 CALCULATION OF ELECTRODYNAMIC FORCES OF METALLIZED CAPACITOR'S LEADNG WIRE
Kong Zhonghua, Jiang Yadong
University of Electronic Science and Technology of China, School of Optoelectronic Information, Chengdu, China

1P39 A COMPACT SMALL-SIZE REP-RATE GIGAWATT PULSED POWER SOURCE
Zicheng Zhang, Hua Zhang, Hanwu Yang, Jiande Zhang, Baoliang Qian, Bo Liang
National University of Defense Technology, College of Optoelectric Science and Engineering, Changsha, China

1P40 A LASER-TRIGGERED SHORT RISE-TIME PULSE GENERATOR
Yuan Li, Jin Li
Institute of Fluid Physics, Lab of Accelerators, Mianyang, China

1P41 A NEW WAY TO REDUCE RESISTOR OVERHEATING WHEN RAPIDLY CHARGING HIGH ENERGY MARX GENERATORS OR HIGH CURRENT CAPACITOR BANKS.
Monty Lehmann
Jefferson Laboratory, Accelerator Division, Newport News, VA, USA

1P42 A 2MV, <300PS RISETIME, 100HZ, PULSER FOR GENERATION OF MICROWAVES
D. Morton[1], J. Banister[1], J. Levine[1], T. Naff[1], I. Smith[1], H. Sze[1], T. Warren[1], D.V. Giri[2], C. Mora[3], J. Pavlinko[3], J. Scheher[3], C.E. Baum[4]
[1]L3 Communications, Pulse Sciences San Leandro, CA, USA, [2]Pro Tech Alamo, CA, USA, [3]SAIC Albuquerque, NM, USA, [4]University of New Mexico Albuquerque, NM, USA

1P43 COMPACT HIGH VOLTAGE SOLID-STATE PULSE GENERATOR BASED ON SERIES RSD
Baocheng Wang, Deyu Wang, Xiaofeng Sun, Weiyang Wu
YanShan University, Electrical Engineering, Qinhuangdao, China

1P44 SOLID STATE SPIKER-SUSTAINER-CIRCUIT FOR XECL LONGPULSE EXCIMERLASER
Claus F. Strowitzki[1], Matthew Magee[2], Michael Baumann[1]
[1]MLase Ag, Development, Germering, Germany, [2]Spectranetics Corporation, Development, Colorado Springs, CO, USA

1P45 ALL SOLID-STATE MARX MODULATOR WITH BIPOLAR HIGH-VOLTAGE HIGH-FREQUENCY PULSE OUTPUT
Lan Gao, Kefu Liu, Jian Qiu, Dongdong Wang
Fudan University, Institute of Electrical Light Sources, Shanghai, China

1P46 CHARACTERIZATION OF A 50 J LINEAR TRANSFORMER DRIVER
David Matia, Hermann Krompholz, Travis Vollmer, Andreas Neuber, Michael Giesselmann, Magne Kristiansen
Texas Tech University, Center for Pulsed Power and Power Electronics, Department of Electrical and Computer Engineering, Lubbock, TX, USA

1P47 COMPACT MARX GENERATORS USED FOR HIGH POWER RF AND MICROWAVE GENERATION
Thomas Holt, Jon Mayes, Clay Nunnally, Matt Lara, Chris Hatfield, Mark Mayes
Applied Physical Electronics, L. C. Austin, TX, USA

1P48 A MINIATURIZED SPARK GAP SWITCH IN THE REGIME OF HIGH REPETITION RATE
Hasibur Rahaman[1], Jong Woo Nam[2], Sang H Nam[1], Klaus Frank[3]
[1]Postech, Pohang Accelerator Laboratory, Pohang, Korea, [2]Hankuk Academy of Foreign Studies Yongin, Korea, [3]University of Erlangen-Nurenberg, Physics, Erlangen, Germany

1P49 THE PRIMARY STUDY ON PULSED POWER CONDITIONING TECHNOLOGYBASED ON TWO-STAGED OPENING SWITCHES
Hao Shirong, Xie Weiping, Wu Youcheng
Institute of Fluid Physics Mianyang, China

1P50 A COMPACT, HIGH REPETITION-RATE, NANOSECOND PULSE GENERATOR BASED ON MAGNETIC PULSE COMPRESSION
Dongdong Zhang[1], Yuan Zhou[2], Jue Wang[1], Ping Yan[1], Tao Shao[1], Yaohong Sun[1]
[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China, [2]Automation and Electrical Engineering College, Tianjin University of Technology and Education, Tianjin, China, [3]Graduate School of Chinese Academy of Sciences, Chinese Academy of Sciences, Beijing, China

1P51 RESEARCH ON DSP CONTROLLED HIGH POWER DENSITY CAPACITOR CHARGING POWER SUPPLY
Yinghui Gao, Yaohong Sun, Ping Yan, Tao Shao, Da Xing
Institute of Electrical Engineering, Chinese Academy of Sciences Beijing,100190, China

1P52 MICROWAVE SUBNANOSECOND PULSE GENERATION AND SHAPING BY USING INFRARED OPTOELECTRONIC SWITCHING
Saad El Amari, Mohamad Kenaan, Caterina Merla, Delia Arnaud-Cormos, Philippe Leveque, Vincent Couderc
University of Limoges, XLIM - UMR n°6172 CNRS, Limoges, France

1P53 AN ON-CHIP POWER MODULATOR
Pingshan Wang[1], Yongtao Geng[1], Huan Zou[1], Haibo Wang[2], Chaojiang Li[1]
[1]Clemson University, Electrical and Computer Engineering, Clemson, SC, USA, [2]Southern Illinois University Carbondale, Electrical and Computer Engineering, Carbondale, IL, USA

1P54 A COMPARISON STUDY OF TRANSMISSION LINE BASED ON-CHIP SHORT PULSE GENERATION CIRCUITS
Huan Zou, Yongtao Geng, Chaojiang Li, Pingshan Wang
Clemson University, Electrical and Computer Engineering, Clemson, SC, USA

1P55 SOFT X-RAY SOURCE BASED ON X-PINCH AND PORTABLE LOW-SCALE PULSE POWER GENERATOR
Stanislav Chaikovsky[1], Anton Artemov[1], Natalya Labetskaya[1], Anatolyi Fedunin[1], Vladimir Oreshkin[1], Rina Baksht[1], Nicolai Ratachin[1], Gennadiy Mesyats[2], Sergei Pikuz[2], Tatiana Shelkovenko[2]
[1]High Current Electronics Institute, High En.Density Dep, Tomsk, Russia, [2]Lebedev Physical Institute, Phys. El. Dep, Moscow, Russia

1P56 A COMPACT 600-KV ERECTED PULSE-FORMING NETWORK FOR HPM APPLICATIONS
Clay Nunnally, Matt Lara, Jon Mayes, Bill Nunnally, David Kohlenberg
Applied Physical Electronics, L C Austin, TX, USA

1P57 OPTIMIZATION OF A FUSE OPENING SWITCH FOR A COMPACT POWER CONDITIONING UNIT
Jason Korn[1], Andreas Neuber[1], Mohamed Elsayed[1], Andrew Young[1], Cole Davis[1], Magne Kristiansen[1], Larry Altgilbers[2]
[1]Texas Tech University, Center for Pulse Power and Power Electronics, Lubbock, TX, USA, [2]USA Army, Space and Missile Defense Command, Huntsville, AL, USA

1P58 MODES OF GENERATION OF RUNAWAY ELECTRON BEAMS IN GASIS AT A PRESSURE OF 1-760 TORR
Victor Tarasenko, Evgenii Baksht, Alexander Burachenko, Mikhail Lomaev, Dmitri Sorokin
Institute of High Current Electronics, Laboratory of Optical Radiation, Tomsk, Russia

1P59 SPECTRUM OF FAST ELECTRONS IN A SUBNANOSECOND BREAKDOWN OF AIR-FILLED DIODES AT ATMOSPHERIC PRESSURE
Victor Tarasenko[1], Evgenii Baksht[1], Alexander Burachenko[1], Vasilii Kozhevnikov[2], Andrey Kozyrev[2], Igor Kostyrya[1]
[1]Institute of High Current Electronics, Laboratory of Optical Radiation, Tomsk, Russia, [2]Tomsk State University, Physical Faculty, Tomsk, Russia

1P60 MODULAR, COMPACT HV-CAPCITOR CHARGE
Michael Giesselmann[1], Travis Vollmer[1]
[1]Texas Tech University, Pulsed Power & Power Elect., Lubbock, TX, USA, [2]Texas Tech University, Pulsed Power & Power Elect., Lubbock, TX, USA

1P61 A COMPACT PULSE TRANSFORMER
John Dolan, Peter Leask, Phil Swire, Robin Ibbotson, Chris Spikings
BAE SYSTEMS, Advanced Technology Centre, Bristol, United Kingdom

1P62 EXPERIMENTAL RESULTS OF A 10-ELEMENT, GATLING-STYLED MARX GENERATOR SYSTEM
Jon Mayes[1], William Carey[2]
[1]Applied Physical Electronics, L.C. Austin, TX, USA, [2]ARC Technology Whitewater, KS, USA

1P63 A LOW IMPEDANCE 500KV 2.75KJ MARX GENERATOR AS TESTBED FOR VACUUM DIODES
Curtis Lynn, Andreas Neuber, Evan Matthews, John Walter, Magne Kristiansen
Texas Tech University, Electrical Engineering, Lubbock, TX, USA

1P64 HIGH VOLTAGE PULSE GENERATOR FOR ELECTRICAL DISCHARGE TECHNOLOGIES
Grigory Kanaev[1], Vladimir Kuhta[2], Vladimir Lopatin[3], Alexander Nashilewski[3], Gennady Remnev[3], Kensuke Uemura[2]
[1]Nuclear Physics Research Institute Tomsk, Russia, [2]ITAC Ltd. Niigata, Japan, [3]High Voltage Research Institute Tomsk, Russia

1P65 DESIGN OF A MEDIUM-ENERGY PULSED REPETITIVE ELECTRON BEAM GENERATOR
Randy Curry, Peter Norgard

Electrical and Computer Engineering, University of Missouri, Columbia, MO, USA

Oral Session 3: Compact Pulsed Power Systems 1

Monday, May 24, 2010 3:30 – 5:30 PM Room A

Session Chair: Mike Mazarakis, Sandia National Laboratories

15:30 3O1,2 (Invited)
LINEAR TRANSFORMER DRIVERS (LTD) FOR HIGH VOLTAGE HIGH, CURRENT REP-RATED SYSTEMS
Michael Mazarakis[1], Keith Lechien[1], William Fowler[1], Finis Long[1], Keith Matzen[1], Dillon McDaniel[1], Randall McKee[1], John Porter[1], Kenneth Struve[1], William Stygar[1], Joseph Woodworth[1], Alexander Kim[2], Vadim Sinebryukhov[2], Ron Gilgenbach[3], Mathiew Gomez[3], Yue Lau[3]
[1]Sandia National Laboratories, 1671, Albuquerque, NM, USA, [2]High Current Electronic Institute (HCEI), Pulsed Power, Tomsk, Russia, [3]University of Michigan, Nuclear Engineering, Ann Arbor, MI, USA

16:00 3O3
SOLID-STATE LTD MODULE USING MOSFETS
Weihua Jiang[1.2]
[1]Tsinghua University, Department of Electrical Engineering, Beijing, China, [2]Nagaoka University of Technology, Department of Electrical Engineering, Nagaoka, Niigata, Japan

16:15 3O4
COMPARISON OF A CONVENTIONAL PULSED POWER UNIT AND A CURRENT STEP UP TRANSFORMER PULSED POWER UNIT FOR A PLASMA FOCUS AT THE 50KA LEVEL
Brian Bures, Mahadevan Krishnan, Robert Madden
Alameda Applied Sciences Corp San Leandro, CA, USA

16:30 3O5
EXPERIMENTAL RESULTS USING MICRO-FERROMAGNETIC GENERATORS
Allen Stults
USA AMRDEC, RDMR-WDP-S, Redstone Arsenal, AL, USA

16:45 3O6
PERFORMANCE OF A DUAL-STAGE HELICAL FLUX COMPRESSION GENERATOR UNDER VARYING BACKGROUND GAS AND PRESSURE
Mohamed Elsayed[1], Andreas Neuber[1], Jason Korn[1], James Dickens[1], M. Kristiansen[1], Larry Altgilbers[2], Allen Stults[3]
[1]Texas Tech University, Center for Pulsed Power and Power Electronics, Lubbock, TX, USA, [2]U.S. Army, SMDC, Huntsville, AL, USA, [3]U.S. Army, AMRDEC, Huntsville, AL, USA

17:00 3O7
ULTRA-MINIATURE 390-kV MARX GENERATOR
R. E. Beverly III[1], F. Olsson[2], M. E. Jansson[2], D. Åberg[2], M. U. Karlsson[2]
[1]R. E. Beverly III and Associates Lewis Center, OH, USA, [2]BAE Systems Bofors AB Karlskoga, Sweden

17:15 3O8
DESIGN OF COMPACT TABLE-TOP X-PINCH DEVICE
Ran Zhang, Xiaobin Zou, Xinxin Wang, Tong Zhao, Yanqiang Du
Tsinghua University, Department of Electrical Engineering, Beijing, China

Oral Session 4: High Voltage Design

Monday, May 24, 2010 3:30 – 5:30 PM Room B

Session Chair: Hulya Kirkici, Auburn University

15:30 4O1
CIRCUIT MODEL DEVELOPMENT TO IMPROVE THE PREDICTIVE CAPABILITIES FOR SHAPED CURRENT PULSES ON Z
Patrick Corcoran[1], Jean-Paul Davis[2], Mark Savage[2], Kenneth Struve[2], Brandon Whitney[1], Brian Stoltzfus[2], Keith Lechien[2], Vernon Bailey[1], William Stygar[2]
[1]L-3 Communications San Leandro, CA, USA, [2]Sandia National Laboratory Albuquerque, NM, USA

15:45 4O2
DESIGN OF HIGH-VOLTAGE CABLE ACCESSORIES USING ZNO MICROVARISTOR MATERIAL BASED ON FEM SIMULATIONS
Daniel Weida[1], Christian Richter[1], Markus Clemens[2]
[1]Helmut-Schmidt-University, Chair for Theory of Electrical Engineering and Computational Electromagnetics, Hamburg, Germany, [2]Bergische Universität Wuppertal, Chair for Electromagnetic Theory, Wuppertal, Germany

16:00 4O3
DESIGN CONSIDERATIONS FOR A HIGH VOLTAGE DC PHOTOEMISSION ELECTRON GUN AT CORNELL UNIVERSITY
Bruce Dunham
Cornell University, Physics Department, Ithaca, NY, USA

16:15 4O4
DESIGN CONSIDERATIONS OF HIGH VOLTAGE COMPACT POWER TRANSFORMER
Todor Filchev[1], Jon Clare[1], Pat Wheeler[1], Fabio Carastro[1], Bob Richardson[2]
[1]University of Nottingham, School of Electrical and Electronic Engineering, Nottingham, United Kingdom, [2]e2v technologies Chelmsford, United Kingdom

16:30 4O5
MOTOR CURRENT SIGNATURE ANALYSIS DURING ACCELERATED LIFE TESTING OF FORM WOUND INDUCTION MOTORS
Prabhakar Neti, Manoj Shah, Karim Younsi, Yingneng Zhou, John Krahn
General Electric - Global Research Center, Electric Machines, Hybrids and Dielectrics Lab, Niskayuna, NY, USA

16:45 4O6
DIAGNOSTICS OF AGED OIL-FILLED POWER TRANSFORMER
Birlasekaran Sivaswamy, Ledwich Gerard, Veerendra Lingamani
Queensland University of Technology, School of Engineering System, Brisbane, Australia

17:00 4O7
HIGH VOLTAGE POWER SUPPLY TO ELECTROSTATIC PRECIPITATORS WITH PLANAR TRANSFORMERS OF HELICAL WINDING STRUCTURE
Ganesh Kowshik, Vijay Elumalai
Sri Sairam Engineering College, Electrical and Electronics Engineering, Chennai, India

17:15 4O8
ELECTRICAL BREAKDOWN PROPERTIES OF OIL-PAPER INSULATION UNDER AC-DC AND REPETITIVE IMPULSE COMBINED VOLTAGE
Jian Li[1], Yan Wang[1], Stanislaw Grzybowski[2], Ruijin Liao[1]
[1]Chongqing University, High Voltage and Insulation Department, Chongqing, China, [2]Mississippi State University, Electrical and Computer Engineering, Mississippi State, MS, USA

Tuesday, May 25, 2010

8:30 Conference Updates Room A

Plenary 2

Tuesday, May 25, 2010 8:45 – 9:40 AM Room A

MEDICAL, BIOLOGICAL AND ENVIRONMENTAL APPLICATIONS OF HIGH PERFORMANCE PULSED POWER
Hidenori Akiyama, Kumamoto University

Oral Session 5: Compact Pulsed Power Systems 2

Tuesday, May 25, 2010 10:00 AM – 12:00 PM Room A

Session Chair: Jon Mayes, Applied Physical Electronics LC

10:00 5O1,2 (Invited)
COMSED 1 - A COMPACT, GIGAWATT CLASS MICROWAVE SOURCE UTILIZING HELICAL FLUX COMPRESSION GENERATOR BASED PULSED POWER
Andrew Young[1], Andreas Neuber[1], Mohamed Elsayed[1], Jason Korn[1], John Walter[1], Shad Holt[1], John Krile[1], James Dickens[1], Magne Kristiansen[1], Larry Altgilbers[2]
[1]Texas Tech University, Center for Pulsed Power and Power Electronics, Lubbock, TX, USA, [2]U.S. Army, Space and Missile Defense Command/Army Forces Strategic Command, Huntsville, AL, USA

10:30 5O3
MODELING OF COMPACT EXPLOSIVELY-DRIVEN FERROELECTRIC GENERATORS
David Bolyard, Andreas Neuber, John Krile, Magne Kristiansen
Department of Electrical & Computer Engineering, Texas Tech University, Center for Pulsed Power and Power Electronics, Lubbock, TX, USA

10:45 5O4
MAGNETIC FLUX-COMPRESSION DRIVEN BY EXPLODING SINGLE-TURN COILS
Bucur Novac, Nat Hook, Ivor Smith
Loughborough University, Electronic and Electrical Engineering, Loughborough, United Kingdom

11:00 5O5
RESULTS OF FLASH X-RAYS GENERATION AND CHARACTERIZATION USING A COMPACT PULSED POWER SOURCE
Archana Sharma, Puranmasi Saroj, Ritu Agrawal, Shyam Ghotage, Rakhee Menon, Muzamil Vijapure, K.V. Nagesh, D.P. Chakravarthy
Accelerator and Pulse Power Division, Bhabha Atomic Research Centre, Mumbai, India

11:15 5O6
COMPACT, LIGHTWEIGHT, HIGHLY-EFFICIENT COOLING OF A HIGH POWER MODULATOR
John Durbin[1], Stephen Merryman[2], William Catoe[2]
[1]The Durbin Group, LLC Fredericksburg, VA, USA, [2]NSWC-DD, Q22-Directed Energy Branch, Dahlgren, VA, USA

11:30 5O7
RAPID CHARGING SEED SOURCE WITH INTEGRATED FIRE SET FOR FLUX COMPRESSION GENERATOR APPLICATIONS
Shad Holt, Mohamed Elsayed, James Dickens, Andreas Neuber, Magne Kristiansen
Texas Tech University Center for Pulsed Power and Power Electronics Lubbock, TX, USA

11:45 5O8
HIGH ACCELERATION TESTING OF ENERGY STORAGE CAPACITORS
Fred MacDougall[1], Jason Cahayla[2], Joel Ennis[1], Chip Yang[1], Mark Schneider[1], Ross MacDonald[1]
[1]General Atomics Electronic Systems, Inc. San Diego, CA, USA, [2]ARDEC Picatinny Arsenal, NJ, USA

Oral Session 6: Breakdown 2

Tuesday, May 24, 2010 10:00 AM – 12:00 PM Room B

Session Chair: Andreas Neuber, Texas Tech University

10:00 6O1
DELAY TIME REDUCTION OF HIGH POWER MICROWAVE SURFACE FLASHOVER USING METALLIC INITIATORS
Jonathan Foster, Mark Thomas, Hermann Krompholz, Andreas Neuber
Texas Tech University, Center for Pulsed Power and Power Electronics, Lubbock, TX, USA

10:15 6O2
HIGH POWER MICROWAVE SURFACE FLASHOVER SEED ELECTRON PRODUCTION METHODS*
Mark Thomas, Jonathan Foster, Hermann Krompholz, Andreas Neuber
Texas Tech Center for Pulsed Power and Power Electronics, Electrical and Computer Engineering, Lubbock, TX, USA

10:30 6O3
EFFECTS OF GAS TEMPERATURE AND GAS MIXTURES ON A TRIGGERED, SUB-NS JITTER, 50 KV, 100 HZ SPARK GAP
Yeong-Jer Chen, James Dickens, John Mankowski, Magne Kristiansen
Texas Tech University, Center for Pulsed Power and Power Electronics, Lubbock, TX, USA

10:45 6O4
PULSED BREAKDOWN CHARACTERIZATION OF TWO DIELECTRIC OILS WITH A BST NANOPARTICLE SUSPENSION AND VARYING FILTRATION PORE SIZE
Randy Curry, Christopher Yeckel
University of Missouri, Electrical and Computer Engineering, Columbia, MO, USA

11:00 6O5
MIXTURES OF INSULATING LIQUIDS FOR PULSED POWER APPLICATIONS
Igor Timoshkin[1], Scott MacGregor[1], Martin Given[1], Mark Wilson[1], Phil Mason[2], Russell Clephan[2]
[1]University of Strathclyde, Electronic and Electrical Engineering, Glasgow, United Kingdom, [2]MBDA UK, Novel Systems, Bristol, United Kingdom

11:15 6O6
HIGH VOLTAGE CHARACTERIZATION OF HIGH DIELECTRIC CONSTANT COMPOSITES
Kevin O'Connor, Randy Curry
University of Missouri, Electrical and Computer Engineering, Columbia, MO, USA

11:30 6O7
STATUS ON MA CURRENT DRIVERS DEVELOPED WITHIN SPHINX PROJECT
Francis Lassalle[1], Arnaud Loyen[1], Bernard Roques[1], Alexander Kim[2], Boris Kovalchuk[2], Frederic Bayol[3]
[1]CEA, DAM, GRAMAT Gramat, France, [2]High Current Electronic Institute Tomsk, Russia, [3]Int. Technologies for High Pulsed Power Thegra, France

11:45 6O8
EXPERIMENTS WITH A 0.5-MA LTD CAVITY
Joseph Woodworth[1], Del Anderson[2], Michael Harden[2], James Blickem[3], Michael Mazarakis[1], William Fowler[1], William Stygar[1], Matthew Sceiford[1], Roger White[4], Alexandre Kim[5], Kevin Ward[3]
[1]Sandia National Laboratories, 1671, Albuquerque, NM, USA, [2]National Security Technologies Albuquerque, NM, USA, [3]Ktech Corporation Albuquerque, NM, USA, [4]L-3 Communications, Pulse Sciences Division San Diego, CA, USA, [5]High Current Electronics Institute Tomsk, Russia

Poster Session 2: Breakdown, High Voltage Design, Plasma Opening and Closing Switches, High Current Systems and EM Launchers

Tuesday, May 25, 2010 1:30 – 3:00 PM Exhibit Area

Session Chairs: Adriaan Welleman, ABB Switzerland
Shu Xiao, Old Dominion University

2P1 A NEW MODEL OF INVESTIGATING THE ELECTRIC FIELD IN DIELECTRIC LIQUID FOR STREAMER INITIATION
Mohammed Talaat, A. El-Zein
Zagazig University, Electrical Power & Machines, Zagazig, Egypt

2P2 PARTIAL DISCHARGE BEHAVIOUR OF AN ALTERNATIVE INSULATING LIQUID COMPARED TO MINERAL OIL
Robert Eberhardt[1], Michael Muhr[1], Robert Schwarz[2], Georg Pukel[2], Fritz Baumann[2], Werner Lick[1]
[1]Graz University of Technology, Institute of High Voltage Engineering and System Management, Graz, Austria, [2]Siemens Werk Weiz, Research and Development, Weiz, Austria

2P3 A MODEL FOR THE TEMPERATURE DISTRIBUTION IN RESIN IMPREGNATED PAPER BUSHINGS
Jyothi N. S., Ramu T. S.
Indian Institute of Science, Department of Electrical Engineering, Bangalore, India

2P4 STATISTICAL STUDY OF THE TREEING PHENOMENA IN SOLID INSULATIONS
Mohammad Reza Meshkatoddini
PWUT University, Electrical Engineering, Tehran, Iran

2P5 SURFACE CHARGE ACCUMULATION ON THE CONE-TYPE INSULATOR UNDER DC VOLTAGE
Wang Qiang, Zhang Gui-xin, Wang Xin-xin, Wang Bei
Tsinghua University, Department of Electric Engineering, Beijing, China

2P6 INVESTIGATION OF SIMPLE GRADED PERMITTIVITY SOLID SPACER SHAPE BY HV ELECTRODE MODIFICATION ON GAS INSULATED SWITCHGEAR
Heung-Jin Ju, Bongseong Kim, Hui-dong Hwang, Soon-Kook Cho, Kwang-Cheol Ko
Hanyang University, Dept. of Electrical Engineering, Seoul, South Korea

2P7 PROPERTIES OF ELECTRICAL TREES IN LDPE/MMT NANOCOMPOSITES UNDER REPETITIVE IMPULSE VOLTAGE

Huazhong Zhang[1], Jian Li[1], Lijun Yang[1], Caixin Sun[1], Stanislaw Grzybowski[2]
[1]Chongqing University, Dept. of High Voltage and Insulation Eng., College of Electrical Eng., Chongqing, China, [2]Mississippi State University, Dept. of Electrical and Computer Eng., Mississippi State, MS, USA

2P8 THE EFFECT OF APPLICATION OF RTV WITH DIFFERENT VOLUME RESISTIVITY ON ELECTRIC FIELD INTENSITY OF PORCELAIN INSULATOR IN ANTI-ICING

Gang Chen[1], Yu Qin[2], Min Liu[2], Zhidong Jia[2], Zhicheng Guan[2], Shun Yuan[1]
[1]Shenyang University of Technology, Department of Electrical Engineering, Shenyang, China, [2]Tsinghua University, Department of Electrical Engineering, Beijing, China

2P9 SURFACE FLASHOVER OF OIL-IMMERSED POLYMERS WITH VARYING APPLIED ELECTRICAL FIELD

Mark Wilson[1], Martin Given[1], Igor Timoshkin[1], Scott MacGregor[1], Mark Sinclair[2], Ken Thomas[2], Jane Lehr[3]
[1]University of Strathclyde, Electronic & Electrical Engineering, Glasgow, United Kingdom, [2]AWE Aldermaston, Pulsed Power Group, Reading, United Kingdom, [3]Sandia National Laboratories Albuquerque, NM, USA

2P10 GEOMETRICAL EFFECTS ON HOLD-OFF VOLTAGE IN POLYSTYRENE INSULATOR

Jennifer Zirnheld[1], Akinlaja Caulcrick[1], Shola Olabisi[1], Harry Moore[2], Hardev Singh[2]
[1]University at Buffalo, Energy Systems Institute, Buffalo, NY, USA, [2]U.S. Army, Advanced Energy Armament Systems Center at RDECOM-ARDEC, Picatinny, NJ, USA

2P11 APPLYING A DIFFERENT APPROACH TO PULSED HIGH-VOLTAGE INSULATION DESIGN

John G Leopold, Raanan Gad, Eyal Hillel, Chaim Leibovitz, Meir Markovits, Itamar Navon
Rafael Laboratories, Applied Physics, Haifa, Israel

2P12 SURFACE FLASHOVER STUDIES OF NANODIELECTRIC MATERIALS UNDER KHZ RANGE PULSED FIELDS IN PARTIAL VACUUM

Fang Li, Hulya Kirkici
Auburn University, Electrical and Computer Engineering, Auburn, AL, USA

2P13 BREAKDOWN CHARACTERISTICS OF ARGON IN PARTIAL VACUUM UNDER KHZ PULSED VOLTAGE WITH VARYING DUTY CYCLE FOR POINT-TO-POINT ELECTRODE GEOMETRY

Haitao Zhao, Mark Lipham, Hulya Kirkici
Auburn University, Electrical and Computer Engineering, Auburn, AL, USA

2P14 ELECTRICAL PROPERTIES OF A THERMOPLASTIC POLYURETHANE FILLED WITH TITANIUM DIOXIDE NANOPARTICLES

Georgios Polizos[1], Enis Tuncer[1], Hilmar Koerner[23], Richard Vaia[2], Isidor Sauers[1], Randy James[1], Alvin Ellis[1]
[1]Oak Ridge National Laboratory, Fusion Energy Division, Oak Ridge, TN, USA, [2]Air Force Research Laboratory, Materials and Manufacturing Directorate, Dayton, OH, USA, [3]Universal Technology Corporation Dayton, OH, USA

2P15 AGING OF INSULATING MATERIAL IN NATURAL ESTER DIELECTRIC FLUID

Meoung Seop Shim[1], Jung Sik An[1], Joong Il Jung[1], Nam Ryul Kim[2], Chang Su Huh[1]
[1]INHA University, Electrical Engineering, Incheon, Korea, [2]Joongwon Company Ansan, Korea

2P16 EXPERIMENTAL INVESTIGATION OF THE KERR EFFECT IN WATER UNDER INTENSE AND FAST TRANSIENT ELECTRIC FIELDS

Bucur Novac[1], Ivor Smith[1], Fahd Banakhr[1], Laurent Pecastaing[2], Robert Ruscassie[2], Antoint De Ferron[2], Pascal Pignolet[2]
[1]Loughborough University, Electronic and Electrical Engineering, Loughborough, United Kingdom, [2]Universitie de Pau, Laboratoire de Genie Electrique, Pau, France

2P17 DETERMINATION OF PARTICLE MOVEMENT ON EPOXY COATED SPACER IN 1-Φ GAS INSULATED BUSDUCT

Devasetty Padmavathi[1], Amarnath Jinka[2], Kamakshaiah Saprans[2]
[1]J B Institute of Engineering and Technology, EEE, Hyderabad, India, [2]Jawaharlal Technological University Hyderabad, EEE, Hyderabad, India

2P18 APPLICATION AND RESEARCH OF LASER DE-ICING IN POWER SYSTEM

Guixin Zhang, Sheng Chen, Qiang Wang
Tsinghua University, Dept of Electrical Engineering, Beijing, China

2P19 THE RESEARCH OF SURFACE CHARGE DECAY APPROACHES ON INSULATORS
Guixin ZHANG, Bei Wang, Qiang Wang
Tsinghua University, Electrical Engineering, Beijing, China

2P20 NANOSECOND-PULSE DISCHARGE CHARACTERISTIC IN POINT-PLANE GAPS DUE TO REPETITIVE NANOSECOND-PULSE IN ATMOSPHERIC AIR
Tao Shao, Cheng Zhang, Yang Yu, Jue Wang, Yaohong Sun, Ping Yan
Institute of Electrical Engineering, Chinese Academy of Science Beijing, China

2P21 NANOSECOND-PULSE DIELECTRIC BARRIER DISCHARGE USING MAGNETIC COMPRESSION SOLID-STATE PULSE POWER
Tao Shao, Dongdong Zhang, Yang Yu, Cheng Zhang, Jue Wang, Yaohong Sun, Ping Yan
Institute of Electrical Engineering, Chinese Academy of Science Beijing, China

2P22 NEW DEVELOPMENT OF MICRO-STACKED INSULATOR TECHNOLOGY
Chengyan Ren, Weiqun Yuan, Dongdong Zhang, Ping Yan, Jue Wang, Rong Xu, Tao Shao, Yaohong Sun
Institute of Electrical Engineering, Chinese Academy of Sciences Beijing, China

2P23 MODELLING OF RESTRIKING AND NON-SUSTAINED ARCING CURRENT PHENOMENA IN A 12 KV VACUUM CIRCUIT BREAKER
Shui – Cheong Kam, Birlasekaran Sivaswamy, Ledwich Gerard
Queensland University of Technology, School of Engineering Systems, Brisbane, Australia

2P24 A 100KV SWICH MODE SERIES RESONANT POWER SUPPLY FOR INDUSTRIAL ELECTROSTATIC PRECIPITATORS
Fabio Carastro[1], Jon Clare[1], Andrew Goodman[1], Patrick Wheeler[1], John Leach[2], Terry Hosking[3]
[1]University of Nottingham, Electrical and Electronic Engineering, Nottingham, United Kingdom, [2]Castlet Ltd Lincoln, United Kingdom, [3]SBE inc. Barre, VT, USA

2P25 COMPUTER SIMULATION OF HIGH VOLTAGE SF_6 CIRCUIT BREAKERS: APPROACH TO MODELING AND APPLICATION RESULTS
Almir Ahmethodzic[1], Zoran Gajic[2], Mirsad Kapetanovic[1]
[1]Energoinvest d.d. and Faculty of Electrical Engineering Sarajevo, Bosnia and Herzegovina, [2]Member of Dutch NC CIGRÉ Amersfoort, Netherlands

2P26 LINKING ON PHYSICAL ARC MODEL WITH A BLACK BOX ARC MODEL AND VERIFICATION
Almir Ahmethodzic[1], Mirsad Kapetanovic[1], Kemo Sokolija[2], René P.P. Smeets[3], Viktor Kertész[3]
[1]Energoinvest d.d. and Faculty of Electrical Engineering Sarajevo, Bosnia and Herzegovina, [2]Faculty of Electrical Engineering Sarajevo, Bosnia and Herzegovina, [3]KEMA T&D Testing Arnhem, Netherlands

2P27 REMOTELY CONTROLLED HIGH VOLTAGE CAPACITOR CHARGING
Robert Morgan[1], Joel Ennis[1], Randy Hartsock[2]
[1]General Atomics - ESI, Energy Products, San Diego, CA, USA, [2]General Atomics - ESI, Sales, San Diego, CA, USA

2P28 FREQUENCY RESPONSE APPROACH IN TRANSIENT RECOVERY VOLTAGE ANALYSIS OF A CIRCUIT BREAKER WITH FAULT CURRENT LIMITER (FCL)
Mohammad Javadi, Mohsen Saniei
Shahid Chamran University, Electrical Engineering, Ahvaz, Iran

2P29 OPTIMIZATION DESIGN OF HIGH-VOLTAGE ELECTRODE CONTOUR LINE
Shuo XU, Xiaobing ZOU, Weili LIU, Xinxin WANG
Tsinghua University, Department of Electrical Engineering, Beijing, China

2P30 PARTIAL ELECTRICITY PARAMETERS OF DIELECTRIC BARRIER DISCHARGE AT ATMOSPHERIC PRESSURE
X. L. Tang[123], B. T. Chen[1], G. Qiu[123]
[1]Donghua University, Plasma Physics & Application Lab, College of Science, Shanghai 201620, China, [2]National Engineering Research Center for Dyeing and Finishing of Textiles Shanghai 201620, China, [3]Donghua University, College of Material Science and Engineering, Shanghai 201620, China

2P31 AN IMPROVED ALGORITHM FOR DATA DE NOISING OF PARTIAL DISCHARGE SIGNALS IN GIS USING SECOND GENERATION WAVELET TRANSFORM
S Raghunath Sagar
Sir CRR College of Engineering, Department of Electrical Engineering, Eluru, India

2P32 EFFECTS OF MICROVARISTOR MATERIAL ON PARTIAL DISCHARGES UPON COMPOSITE INSULATORS IN RAIN TEST

Daniel Weida[1], Julia Nevoigt[1], Hanyu Ye[2], Markus Clemens[2], Daniele Stefanini[3], Jens Seifert[3]
[1]Helmut-Schmidt-University, Chair for Theory of Electrical Engineering and Computational Electromagnetics, Hamburg, Germany, [2]Bergische Universität Wuppertal, Chair for Electromagnetic Theory, Wuppertal, Germany, [3]Lapp Insulator GmbH Wunsiedel, Germany

2P33 FLASHOVER AND BREAKDOWN INVESTIGATIONS OF AIRCRAFT WIRING IN LOW PRESSURE ENVIRONMENT

Donald Kasten[1], Titus Chen[1], Mike Rockwell[1], Stephen Sebo[1], Dennis Grosjean[2], Daniel Schweickart[3]
[1]Ohio State University, Electrical & Computer Engineering, Columbus, OH, USA, [2]Innovative Scientific Solutions, Inc. Dayton, OH, USA, [3]Air Force Research Laboratory WPAFB, OH, USA

2P34 DEVELOPMENT OF A HIGH VOLTAGE, HIGH FREQUENCY, FAST DV/DT TESTER FOR THE STUDY OF FAILURE MECHANISMS IN DIELECTRIC MATERIALS

Fengfeng Tao[1], Weijun Yin[1], Daniel L. Schweickart[2]
[1]GE Global Research Center Niskayuna, NY, USA, [2]Air Force Research Laboratory Wright-Patterson Air Force Base, OH, USA

2P35 VERFICATION OF AN IGBT FUSING SWITCH FOR OVER-CURRENT PROTECTION OF THE SNS HVCM

Andrew Benwell[1], Mark Kemp[1], Craig Burkhart[1], Minh Nguyen[1], David Anderson[2]
[1]SLAC National Accelerator Laboratory Menlo Park, CA, USA, [2]Oak Ridge National Laboratory Oak Ridge, TN, USA

2P36 A PROGNOSTIC METHOD FOR SCHEDULING MAINTENANCE ON THE P2-MARX MODULATOR

Andrew Benwell, Craig Burkhart, Mark Kemp, Koen Macken, Minh Nguyen, Dave MacNair, Jeff Olsen, Ray Larson
SLAC National Accelerator Laboratory Menlo Park, CA, USA

2P37 INVESTIGATION OF UHF SIGNALS FORMED BY PARTICLE MOVEMENT AND BY CORONA ACTIVITY IN GIS UNDER AC VOLTAGE

Umamaheswari Rengasamy, Sarathi Ramanujam
Indian Institute of Technology Madras, Department of Electrical Engineering, Chennai, India

2P38 DIFFERENTIAL PERMEABILITY OF FERRITE CORES AT HIGH MAGNETIZATION RATES

Dongdong Zhang[1], Yuan Zhou[2], Jue Wang[1], Ping Yan[1], Tao Shao[1], Yaohong Sun[1]
[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China, [2]Automation and Electrical Engineering College, Tianjin University of Technology and Education, Tianjin, China, [3]Graduate School of Chinese Academy of Sciences, Chinese Academy of Sciences, Beijing, China

2P39 PARTIAL DISCHARGE TESTING AND AC CHARACTERIZATION OF HV CONNECTORS AND TERMINATIONS

Jim Rush
Teledyne Reynolds Inc., Electrical Engineering, Los Angeles, CA, USA

2P40 RESEARCH ON BREAKING CAPACITY OF HYBRID CIRCUIT BREAKER BASE ON VACUUM INTERRUPTER AND SF6 INTERRUPTER IN SERIES

CHENG Xian, LIAO Min-fu, DUAN Xiong-ying, ZOU Ji-yan
Dalian University of Technology, Institute of Electrical Engineering, Dalian, China

2P41 DISCRIMINATION METHOD OF PARTITAL DISCHARGE SIGNAL FROM EXTERNAL NOISE IN GIS

Oh Seungchan, Lee Seungmin, Lee Hyosung, Lee Heungho
ChungNam University, Electrical Engineering, Daejeon, South Korea

2P42 MODEL ANALYSIS FOR ICEING PRIDICTION ON TRANSMISSION LINES

Guanjun Fu, Zhicheng Guan, Liming Wang, Xiaobo Meng, Baoqiang Sun
Tsinghua University, Department of Electrical Engineering, Beijing, China

2P43 DESIGN AND EXPERIMENTS FOR -50KV/25MW POWER SUPPLY SYSTEMS IN EAST TOKAMAK PROJECT

Huang Yiyun[1], Zhang Jian[1], Shan Jiafang[2], Liu Fukun[2]
[1]Institute of Plasma Physics, Chinese Academy of Sciences, Power Supply and Control Division, Hefei, China, [2]Institute of Plasma Physics, Chinese Academy of Sciences, Microwave Heating Division, Hefei, China

2P44 ONLINE MONITORING OF CAPACITANCE AND DISSIPATION FACTOR DURING MOTOR ACCELERATED LIFE TESTING

Karim Younsi, Prabhakar Neti, Manoj Shah, Joe Yingneng Zhou, John Krahn
Global Research Center, GE, Niskayuna, NY, USA

2P45 APPLICATION OF POWER SYSTEM STABILIZER IN A COMBINED MODEL OF LFC AND AVR LOOPS TO ENHANCE SYSTEM STABILITY
Elyas Rakhshani[1], Javad Sadeh[2]
[1]Islamic Azad University, Electrical Engineering, Gonabad, Iran, [2]Ferdowsi University, Faculty of Engineering, Mashhad, Iran

2P46 TRIGGERED MULTIGAP GAS SWITCH WITH RADIAL ARRANGEMENT OF ELECTRODES
Vladimir Kladukhin, Sergey Kladukhin, Andrey Novoselov, Sergey Khramtsov, Vitaliy Yalov
Institute of Electrophysics, LAEPR, Ekaterinburg, Russia

2P47 TRIGGERED AXIAL MULTIGAP GAS SWITCH
Vladimir Kladukhin, Sergey Kladukhin
Institute of Electrophysics, LAEPR, Ekaterinburg, Russia

2P48 OVERVOLTED BREAKDOWN AND RECOVERY OF GAS SPARK GAP
Xinjing Cai, Xiaobin Zou, Xinxin Wang, Weihua Jiang
Tsinghua University, Electrical Engineering, Beijing, China

2P49 EXPERIMENTAL REASEARCH ON ELECTRON EMISSION CHARACTERISTICS OF SURFACE FLASHOVER TRIGGER IN LOW PRESSURE ENVIRONMENT
HU Shangmao, CHEN Jingliang, YAO Xueling
Xi'an Jiaotong University, Electrical Engineering, Xi'an, China

2P50 INVESTIGATION OF A MICROPLASMA ASSISTED SPARK GAP PULSER
Jong Woon Nam[1], Hasibur Rahaman[2], Sang H Nam[2]
[1]Hankuk Academy of Foreign Studies Yongin, Korea, [2]Postech, Pohang Accelerator Laboratory, Pohang, Korea

2P51 OPTIMIZING WIRE PARAMETERS IN EXPLODING WIRE ARRAYS
Cole Davis, Andreas Neuber, Andrew Young, Jason Korn, James Dickens, Magne Kristiansen
Texas Tech University, Center for Pulsed Power and Power Electronics, Lubbock, TX, USA

2P52 HIGH COULOMB TRANSFER PSEUDOSPARK SWITCHES
Victor Bochkov, Dmitry Bochkov, Vladimir Dyagilev, Vladimir Ushich
Pulsed Technologies Ltd Ryazan, Russia

2P53 INVESTIGATION OF GASEOUS ELECTRON MULTIPLIER-BASED TRIGGERING UNITS FOR BACK-LIGHTED THYRATRONS
Esin B. Sozer, Chunqi Jiang, Martin A. Gundersen
University of Southern California, Electrical Engineering-Electrophysics, Los Angeles, CA, USA

2P54 A NOVEL DESIGN FOR A MULTISTAGE CORONA-STABILISED CLOSING SWITCH
Martin Given, Igor Timoshkin, Scott MacGregor, Mark Wilson
University of Strathclyde, Electronic and Electrical Engineering, Glasgow, United Kingdom

2P55 A 1-MV, 10-kJ PHOTO-TRIGGERED MARX GENERATOR
R. E. Beverly III, R. N. Campbell
R. E. Beverly III and Associates Lewis Center, OH, USA

2P56 EXPERIMENTAL STUDY OF A 20kJ MULTI-ELECTRODES SPARKER
Yaohong Sun[1], Yinghui Gao[1], Ping Yan[1], Heng Wu[2], Yunqiang Wang[2], Kaizhuo Lei[3]
[1]Institute of Electrical Engineering,Chinese Academy of Sciences Beijing, China, [2]Guangzhou Marine Geological Survey Guangzhou, China, [3]Northwestern Polytechnical University Xi'an, China

2P57 DEVELOPMENT STATUS OF THE MAGNETIC HORN POWER SUPPLY
Kunio KOSEKI[1], Tetsuro SEKIGUCHI[2]
[1]High Energy Accelerator Research Organization, Accelerator Laboratory, Tsukuba, Japan, [2]High Energy Accelerator Research Organization, Institute for Particle and Nuclear Studies, Tsukuba, Japan

2P58 COMPACT 75KJ PULSE FORMING UNIT FOR ELECTROMAGNETIC LAUNCH
Wenting Li, Wanxin Lu, Fuchang Lin, Lin Dai, Qin Zhang
Huazhong University of Science and Technology, College of Electrical and Electronic Engineering, Wuhan, China

2P59 STUDY ON GROUND POTENTIAL OF MARX GENERATOR IN LARGE CURRENT SWITCH SYSTEM
Gang Liu, Fuchang Lin, Lee Li, Han Zeng
Huazhong University of Science and Technology, College of Electrical and Electronic Engineering, Wuhan, China

2P60 PRE-PULSE CURRENT MEASUREMENT OF THE FAST HIGH-CURRENT CAPILLARY-DISCHARGE EXPERIMENT
Jiri Schmidt, Karel Kolacek, Oleksandr Frolov, Vaclav Prukner, Jaroslav Straus
Institute of Plasma Physics AS CR, v.v.i., Pulse Plasma Systems, Prague, Czech Republic

2P61 HIGH ENERGY OUTPUT MARX GENERATOR DESIGN
Monty Lehmann
Jefferson Lab, Accelerator Division, Newport News, VA, USA

2P62 EXPERIMENT AND COMPUTATION ON THE CONTACT FORCE OF THE RAILS AND C-SHAPED MONOLITHIC ARMATURE INTERFACE
Mintang Li[1], Ping Yan[1], Weiqun Yuan[1], Yaohong Sun[1], Tao Shao[1], Yuan Zhou[1], Chuanpu Liu[1]
[1]Chinese Academy of Sciences, Institute of Electrical Engineering, Beijing, China, [2]Chinese Academy of Sciences, Graduate University, Beijing, China

2P63 EXPERIMENTAL AND COMPUTATIONAL INVESTIGATION OF MONOLITHIC ARMATURE WITH DIFFERENT ARM LENGTH
Mintang Li[1], Ping Yan[1], Weiqun Yuan[1], Yaohong Sun[1], Tao Shao[1], Ju Wang[1], Yuan Zhou[2]
[1]Chinese Academy of Sciences, Institute of Electrical Engineering, Beijing, China, [2]Chinese Academy of Sciences, Graduate University, Beijing, China

2P64 RESEARCH OF HIGH VOLTAGE RSDS TRIGGERING CIRCUIT IN MULTI-MODULES CAPACITOR DISCHARGE PFN FOR EML
Deyu WANG, Baocheng WANG, Weiyang WU
Yanshan University, Electrical Engineering, Electrical Engineering Institute, Qinhuangdao, China

2P65 ANALYSIS ON EFFICIENCY IMPROVEMENT WITH A DISTRIBUTED ENERGY STORE RAILGUN
Yuan Zhou[2], Ping Yan[1], Yaohong Sun[1], Weiqun Yuan[1], Dongdong Zhang[1], Mintang Li[4]
[1]Chinese Academy of Sciences, Institute of Electrical Engineering, Beijing, China, [2]Chinese Academy of Sciences, Graduate School, Beijing, China, [3]Tianjin University of Technology and Education, Automation and Electrical Engineering School, Tianjin, China, [4]Military Academy of Traffic, Automobile Engineering Department, Tianjin, China

2P66 EFFECTS OF IMPURITY RATIOS ON FIELD EMISSION OF CARBON NANO-TUBES
Haitao Zhao, Ramesh Bokka, Hulya Kirkici
Auburn University, Electrical & Computer Engineering, Auburn, AL, USA

2P67 FIELD EMISSION DEGRADATION OF CARBON NANO-TUBES
Ramesh Bokka, Haitao Zhao, Hulya Kirkici
Auburn University, Electrical & Computer Engineering, Auburn, AL, USA

Oral Session 7: Solid State Modulators and Switches 2

Tuesday, May 24, 2010 3:30 – 5:30 PM Room A

Session Chair: Mark Kemp, SLAC

15:30 7O1
HIGH VOLTAGE POWER SUPPLIES FOR POWER MODULATION OF VERY HIGH POWER GYROTRONS FOR NUCLEAR FUSION EXPERIMENTS
Tullio Bonicelli[1], Ferran Albajar[1], Damien Fasel[2], Luigi Rinaldi[3], Maurizio Santinelli[4], Ugo Siravo[2], Luca Sita[3], Giuseppe Taddia[3]
[1]Fusion For Energy, Barcelona, Spain, [2]EPFL-CRPP Lausanne, Switzerland, [3]O.C.E.M. SpA San Giorgio di Piano, Italy, [4]ENEA Frascati, Italy

15:45 7O2
SOLID STATE POWER MODULATOR WITHOUT MAGNETIC PULSE COMPRESSION
Claus F. Strowitzki[1], Peter Zacharias[2], Peter Seckl[3]
[1]MLase Ag, Development, Germering, Germany, [2]Universität Kassel FB16 FG Elektrische Energieversorgungssysteme, Kassel, Germany, [3]Hartlauer Präzisions Elektronik GmbH, Development, Grassau, Germany

16:00 7O3
REPETITIVE ARBITRARY-WAVEFORM GENERATOR USING MOSFETS
Weihua Jiang[1.2]
[1]Tsinghua University, Department of Electrical Engineering, Beijing, China, [2]Nagaoka University of Technology, Department of Electrical Engineering, Nagaoka, Niigata, Japan

16:15 7O4
SILICON CARBIDE PHOTO CONDUCTIVE SWITCH RESULTS USING COMMERCIALLY AVAILABLE MATERIAL
William Nunnally[1], Kenneth McDonald[2]
[1]American Advanced Technologies, Inc Galveston, TX, USA, [2]Sci-Eng Solutions, Inc Columbia, MO, USA

16:30 7O5
A MEDIUM VOLTAGE FULLY CONTROLLABLE SOLID STATE SWITCH FOR KLYSTRON MODULATOR
Adriaan Welleman, Sotirios Gekenidis, Reto Leutwyler
ABB Switzerland Ltd, Semiconductors, Lenzburg, Switzerland

16:45 7O6
PULSED PERFORMANCE OF SILICON AND SIC THYRISTORS – A COMPARISON
Ranbir Singh, Siddarth Sundaresan, Steven Creamer, Eric Lierser, Stoyan Jeliazkov, Hany Issa, Deepak Veereddy
GeneSiC Semiconductor Inc., R&D, Dulles, VA, USA

17:00 7O7
DEVELOPMENT AND PULSE EVALUATION OF SILICON CARBIDE SGTO MODULES
Heather O'Brien[1], William Shaheen[2], Aderinto Ogunniyi[1], Gregory Ovrebo[1], Valentin Chiscop[2], Charles Scozzie[1], Anant Agarwal[3], Victor Temple[4]
[1]US Army Research Laboratory Adelphi, MD, USA, [2]Berkeley Research Associates Beltsville, MD, USA, [3]Cree Durham, NC, USA, [4]Silicon Power Clifton Park, NY, USA

17:15 7O8
INVESTIGATION ON THE PERFORMANCE OF THYRISTORS FOR PULSED POWER APPLICATIONS
Dongdong Wang, Kefu Liu, Jian Qiu, Junfeng Rao
Fudan University, Institute of Electrical Light Sources, Shanghai, China

Oral Session 8: High Power Microwaves and Radiating Structures

Tuesday, May 24, 2010 3:30 – 5:30 PM Room B

Session Chair: Steve Calico, Lockheed Martin Corporation

15:30 8O1
A SOLID-STATE HIGH-POWER RF GENERATOR
Samuel Chadwick, Philip Mason, Nigel Seddon
MBDA UK Ltd., Novel Systems, Bristol, United Kingdom

15:45 8O2
AMPLIFICATION AND FREQUENCY UP-CONVERSION OF HIGH POWER MICROWAVE PULSES IN NONLINEAR TRANSMISSION LINES
Alexander Kozyrev, Daniel van der Weide
University of Wisconsin-Madison, Department of Electrical and Computer Engineering, Madison, WI, USA

16:00 8O3
FREQUENCY CONTROL OF HIGH POWER RF-GENERATION IN NONLINEAR TRANSMISSION LINES WITH SATURATED FERRITE
Ilya Romanchenko, Vladislav Rostov
Institute of High Current Electronics SB RAS, Physical Electronics Department, Tomsk, Russia

16:15 8O4
OPTIMIZATION OF 4 TO 6 GHZ HIGH POWER MICROWAVE RADIATION FROM A COMPACT CONICAL HORN ANTENNA
Erik Becker, Scott Kovaleski, John Gahl
University of Missouri, Electrical and Computer Engineering, Columbia, MO, USA

16:30 8O5,6 (Invited)
WHITE SANDS TEST CENTER HPM TEST CAPABILITIES
Russell Blundell
U.S. Army, Survivability Vulnerability Assessment Directorate, White Sands Missile Range, NM, USA

17:00 8O7
HPM WBTS, A TRANSPORTABLE HIGH-POWER WIDE-BAND MICROWAVE SOURCE
D. Morton[1], J. Banister[1], T. DaSilva[1], J. Levine[1], T. Naff[1], I. Smith[1], H. Sze[1], T. Warren[1], D.V. Giri[2], C. Mora[3], J. Pavlinko[3], J. Scheher[3], C.E. Baum[4]
[1]L3 Communications, Pulse Sciences San Leandro, CA, USA, [2]Pro-Tech Alamo, CA, USA, [3]SAIC Albuquerque, NM, USA, [4]University of New Mexico Albuquerque, NM, USA

17:15 8O8
PULSED RING-DOWN SOURCE ARRAY
Anthony Myers, John Walter, James Dickens
Texas Tech University, Center for Pulsed Power and Power Electronics, Lubbock, TX, USA

Wednesday, May 26, 2010

8:30 Conference Updates Room A

Plenary 3

Wednesday, May 26, 2010 8:45 – 9:40 AM Room A

PULSED POWER FOR DEFENSE APPLICATIONS
Rodney Robertson, U.S. Army Space and Missile Defense Command

Oral Session 9: Biological Applications

Wednesday, May 26, 2010 10:00 AM – 12:00 PM Room A

Session Chair: Juergen Kolb, Old Dominion University

10:00 9O1,2 (Invited)
BIOLOGICAL CELLS RESPONSE TO HIGH POWER ELECTROMAGNETIC PULSES
Shu Xiao[1], Thomas Camp[1], Nesin Vasyl[2], Andrei Pakhomov[2], Richard Heller[2], Karl Schoenbach[1,2]
[1]Old Dominion University, Department of Electrical and Computer Engineering, Norfolk, VA, USA, [2]Old Dominion University, Frank Reidy Research Center for Bioelectrics, Norfolk, VA, USA

10:30 9O3
PULSED ELECTRIC FIELD INDUCED CHANGES IN DIELECTRIC PROPERTIES OF BIOLOGICAL CELLS
Jie Zhuang, W. Hunter Baldwin, Karl H. Schoenbach, Juergen F. Kolb
Old Dominion University, Frank Reidy Research Center for Bioelectrics, Norfolk, VA, USA

10:45 9O4
EFFECT OF PULSING SEQUENCE OF NANOSECOND PULSED ELECTRIC FIELDS ON HELA CELLS
Kazunori Mitsutake[1], Akimitsu Satoh[1], Shingo Mine[1], Keisuke Abe[2], Keiko Morotomi[3], Kenichi Yano[3], Sunao Katsuki[1], Hidenori Akiyama[1,2,3]
[1]Kumamoto University, Graduate School of Science and Technology, Kumamoto, Japan, [2]Kumamoto University, Global COE Program, Kumamoto, Japan, [3]Kumamoto University, Bioelectrics Research Center, Kumamoto, Japan

11:00 9O5
RESPONSE OF MAMMALIAN CELLS SUBJECTED TO INTENSE BURST SINUSOIDAL ELECTRIC FIELDS
Masahiko Yano[1], Shogo Hirahara[2], Peng Lu[1], Keisuke Abe[3], Sunao Katsuki[3], Hidenori Akiyama[3]
[1]Kumamoto University, Graduate School of Science and Technology, Kumamoto, Japan, [2]Kumamoto University, Faculty of Engineering, Kumamoto, Japan, [3]Kumamoto University, Bioelectrics Research Center, Kumamoto, Japan

11:15 9O6
DEVELOPMENT OF STEEP PULSED MAGNETIC FIELDS GENERATOR FOR TUMOR TREATMENT
Yan Mi[1], Chenguo Yao[1], Chengxiang Li[1], Kedao Liang[2], Ruijin Liao[1], Caixin Sun[1]
[1]Chongqing University, State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing, China, [2]Chongqing Electric Power Corporation, Nanan Power Supply Bureau, Chongqing, China

11:30 9O7
INVESTIGATION OF OPTIMUM PULSE WIDTH OF APPLIED VOLTAGE FOR WATER TREATMENT BY PULSED STREAMER DISCHARGE IN AIR SPRAYING WATER DROPLETS
Taichi Sugai[1], Tomoya Suzuki[1], Yasushi Minamitani[1], Taisuke Nose[2]
[1]Yamagata University, Graduate School of Science and Engineering, Yonezawa, Japan, [2]Sekisui Chemical Co., Ltd., R&D Planning Center, Kyoto, Japan

11:45 9O8
A CONTROLLED HIGH PULSED ELECTRIC FIELD GENERATOR FOR NON THERMAL TROPICAL LIQUID FOODS PROCESSING
Andre Youmssi, Joseph Kayem, Luc Takongmo Ngouadjo
The University of Ngaoundere, Engineering Processing Laboratory, Ngaoundere, Cameroon

Oral Session 10: Energy Storage Devices

Wednesday, May 26, 2010 10:00 AM – 12:00 PM Room B

Session Chair: Stuart Moran, NSWC Dahlgren

10:00 10O1
EFFECTS OF CRYSTALLINE MORPHOLOGY IN POLY(VINYLIDENE FLUORIDE) AND ITS RANDOM COPOLYMERS
Fangxiao Guan[1], Steven Boggs[1], Lei Zhu[2]
[1]University of Connecticut, Institute of Material Science and Department of Chemical, Materials and Bimolecular Engineering, Storrs, CT, USA, [2]Case Western Reserve University, Department of Macromolecular Science and Engineering, Cleveland, OH, USA

10:15 10O2
HIGH ENERGY DENSITY CAPACITORS FOR PULSED POWER APPLICAITONS
Fred MacDougall[1], Richard Jow[2], Joel Ennis[1], Chip Yang[1], Robert Cooper[1], Mark Schneider[1], Chip Naruo[1], Janet Ho[2], Skip Scozzie[2], Elizabeth Yen[3]
[1]General Atomics Electronic Systems, Inc. San Diego, CA, USA, [2]U. S. Army Research Laboratory Adelphi, MD, USA, [3]Jet Propulsion Laboratory Pasadena, CA, USA

10:30 10O3
POLYMER FILM CAPACITORS WITH HIGH DIELECTRIC CONSTANT, HIGH CAPACITANCE DENSITY, AND HIGH ENERGY DENSITY
Shihai Zhang[1], Chen Zou[2], Xin Zhou[1], Dean Anderson[1], Brian Zellers[1], Qiming Zhang[1]
[1]Strategic Polymer Sciences, Inc. State College, PA, USA, [2]The Pennsylvania State University, Materials Research Institute, University Park, PA, USA

10:45 10O4
CAPACITORS WITH EXTRAORDINARILY THERMALLY-STABLE PP FILM DIELECTRICS
Wei-Ching Yu, Jason Yu
R&D, Ultimate Membrane Technology, LLC, Marietta, GA, United States

11:00 10O5,6 (Invited)
COMPARISON OF FILM CAPACITOR DESIGNS FOR A HIGH POWER DENSITY APPLICATION
Joel Ennis, John Rauch, Xiao Yang, Jason Atkins
General Atomics Electronic Systems, Energy Products, San Diego, CA, USA

11:30 10O7
MODELING AND CHARACTERIZATION OF AN AIRCRAFT ELECTRIC POWER SYSTEM WITH A FUEL CELL-EQUIPPED APU PARALLELED AT THE MAIN AC BUS
Ahmad Eid[1], Hassan El-Kishky[1], Mazen Abdel-Salam[2], Tharwat El-Mohandes[3]
[1]University of Texas at Tyler, Electrical Engineering, Tyler, TX, USA, [2]Assiut University, Electrical Engineering, Assiut, Egypt, [3]South Valley University, Electrical Engineering, Aswan, Egypt

11:45 10O8
THREE PHASE CERAMIC-POLYMER NANOCOMPOSITES FOR HIGH ENERGY DENSITY CAPACITOR
Lin Meng Fang[1], Lee Pooi See[1,2]
[1]Nanyang Technological University, Material Science and Engineering, Singapore, Singapore, [2]Nanyang Technological University, Temasek Laboratories, Singapore, Singapore

Poster Session 3: Biological Applications, Accelerators, High Power Microwaves and Radiating Structures, Energy Storage Devices, Analytical Methods, Modeling, and Simulations

Wednesday, May 26, 2010 1:30 – 3:00 PM Exhibit Area

Session Chairs: Randy Curry, University of Missouri
Sang Nam, Pohang Accelerator Lab/POSTECH

3P1 MICROWAVE MODES IN A HIGH POWER OVERMODED MILLIMETER WAVE GENERATOR
Ting Shu, Jun Zhu, Jun Zhang
National University of Defense Technology, College of Optoelectric Science and Engineering, Changsha, China

3P2 A REPETITIVE S-BAND LONG-PULSE RELATIVISTIC BACKWARD-WAVE OSCILLATOR
Zhen-Xing Jin, Jun Zhang, Jian-Hua Yang, Hui-Huang Zhong, Bao-liang Qian, Ting Shu, Jian-De Zhang, Sheng-Yue Zhou, Liu-Rong Xu
National University of Defense Technology, College of Optoelectric Science and Engineering, Changsha, China

3P3 HIGH POWER NONLINEAR TRANSMISSION LINES WITH NONLINEAR INDUCTANCE
David M. French, Ronald M. Gilgenbach, Y.Y. Lau
University of Michigan, Plasma, Pulsed Power, and Microwave Laboratory, Nuclear Engineering and Radiological Sciences, Ann Arbor, MI, USA

3P4 MAGNETIC BIASING OF FERRITE FILLED NONLINEAR TRANSMISSION LINE
J. Bragg, J. Dickens, A. Neuber
Center for Pulsed Power and Power Electronics, Texas Tech University, Department of Electrical Engineering, Lubbock, TX, USA

3P5 PULSE SHARPENING AND SOLITON GENERATION WITH NONLINEAR TRANSMISSION LINES FOR PRODUCING RF BURSTS
Jason M. Sanders[1], Andras Kuthi[1], Richard Ness[2], Martin A. Gundersen[1]
[1]University of Southern California, Electrical Engineering - Electrophysics, Los Angeles, CA, USA, [2]Ness Engineering Inc. San Diego, CA, USA

3P6 GAS EVOLUTION MEASUREMENTS IN A SEALED VIRCATOR TUBE
John Vara, John Walter, Shad Holt, James Dickens
Texas Tech University, Center for Pulsed Power and Power Electronics, Lubbock, TX, USA

3P7 A COMPACT HIGH POWER WIDEBAND SYSTEM
Jon Mayes, Thomas Holt, Chris Hatfield, Clay Nunnally, Matt Lara, William Nunnally
Applied Physical Electronics, L.C. Austin, TX, USA

3P8 MODULAR INTERCHANGEABLE HIGH POWER HELICAL ANTENNAS
Jon Mayes, Mark Mayes, William Nunnally, Matthew Lara
Applied Physical Electronics, L.C. Austin, TX, USA

3P9 DEVELOPMENT OF A DUAL POLARITY MARX GENERATOR DESIGNED FOR PULSE CHARGING A DIPOLE ANTENNA
Jon Mayes, Chris Hatfield, Julian Dowden
Applied Physical Electronics, L.C. Austin, TX, USA

3P10 A COMPACT HIGH POWER MICROWAVE SYSTEM
Fredrik Olsson, Mats Jansson, Denny Aberg
BAE Systems Bofors AB, Applied Physics, Karlskoga, Sweden

3P11 SYNCHRONIZATION OF PHASED ARRAY PULSED RING-DOWN SOURCES USING A GPA BASED TIMING SYSTEM
Yeong-Jer Chen, James Dickens, John Mankowski, John Walter, Magne Kristiansen
Texas Tech University, Center for Pulsed Power and Power Electronics, Lubbock, TX, USA

3P12 THEORETICAL PERFORMANCE OF A GPS LINKED PULSED RING DOWN ARRAY
David Reale, John Mankowski, Shad Holt, Yeong-Jer Chen, John Walter, James Dickens
Texas Tech University, Center for Pulsed Power and Power Electronics, Department of Electrical and Computer Engineering, Lubbock, TX, USA

3P13 A HIGH VOLTAGE DC POWER SUPPLY SYSTEM FOR ECH COMPONENT TESTING AT ORNL
Phillip Pesavento, Tim Bigelow, John White
Oak Ridge National Laboratory, Fusion Energy Division, Oak Ridge, TN, USA

3P14 PROSPECTS FOR APPLICATIONS OF HYBRID NONLINEAR LINES IN RF GENERATION
José O. Rossi, Paula N. Rizzo
National Inst. for Space Research, Associated Plasma Laboratory, São José dos Campos, Brazil

3P15 STUDY OF CAPACITANCE VARIATION OF COMMERCIAL CERAMIC CAPACITORS
Jose O. Rossi, Rafael H.M Siqueira
National Institute for Space Research, Associated Plasma Laboratory, São José dos Campos, Brazil

3P16 ULTRATHIN CAPACITOR FILMS WITH HIGH DIELECTRIC CONSTANT
Shihai Zhang[1], Chen Zou[2], Dean Anderson[1], Qiming Zhang[1], Xin Zhou[1], Paul Rehrig[1]
[1]Strategic Polymer Sciences, Inc. State College, PA, USA, [2]The Pennsylvania State University, Materials Research Institute, University Park, PA, USA

3P17 NOVEL HIGH VOLTAGE ENERGY STORAGE CAPACITORS
Hazel Dyke, Amy Dyke, Mike Dunleavy, Sajad Haq
BAE SYSTEMS, Advanced Technology Centre, Bristol, United Kingdom

3P18 MODULATED HIGH POWER THERMAL BATTERY TEST STAND
Kevin Zimmerschied, John Gahl
University of Missouri - Columbia, Electrical and Computer Engineering, Columbia, MO, USA

3P19 STUDY ON METALLIZED FILM CAPACITOR AND ITS LIFETIME CHARACTERISTICS
Yaohong Chen, Hua Li, Fuchang Lin, Bo Peng, Fei Lv, Miao Zhang
Huazhong University of Science and Technology, College of Electrical and Electronic Engineering, Wuhan, China

3P20 MODELING AND CHARACTERIZATION OF AN AIRCRAFT ELECTRIC POWER SYSTEM WITH A FUEL CELL-EQUIPPED APU CONNECTED AT HVDC BUS

Ahmad Eid[1], Hassan El-Kishky[1], Mazen Abdel-Salam[2], Tharwat El-Mohandes[3]
[1]University of Texas at Tyler, Electrical Engineering, Tyler, TX, USA, [2]Assiut University, Electrical Engineering, Assiut, Egypt, [3]South Valley University, Electrical Engineering, Aswan, Egypt

3P21 DESIGN AND ANALYSIS OF A SMART POWER MANAGEMENT SYSTEM FOR AN ULTRACAPACITOR-POWERED ROBOTIC PLATFORM

Daniel Muffoletto[1], Collin Mandris[1], Thomas DiSanto[1], Shola Olabisi[1], Kevin Burke[1], Harry Moore[2], Hardev Singh[2], Jennifer Zirnheld[1]
[1]University at Buffalo, Electrical Engineering, Buffalo, NY, USA, [2]US Army ARDEC, AMSRD-AAR-MEM, Picatinny Arsenal, NJ, USA

3P22 TOWARDS A COMPREHENSIVE AND INTEGRATED ENERGY SOLUTION: ATMOSPHERIC DISCHARGE ENERGY CONVERSION AND METRO-SCALE ENERGY STORAGE

Effiong Ibok
The Travis Business Group, Inc Sunnyvale, CA, USA

3P23 LIFETIME TESTS ON A HIGH OHMS/SQUARE METALIZED HIGH CRYSTALLINE POLYPROPYLENE FILM CAPACITOR WITH APPLICATION TO A MARX MODULATOR

Mark Kemp, Craig Burkhart, Tao Tang
SLAC National Accelerator Laboratory, Power Conversion Department, Menlo Park, CA, USA

3P24 ELECTRICAL CHARACTERISTICS OF CARBON NANOTUBE CAPACITOR

Shen Shou Max Chung[1], Shiaw Huei Chen[2]
[1]Southern Taiwan University, Electronics Engineering, Tainan, Taiwan, [2]Atomic Energy Commission, Institute of Nuclear Energy Research, Taoyuan, Taiwan

3P25 THE FAST EXTRACTION KICKER SYSTEM FOR J-PARC

Kunio KOSEKI[1], Tetsuro SEKIGUCHI[2], Kazunori OTSUKA[3]
[1]High Energy Accelerator Research Organization, Accelerator Laboratory, Tsukuba, Japan, [2]High Energy Accelerator Research Organization, Institute for Particle and Nuclear Studies, Tsukuba, Japan, [3]Nippon Advanced Technology Tokai, Japan

3P26 THE KICKER POWER SUPPLY FOR MUON FACILITY AT J-PARC

Kunio KOSEKI
High Energy Accelerator Research Organization, Accelerator Laboratory, Tsukuba, Japan

3P27 X-RAY BACKLIGHTING OF TWO-WIRE Z-PINCHES USING AN X-PINCH

Tong Zhao, Xiaobing Zou, Ran Zhang, Xinxin Wang
Tsinghua University, Department of Electrical Engineering, Beijing, China

3P28 A NANOSECOND DISCHARGE-BASED X-RAY SOURCE IN ATMOSPHERIC PRESSURE AIR WITH A SUBNANOSECOND PULSE DURATION

Victor Tarasenko, Igor Kostyrya
Institute of High Current Electronics, Laboratory of Optical Radiation, Tomsk, Russia

3P29 GREEN ENERGY BASED ON ACCELERATORS

Ge Li[1], Liang Cao[2], Haitian Wang[2]
[1]Institute of Plasma physics, Chinese Academy of Sciences Hefei, China, [2]Shanghai Jiaotong University, Department of Electrical Engineering, Shanghai, China

3P30 EXPERIMENTAL STUDY OF DIAMOND LIKE CARBON (DLC) COATED ELECTRODES FOR PULSED HIGH GRADIENT ELECTRON GUN

Martin Paraliev, Christopher Gough, Sladjana Ivkovic, Frederic Le Pimpec
Paul Scherrer Institute, Large Research Facilites, Villigen, Switzerland

3P31 MEASUREMENT OF THE TRANSITION OF ELECTRIC FIELD OF A WATER GAP SWITCH AND A WATER CAPACITOR COMBINED IN A L-C INVERSION CIRCUIT TO OBTAIN HIGH FREQUENCY

Yuya Takeda, Tsukasa Koizumi, Yasushi Minamitani
Yamagata University, Graduate school of Science and Engineering, Yonezawa, Japan

3P32 TEST OF AMORPHOUS MAGNETIC CORE WITH SHORT PULSE

Hoon Heo, Sang Hoon Nam
PAL Pohang, Korea

3P33 TARGET DETECTION WITH FOCUSED PULSED ELECTROMAGNETIC RADIATION

Chandra Bajracharya[1], Shu Xiao[1], Jiang Li[2], Karl H. Schoenbach[1]
[1]Old Dominion University, Frank Reidy Research Center for Bioelectrics, Norfolk, VA, USA, [2]Old Dominion University, Department of Electrical and Computer Engineering, Norfolk, VA, USA

3P34 RESEARCH OF THE PULSED POWER SUPPLY FOR EXCIMER LAMPS

Jian Qiu, Kefu Liu, Dongdong Wang, Haiyang Zhao
Fudan University, Institute for Electric Light Sources, Shanghai, China

3P35 OBSERVATION OF PULSED DISCHARGE PHENOMENA IN SUPERCRITICAL CARBON DIOXIDE BY MEANS OF LASER INTERFEROMETRY

Takeshi Ihara, Tsuyoshi Kiyan, Sunao Katsuki, Takashi Sakugawa, Masanori Hara, Hidenori Akiyama
Kumamoto University, Graduate School of Science and Technology, Kumamoto, Japan

3P36 APPLICATION OF DOUBLE GRID CATHODE FOR IPROVEMENT OF NEUTRON YIELD IN IEC DEVICE

Heung-Jin Ju, Bongseong Kim, Jeong-Ho Park, Kwang-Cheol Ko
Hanyang University, Dept. of Electrical Engineering, Seoul, South Korea

3P37 CONSIDERATIONS ON THE DBD POWER SUPPLY FOR SURFACE CHANGE OF OZONE REACTOR

Young-Chul Shin, Bongseong Kim, Kwang-Cheol Ko
Hanyang University, Dept. of Electrical Engineering, Seoul, South Korea

3P38 EFFECTS OF PULSE ELECTRIC FIELDS TO THE PATHOGENIC BACTERIA

Ryosuke Nakagawa[1], Kazuki Siroyama[1], Su Zehong[2], Kenji Teranishi[1], Naoyuki Shimomura[1], Akira Takahashi[2]
[1]The University of Tokushima, Electrical and Electronic Engineering, Tokushima, Japan, [2]The University of Tokushima, Faculty of Medicine, Tokushima, Japan

3P39 A SET-UP FOR NANOSECOND PULSED ELECTRIC FIELD INVESTIGATIONS ON BIOLOGICAL CELLS

Mohamad Kenaan[1], Saad El-Amari[1], Caterina Merla[1], Federico Danei[2], Francesca Apollonio[2], Vincent Couderc[1], Delia Arnaud-Cormos[1], Micaela Liberti[2], Philippe Leveque[1]
[1]XLIM, UMR 6172 CNRS, University of Limoges, Limoges, France, [2]ICEMB, "Sapienza" University of Rome, Rome, Italy

3P40 CONSIDERATION OF REACTORS CONFIGURATION FOR NOX TREATMENT BY NANOSECOND PULSED POWER

Naoyuki Shimomura[1], Keigo Nakano[2], Hiroto Nakajima[2], Tatsuya Kageyama[2], Kenji Teranishi[1], Hidenori Akiyama[3]
[1]The University of Tokushima, Institute of Technology and Science, Tokushima, Japan, [2]The University of Tokushima, Graduate School of Advanced Technology and Science, Tokushima, Japan, [3]Kumamoto University, Graduate School of Science and Technology, Kumamoto, Japan

3P41 CONSUMER ELECTRONIC WASTE RECYCLING USING PULSED POWER GENERATED SHOCKWAVES

David Hemmert, Vasiliy Smirnov
HEM Technologies Lubbock, TX, USA

3P42 OPTIMIZATION OF TWO-ELECTRODE CONFIGURATION IN IRREVERSIBLE ELECTROPORATION TREATMENT PLANNING

Chenguo Yao, Fei Guo, Chengxiang Li, Yan Mi, Caixin Sun
College of Electrical Engineering, Chongqing University, State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing, China

3P43 A NOVEL CONCEPT OF REMEDIATION OF POLLUTED STREAMS WITH HIGH ENERGY DENSITY GLOW DISCHARGE (HEDGE)

Alex Pokryvailo
Spellman HV Hauppauge, NY, USA

3P44 A COMPARATIVE REVIEW OF PULSED CORONA EFFICIENCY AND COSTS IN POLLUTION CONTROL APPLICATIONS

Alex Pokryvailo[1], Eddie van Veldhuizen[2], Guus Pemen[3], Yefim Yankelevich[4]
[1]Spellman High Voltage Electronics Corporation Hauppauge, NY, USA, [2]Technische Universiteit Eindhoven, Dept. of Applied Physics, Eindhoven, Netherlands, [3]Technische Universiteit Eindhoven, Dept. of Electrical Engineering, Eindhoven, Netherlands, [4]Soreq NRC Yavne 81800, Israel

3P45 EXPERIMENTAL STUDIES ON EFFECTS OF SUB-LETHAL DOSE OF PULSED ELECTRIC FIELD ON CERVICAL CANCER CELLS

Li Chengxiang[1], Sun Caixin[1], Yao Chenguo[1], Mi Yan[1], Liu Xiaoyun[2], Xiong Zhengai[2]
[1]Chongqing University, State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing, China, [2]Chongqing Medical Science University, Second Affiliated Hospital, Chongqing, China

3P46 IMPEDANCE DEPENDENCE IN WATER SURFACE PULSED DISCHARGE USING NEEDLES-MESH PLATE REACTOR

Fumiaki Fukawa[1], Kotarou Rokkaku[1], Yuka Aizawa[2], Yuuki Yazawa[2], Naoyuki Shimomura[3], Kenji Teranishi[3], Susumu Suzuki[4], Haruo Itoh[1]
[1]Chiba Institute of Technology, Department of Electrical, Electronics and Computer Engineering, Narashino, Japan, [2]Chiba Institute of Technology, Department of Life and Environmental Sciences, Narashino, Japan, [3]The University of Tokushima, Department of Electrical and Electronics Engineering, Tokushima, Japan, [4]Chiba Institute of Technology, Education Center, Narashino, Japan

3P47 INVESTIGATION OF A PULSE CIRCUIT DESIGN AND PULSE CONDITIONS FOR THE HIGH ENERGY EFFICIENCY ON WATER TREATMENT USING PULSED POWER DISCHARGE IN A WATER DROPLET SPRAY

Tomoya Suzuki[1], Yasushi Minamitani[1], Taisuke Nose[2]
[1]Yamagata University, Electrical Engineering, Yonezawa, Japan, [2]Sekisui Chemical Co., Ltd, R&D Planning Center, Kyoto, Japan

3P48 SOS-BASED REPETIVE HIGH-VOLTAGE PULSER AND ITS APPLICATIONS

Weihua Jiang[1.2]
[1]Tsinghua University, Department of Electrical Engineering, Beijing, China, [2]Nagaoka University of Technology, Department of Electrical Engineering, Nagaoka, Niigata, Japan

3P49 IMPLEMENTATION OF A BROAD BAND, HIGH LEVEL ELECTRIC FIELD SENSOR IN EXPOSURE DEVICES FOR BIOLOGICAL SAMPLES

Aude Silve[1], René Vezinet[3], Lluis M.Mir[1,2]
[1]CNRS, UMR 8203, Institut Gustave Roussy, 39 rue Camille Desmoulins, Villejuif, France, [2]Univ Paris-Sud Orsay, France, [3]CEA, Centre d'Etude de Gramat, Gramat, France

3P50 SUBNANOSECOND PULSED ANTENNAS FOR BIOMEDICAL APPLICATIONS

Shu Xiao[1], Chandra Bajracharya[1], Mark Migliaccio[1], Carl Baum[3], Karl Schoenbach[2]
[1]Old Dominion University, Frank Reidy Research Center for Bioelectrics, Norfolk, VA, USA, [2]Old Dominion University, Department of Electrical and Computer Engineering, Norfolk, VA, USA, [3]University of New Mexico, Department of Electrical and Computer Engineering, Albuquerque, NM, USA

3P51 ON-LINE TUNING VARIABLE STRUCTURE ADAPTIVE CONTROL FOR WIND ENERGY CONVERSION SYSTEM

Whei-Min Lin[1], Chih-Ming Hong[1], Ting-Chia Ou[2]
[1]National Sun Yat-Sen University, Department of Electrical Engineering, Kaohsiung, Taiwan, [2]Institute of Nuclear Energy Research, Atomic Energy Council, Taoyuan, Taiwan

3P52 WAVELET ANALYSIS OF VERY FAST TRANSIENT OVER VOLTAGES FOR EFFECTIVE SHIELDING OF CONTROL CIRCUITS IN A 245KVGAS INSULATED SUBSTATION

Jonnakuti Rama Rao[1], Jinka Amarnath[1], Sapram Kamakshiah[2]
[1]J.N.T. University, Electrical Engineering, Hyderabad, India, [2]Vignan Engineering College, Electrical Engineering, Hyderabad, India

3P53 RESEARCH OF PARTICLE SWARM OPTIMIZATION ALGORITHM BASED ON NELDER-MEAD SIMPLEX AND ITS APPLICATION ON PATIAL DISCHARGE PARAMETER RECOGNITION

Shuo XU, Xiaobing ZOU
Tsinghua University, Department of Electrical Engineering, Beijing, China

3P54 NEUTRAL POINT BALANCING FOR THREE PHASE THREE LEVEL VOLTAGE SOURCE CONVERTER-(CASE STUDY: STATCOM)

Mohammad Javadi, Ghodratollah Seifossadat
Shahid Chamran University, Electrical Engineering, Ahvaz, Iran

3P55 OPTIMIZATION DESIGN OF SHIELDING RING FOR RESTRAINING ACCUMULATED SURFACE CHARGE EFFEC

Guixin ZHANG, Bei WANG, Qiang WANG
Tsinghua University, Dept of Electrical Engineering, Beijing, China

3P56 ANALYSIS OF TRANSIENT ELECTRIC FIELD CHARACTERISTICS CAUSED BY OVER-VOLTAGE IN 500KV SUBSTATION

Qing Yang, Xin Fang, Wenxia Sima
State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing University Chongqing, China

3P57 INFLUENCE OF STRUCTURAL PARAMETERS OF DIELECTRIC WALL ACCELERATOR STRUCTURE ON WAKE FIELD
Rong Xu, Ping Yan, Jue Wang, Shichang Zhang, Tao Shao, Yaohong Sun
Institute of Electrical Engineering, Chinese Academy of Sciences Beijing, China

3P58 SIMULATIONS FOR INITIATION OF VACUUM INSULATOR FLASHOVER
Michael Perkins, Timothy Houck, Antonio Marquez, George Vogtlin
Lawrence Livermore National Laboratory Livermore, CA, USA

3P59 IMPROVED SPACE CHARGE MODELING IN CYLINDRICAL COORDINATES
John Verboncoeur[1], Alan Wu[1], Robert Jackson[2], Thuc Bui[2]
[1]UC Berkeley, Nuclear Engineering, Berkeley, CA, USA, [2]Calabazas Creek Research, Inc. San Mateo, CA, USA

3P60 HIGH-GRADIENT RF BOX CAVITY BREAKDOWN SIMULATIONS USING 3-D PARTICLE TRACKING CODE VORPAL
Sudhakar Mahalingam, Seth Veitzer, Peter Stoltz
Tech-X Corporation Boulder, CO, USA

3P61 CALCULATION OF THE AMPACITY OF TRENCH LAYING CABLE AND ANALYSIS OF THE INFLUENTIAL FACTORS
Youyuan Wang, Rengang Chen, Weigen Chen, Jian Li, Du Lin
State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing University Chongqing, 400030, China

3P62 RESEARCH ON THE SPACE ELECTRIC FIELD AROUND HVAC-HVDC HYBRID TRANSMISSION LINES
Qian Li, Yifeng Zhou, Hua Li
Huazhong University of Science & Technology, College of Electrical & Electronic Engineering, Wuhan, China

3P63 2-KW EXCIMER LASER PUMPING SOURCE BASED ON HIGH VOLTAGE SOLID-STATE SWITCH
Khomich Vladislav Yurevich, Malashin Maxim Vladimirovich, Moshkhunov Sergey Igorevich, Shershunova Ekaterina Alexandrov
Institute for Electrophysics and Electric Power of Russian Academy of Sciences, Russian Academy of Sciences, St. Petersburg, Russia

3P64 HIGH VOLTAGE SOLID-STATE SWITCH FOR KLYSTRON MODULATORS
Khomich Vladislav Yurevich, Malashin Maxim Vladimirovich, Moshkhunov Sergey Igorevich
Institute for Electrophysics and Electric Power of Russian Academy of Sciences, Russian Academy of Sciences, St. Petersburg, Russia

Oral Session 11: Analytical Methods, Modeling, and Simulations

Wednesday, May 26, 2010 3:30 – 5:30 PM Room A

Session Chair: Enis Tuncer, Oak Ridge National Laboratory

15:30 11O1,2 (Invited)
CIRCUIT MODEL OF UNM EDUCATIONAL RELTRON CAVITY
Edl Schamiloglu, Shawn Soh, R. B. Miller
University of New Mexico, Electrical & Computer Engineering, Albuquerque, NM, USA

16:00 11O3
INCLUSION OF THE ZERO-SEQUENCE MUTUAL IMPEDANCE IN A DISTRIBUTED PARAMETER MODEL OF TRANSMISSION LINES
Luis de Andrade[1], Elmer Sorrentino[2]
[1]Universidade do Porto, Faculdade de Engenheria, Porto, Portugal, [2]Universidad Simón Bolívar, Dept. de Conversión, Caracas, Venezuela

16:15 11O4
THREE DIMENSIONAL FEM ELECTRICAL FIELD CALCULATIONS FOR EHV COMPOSITE INSULATOR STRINGS
Daniele Stefanini[1], Markus Clemens[2], Jens Martin Seifert[1]
[1]Lapp Insulators GmbH, R&D and Quality, Wunsiedel, Germany, [2]Bergische Universität Wuppertal, FB E, Lehrstuhl für Theoretische Elektrotechnik, Wuppertal, Germany

16:30 11O5
A MODIFIED GENETIC ALGORITHM TO DESIGN PEAK PULSE POWER IN NON-LINEAR TRANSMISSION LINES
Michael Baginski[1], Hai Lu[1], Sadasiva Rao[2]
[1]Auburn University, Electrical & Computer Engineering, Auburn, AL, USA, [2]Naval Research Laboratory, Radar Division, Washington, DC, USA

16:45 11O6
MODELING OF THE HEAT GENERATION ON STRESS GRADING COATINGS OF MOTORS FED BY HIGH SPEED DRIVES
Fermin Espino, Pablo Gomez, Dario Betanzos
SEPI ESIME IPN, Electrical Department, Mexico City, Mexico

17:00 11O7
STERILISATION OF LIQUID FOODS BY PULSED HIGH VOLTAGES: AN ANALYSIS OWING TO DISTRIBUTION THEORY
Andre Youmssi, Joseph Kayem, Luc Takongmo Ngouadjo
The University of Ngaoundere, Engineering Processing Laboratory, Ngaoundere, Cameroon

17:15 11O8
MODELING AND SIMULATION OF MULTIPACTOR DISCHARGE ON DIELECTRIC WINDOW UNDER HPM IN VACUUM
Guan-Jun Zhang, Xi-Wei Hao, Hai-Bao Mu
Xi'an Jiaotong University, School of Electrical Engineering, Xi'an, China

Oral Session 12: Accelerators and Other Applications

Wednesday, May 26, 2010 3:30 – 5:30 PM Room B

Session Chair: Gene Neau, L-3 Communications Pulse Sciences

15:30 12O1
DEVELOPMENT AND OPERATION OF PULSE POWER MODULATORS FOR 10 MEV RF INDUSTRIAL ELECTRON LINAC
Kavita Dixit[1], Abhijit Tillu[1], Shiv Chandan[1], Shrinand Kulkarni[2], Amol Bhagwat[2], Vivek Yadav[1]
[1]BARC, APPD, Mumbai, India, [2]SAMEER, DOE, Mumbai, India

15:45 12O2
COMPACT 3,5 kW SEMICONDUCTOR RF-MODULES BASED ON SIC-VJFETS FOR ACCELERATOR APPLICATIONS
Martin Hergt[1], Robert Baumgartner[1], Roland Irsigler[1], Timothy Hughes[1], Peter Friedrichs[2], Oliver Heid[1]
[1]Siemens AG Erlangen/Munich, Germany, [2]SiCED Electronics Development GmbH & Co KG Erlangen, Germany

16:00 12O3
DESIGN AND FABRICATION OF THE HIGH MAGNETIC FIELD SOLENOID PULSERS FOR THE NDCX-II INDUCTION ACCELERATOR
William Waldron
Lawrence Berkeley National Laboratory Berkeley, CA, USA

16:15 12O4
OPTIMIZATION OF COMPACT POWER MODULATORS FOR TRANSIENT PLASMA IGNITION
Daniel Singleton[1], Alexandra Simone[2], Martin Gundersen[1]
[1]University of Southern California, Electrical Engineering, Los Angeles, CA, USA, [2]University of Southern California, Aerospace and Mechanical Engineering, Los Angeles, CA, USA

16:30 12O5
SPARK DISCHARGES FOR SURGICAL APPLICATIONS
Juergen F. Kolb, Noah Scully, Betsy Gregory, Karl H. Schoenbach
Old Dominion University, Frank Reidy Research Center for Bioelectrics, Norfolk, VA, USA

16:45 12O6
EFFECTS OF THE RATE OF TEMPERATURE INCREASE ON LIVER CANCER CELLS IN VITRO
J. Thomas Camp, Shu Xiao, Wallace Baldwin, Karl Schoenbach
Old Dominion University, Electrical Engineering, Norfolk, VA, USA

17:00 12O7
EMBRYONIC DEVELOPMENT OF MEDAKA FISH EGG AFTER NANOSECOND PULSED ELECTRIC FIELD APPLICATION
Kang DongKoo[1], Hosseini S.H.R[2], Nakamitsu Satoshi[1], Yamanaka Masato[1], Shiraishi Eri[1], Sakugawa Takashi[1], Katsuki Sunao[2], Akiyama Hidenori[1]
[1]Kumamoto University, Graduate School of Science and Technology, Kumamoto, Japan, [2]Kumamoto University, Bioelectrics Research Center, Kumamoto, Japan

17:15 12O8
SOME CONSIDERATIONS TO THE DESIGN OF NB SNUBBER
Ge Li[1], Haitian Wang[2], Liang Cao[2]
[1]Institute of Plasma physics, Chinese Academy of Sciences Hefei, China, [2]Shanghai Jiaotong University, Department of Electrical Engineering, Shanghai, China