18th IEEE International
Pulsed Power Conference

POCKET PROGRAM
June 19 -23, 2011
18th International Pulsed Power Conference
June 19 - 23, 2011
Hyatt Regency, McCormick Place
Chicago, IL

Sponsored by the Pulsed Power Science and Technology Committee of the IEEE Nuclear and Plasma Science Society
Welcome

I am pleased to welcome you to the 18th International IEEE Pulsed Power Conference held in Chicago IL, June 19-23, 2011. The conference is organized by the Pulsed Power Science and Technology Standing Committee of the IEEE Nuclear and Plasma Sciences Society and is held biennially and is the primary forum for the interchange of information on pulsed power science and technology. The conference proceedings also serve as the archival source of technology and science for papers published in the field of pulsed power. The field of pulsed power is international in scope. This year approximately 60% of the presentations are from the international community illustrating the growing significance of the technology and science in the international community.

The conference venue this year is the Hyatt Regency McCormick Place, one of the largest conference centers in the Midwest. The conference is also co-located with the International Conference on Plasma Science (ICOPS) and the Symposium on Fusion Engineering (SOFE). The conference center is centrally located near downtown Chicago. Chicago is one of the cultural centers of the Midwest with centrally located museums, restaurants, and entertainment. It is famous for the architecture and skylines, which I invite you to view at sunset. I also would suggest that you explore the museums and architecture, as well as the Frank Lloyd Wright museum while visiting Chicago. Chicago is also home to two national laboratories and we have tours of these laboratories scheduled for many of the attendees this year.

The conference will begin on June 19th, with a reception at the Hyatt Regency McCormick. On Tuesday June 21st, a cruise on Lake Michigan is scheduled with 4 hours to view the impressive architecture of Chicago. On Wednesday evening, the Marx and Haas Awardees will receive their awards at the banquet which will be held this year at the Field Museum. In addition to the great venue this year, the conference has received a record number of scheduled presentations. We received 480 abstracts this year, with 180 oral talks scheduled and 300 poster presentations planned. These presentations cover a wide range of topic areas in the pulsed power community including dielectrics, energy storage, charged particle beam sources, high voltage switches, components, and much more. These technologies are the support base for pulsed power and its applications.
The conference will begin on Sunday June 19th, with an early reception and check-in. The technical sessions will follow on Monday morning with a plenary session. Two plenary sessions are planned for the conference in addition to the Marx and Haas award talks. Following the plenary talks, the oral sessions are scheduled for the morning sessions, with both poster and oral presentations scheduled for the afternoon sessions.

In large part, the Pulsed Power Conference is supported by government, national laboratories, and corporate sponsors, as well as the participation of exhibitors. These sponsorships and exhibitors provide financial support for the conference. In addition to their financial support, state of the art components and technology, as well as services, are on display which support the field of pulsed power. The attendees are encouraged to speak with the exhibitors and express their appreciation for their support of the conference sponsorships.

It has been a privilege to serve as Chair of the 18th International IEEE Pulsed Power Conference. Thank you for your attendance and technical contributions this year. I hope that you find the conference professionally rewarding and would welcome your feedback on the conference. For more information on the conference I encourage you to visit the website at http://ppc.missouri.edu.

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PPC 2011
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General Information

About Chicago, IL

Chicago, the largest city in Illinois, sits on the southwestern shore of Lake Michigan. Jean Baptiste Point du Sable became Chicago's permanent resident in the late 1770s. Incorporated as a city in 1837, Chicago's position on Lake Michigan naturally became a trading center. Chicago was the birthplace of mail order retail (Sears and Montgomery Ward), the car radio (Motorola), and the TV remote control (Zenith).

With more than 86 million visitors a year, Chicago is a tourist hub that includes cultural, entertainment, and sports attractions. Home to the Chicago Cubs and White Sox baseball teams, Bears football team, Bulls basketball team, Blackhawks ice hockey team, and Fire soccer team, Chicago is a mecca for sports enthusiasts. The Art Institute, Cultural Center, numerous examples of Frank Lloyd Wright's architecture, the Lincoln Park Zoo, and over 40 museums provide cultural and educational opportunities for everyone. At an elevation of 1,350 feet above ground, the Skydeck Chicago's The Ledge gives a breathtaking view of the city and surrounding area.

Registration Schedule

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<thead>
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<th>Day</th>
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<td>Monday</td>
<td>6/20/2011</td>
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<td>Tuesday</td>
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<td>Thursday</td>
<td>6/23/2011</td>
<td>8:00 am</td>
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Exhibit Times

Sunday, June 19, 2011
Exhibit Hall Opens 5:30 pm
Reception in Regency Ballroom 5:30 pm – 8:30 pm
Exhibit Hall Closes 8:30 pm

Monday, June 20, 2011
Exhibit Hall Hours 7:00 am – 5:30 pm

Tuesday, June 21, 2011
Exhibit Hall Hours 7:00 am – 5:30 pm

Wednesday, June 22, 2011
Exhibit Hall Hours 7:00 am – 5:30 pm

Thursday, June 23, 2011
Exhibit Hall Hours 7:00 am – 12:00 pm

Companion Program

Monday, June 20, 2011
Event: TOUR OF CHICAGO
Time: 9:00 am – 1:00 pm

Tuesday, June 21, 2011
Event: FRANK LLOYD WRIGHT TOUR
Time: 8:15 am – 1:00 pm
Social Events

Welcome and Exhibitor Reception
Sunday, June 19
Regency Ballroom
5:30 – 8:30 pm

Odyssey Cruise
Tuesday, June 21
Lake Michigan
6:30 – 10:15 pm

Conference Banquet
Wednesday, June 22
Field Museum
6:30 – 10:15 pm

Awards Presentation
Erwin Marx Award – Patrick A. Corcoran, L-3 Communications, Pulse Sciences
Peter Haas Award – Roger White, L-3 Communications, Pulse Sciences
Arthur H. Guenther Pulsed Power Student Awards
2010 – Sarita Prasad, University of New Mexico
2011 – Jonathan Foster, Texas Tech University
NPSS Student Paper Awards (2)

Lab Tours
Argonne National Laboratory
Thursday, June 23
1:00 – 4:30 pm

Fermi National Accelerator Laboratory
Thursday, June 23
1:00 – 4:30 pm

Breakfast
(Conference Registrants Only)
6:45 – 8:00 am
Regency Ballroom

Breaks
(Conference Registrants Only)
8:50 – 9:30 am
3:00 – 3:30 pm
Regency Ballroom
PPC2011 Schedule-At-A-Glance

Sunday, June 19, 2011

1:00 – 7:00 pm  Registration
5:30 – 8:30 pm  Exhibits
5:30 – 8:30 pm  Welcome Reception

Monday, June 20, 2011

6:45 – 8:00 am  Breakfast (registrants only)
7:00 – 5:00 pm  Conference Registration and Office Hours
7:00 – 5:30 pm  Exhibits
8:00 – 8:50 am  Plenary Session 1
    Michael Lavan, Space and Missile Defense Technical Center
    “U.S. Army Directed Energy Weapons Technology Programs”
    Conference Center 12A-D
8:50 – 9:30 am  Break (registrants only)
9:30 – 12:00 pm  Oral Session 1A
     Explosive and Compact Pulsed Power I
     Conference Center 10A-B
9:30 – 12:00 pm  Oral Session 1B
     Microwaves I: Microwave and RF Sources and Antennae
     Conference Center 10C-D
9:30 – 12:00 pm  Oral Session 1C
     Components I: Insulation and Dielectric Breakdown
     Conference Center 11A-B
12:00 – 1:30 pm  Lunch Break
1:30 – 3:30 pm  Poster Session 1P
Components I: Insulation and Breakdown, Transmission Lines and Diagnostics
Regency Ballroom

1:30 – 3:30 pm  Poster Session 1P
Microwaves I: Sources and Antennae, Slow Wave Devices, Systems
Regency Ballroom

1:30 – 3:30 pm  Poster Session 1P
Applications I: Fusion, EM, Beam, and Lasers
Regency Ballroom

1:30 – 3:30 pm  Poster Session 1P
Explosive and Compact Pulsed Power
Regency Ballroom

3:00 – 3:30 pm  Break (registrants only)

3:30 – 5:30 pm  Oral Session 2A
Explosive and Compact Pulsed Power II
Conference Center 10A-B

3:30 – 5:30 pm  Oral Session 2B
Microwaves II: Microwave and RF Sources, Antennae, and Systems
Conference Center 10C-D

3:30 – 5:30 pm  Oral Session 2C
Pulsed Power Systems I: Generators and Networks
Conference Center 11A-B

Tuesday, June 21, 2011

6:45 – 8:00 am  Breakfast (registrants only)

8:00 – 5:00 pm  Conference Registration and Office Hours

7:00 – 5:00 pm  Exhibits
8:00 – 8:50 am  
Plenary Session 2  
Georg Mueller, Karlsruhe Institute of Technology  
"Status and Recent Progress in Pulsed Power Applications at Karlsruhe Institute of Technology"  
Conference Center 12A-D

8:50 – 9:30 am  
Break (registrants only)

9:30 – 12:00 pm  
Oral Session 3A  
Accelerators and Beams I: LTDs and High Current Accelerators  
Conference Center 10A-B

9:30 – 12:00 pm  
Oral Session 3B  
Microwaves III: High Power Microwave Devices  
Conference Center 10C-D

9:30 – 12:00 pm  
Oral Session 3C  
Components II: High Energy Density Storage, Transmission Lines, and Diagnostics  
Conference Center 11A-B

12:00 – 1:30 pm  
Lunch Break

1:30 – 3:30 pm  
Poster Session 2P  
Components II: High Energy Density Storage, Opening and Closing Switches  
Regency Ballroom

1:30 – 3:30 pm  
Poster Session 2P  
Microwaves II: High Power Microwaves  
Regency Ballroom

1:30 – 3:30 pm  
Poster Session 2P  
Accelerators and Beams  
Regency Ballroom

1:30 – 3:30 pm  
Poster Session 2P  
Pulsed Power Systems I: Electromagnetic Launch, Generators and Networks, and Lasers  
Regency Ballroom
3:00 – 3:30 pm  Break (registrants only)

3:30 – 5:30 pm  Oral Session 4A  
Radiation Sources I:  Z and X-Pinches and Lasers  
Conference Center 10A-B

3:30 – 5:30 pm  Oral Session 4B  
Applications I:  Fusion, EM, Beam, Laser, and Space Applications  
Conference Center 10C-D

3:30 – 5:30 pm  Oral Session 4C  
Components III:  Arc Discharge Switching  
Conference Center 11A-B

Wednesday, June 22, 2011

6:45 – 8:00 am  Breakfast (registrants only)

8:00 – 5:00 pm  Conference Registration and Office Hours

7:00 – 5:00 pm  Exhibits

8:00 – 8:50 am  Plenary Session 3  
Marx Award Speaker  
Patrick A. Corcoran, L-3Communications, Pulse Sciences  
“Practical Circuit Models and Simulations using Transmission Lines”  
Conference Center 12A-D

8:50 – 9:30 am  Break (registrants only)

9:30 – 12:00 pm  Oral Session 5A  
Accelerators and Beams II:  High Energy Accelerators, Particle Beams, and Free Electron Lasers  
Conference Center 10A-B

9:30 – 12:00 pm  Oral Session 5B  
Applications II:  General Applications  
Conference Center 10C-D

9:30 – 12:00 pm  Oral Session 5C  
Components IV:  Solid State Switching  
Conference Center 11A-B
12:00 – 1:30 pm  Lunch Break

1:30 – 3:30 pm  Poster Session 3P
Radiation Sources
Regency Ballroom

1:30 – 3:30 pm  Poster Session 3P
Applications II: Medical, Biological, Environmental, and General
Regency Ballroom

1:30 – 3:30 pm  Poster Session 3P
Pulsed Power Systems II: Repetitive and Single Shot Systems
Regency Ballroom

1:30 – 3:30 pm  Poster Session 3P
Power Electronics
Regency Ballroom

3:00 – 3:30  Break (registrants only)

3:30 – 5:30 pm  Oral Session 6A
Radiation Sources II: High Power Diodes
Conference Center 10A-B

3:30 – 5:30 pm  Oral Session 6B
Power Electronics I: Power Electronics and Prime Power
Conference Center 10C-D

3:30 – 5:30 pm  Oral Session 6C
Pulsed Power Systems II: Electromagnetic Launch and Lasers
Conference Center 11A-B

Thursday, June 23, 2011

6:45 – 8:00 am  Breakfast (registrants only)

8:00 – 12:00 pm  Conference Registration and Office Hours

7:00 – 12:00 pm  Exhibits
8:00 – 8:50 am  Plenary Session 4
Haas Award Speaker
Roger White, L-3 Communications, Pulse Sciences
“From Coalminer’s Grandson to Peter Haas Award”
Conference Center 12A-D

8:50 – 9:30 am  Break (registrants only)

9:30 – 12:00 pm  Oral Session 7A
Pulsed Power Systems III: Repetitive and Single Shot Systems
Conference Center 10A-B

9:30 – 12:00 pm  Oral Session 7B
Applications III: Medical, Biological, and Environmental Applications
Conference Center 10C-D

9:30 – 12:00 pm  Oral Session 7C
Power Electronics II: Modulators and Power Supplies
Conference Center 11A-B
Dr. Michael J. Lavan is the Director of the Directed Energy & Missile Defense Technology Directorate of the Space and Missile Defense Technical Center (SMDTC) in Huntsville, AL. SMDTC is the research and development element of the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command. He has held this position since November of 2004. He previously served as the Associate Director of the SMDTC for Missile Defense from June 2001 to November 2004 and as Director, Advanced Technology Directorate of the SMDTC from June 1994 to June 2001. From 1986 to 1994 he was the Director of the Directed Energy Weapons (DEW) Directorate, where he was responsible for the command's programs in neutral particle beams, free electron lasers, beam control and propagation, and space demonstrations of beam weapon technology. Before his selection as Director of DEW, Dr. Lavan was chief of the Ground-Based Laser Division where he was responsible for defining and initiating the free electron laser and beam control programs which grew into the Ground-Based Laser Project at White Sands Missile Range, N.M.

Dr. Lavan has also directed missile defense technology programs in multiple kill vehicle interceptors, distributed radars, wide bandwidth distributed computing, missile materials and directed energy missile defense concept studies.

His current responsibilities are focused primarily on Army efforts in high energy solid state laser devices and systems and on compact high power microwave devices.

Dr. Lavan, who received his Ph.D. in physics from the University of Iowa, is a member of the Association of the United States Army and the Optical Society of America. He has been a member of the Senior Executive Service since 1986. Dr. Lavan has received numerous letters of commendation and awards including the Commander’s Award for Civilian Service, the Achievement Medal for Civilian Service and the rank of Meritorious Executive in the Senior Executive Service.
Georg Mueller was born in 1961. He received the Diploma degree in physics and Ph. D. degree from the University of Karlsruhe, Germany, in 1990 and 1999 respectively.

Since 1990, he was with the Research Centre Karlsruhe, where he worked in different research fields including thin film deposition by channel spark, plasma and electron beam diagnostics, development of multi point explosive emission cathodes, transport of large area powerful pulsed electron beams and surface modification by pulsed electron beams (GESA-process).

He is author and co-author of more than 200 publications in peer reviewed journals, conference proceedings and two book chapters. He is member of the European Pulse Power Society, the International Advisory Committees of the HLMC-, BEAMS- and EAPPC- conferences and member of the contact expert group of the European Commission on transmutation and the OECD/NEA expert group on HLM.

Since 2006 he is Deputy Director and Head of the Pulsed Power Department of the Institute for Pulse Power and Microwave Technology at Karlsruhe Institute of Technology (KIT). He is responsible for the development of pulsed power applications in the field of:

- electrodynamic fragmentation of solid dielectric materials,
- material surface modification by pulsed electron beams,
- electroporation of biological cell membranes by pulsed electric fields and
- basic research in bioelectrics.
Patrick A. Corcoran is a Senior Scientist at L-3 Pulse Sciences where he has roles in both technical leadership and project management. He was first introduced to pulsed power as a summer hire at Pulse Sciences, Inc. (PSI) in 1983 after an internship as a mechanical engineer at the NASA Ames Research Center a year earlier led him to change his major emphasis to Physics. Mr. Corcoran received his B.A. in Physics from San Francisco State University in 1984 and thereafter commenced full time employment at PSI where he has remained employed through its acquisition by the Titan Corporation and later by the L-3 Communications Corporation.

Mr. Corcoran has distinguished himself in the design of large, high power, pulsed machines where his expertise in, and development of, pulse power circuit modeling and simulation have been an essential component. He has authored and coauthored over 50 publications and is the coauthor of a patent. He is a member of the IEEE and is presently serving on the NPSS Pulse Power Science and Technology Committee.

Mr. Corcoran’s work in pulse power technology development includes system design, pulse compression and pulse forming line design, vacuum power flow and diode design, high voltage and high current component design, empirical characterization and prototyping, design validation, and circuit model and code development to support design efforts. He has made a variety of notable and important contributions to the progression of superpower accelerators at Sandia National Laboratories in Albuquerque including Proto 2, Saturn, Z, and Z Refurbishment (ZR) as well as to next generation conceptual designs. He has also made notable contributions to high voltage radiography and is an authority on Inductive Voltage Adder (IVA) design and operation through his work on a progression of machines which have included Hermes 3 and RITS at Sandia, Cygnus at the Nevada National Security Site (NNSS), and Hydrus for AWE in the UK. And he has made
notable contributions to other machines including the DARHT 1 and the DARHT 2 injectors at the Los Alamos National Laboratory (LANL), the AIRIX injector for the CEA in France, the NIKE laser at NRL, and FXR at Lawrence Livermore National Laboratory (LLNL).

Mr. Corcoran credits his association with his colleagues at PSI for the opportunity to participate in a wide range of prominent projects and is particularly grateful to Ian Smith, Phil Spence, Lee Schlitt, and Jim Fockler for patiently teaching him the art and science of pulse power.
Roger White was born on 11th January 1939 in Llwynypia, in the mining valleys of South Wales, UK. At 16, he entered a five year Student Apprenticeship program at the Atomic Energy Research Establishment (AERE) at Harwell, England. There he was trained as an electrical engineer while simultaneously attending Oxford Polytechnic where he was awarded Higher National Certificates in both Electrical and Mechanical Engineering.

AERE employed him in the Plasma Physics Division after he completed his apprenticeship. For AERE he worked on high voltage switching, first at Harwell and at Culham when it was opened in 1962.

In 1964 Roger immigrated to Canada, and spent a year working on satellite systems for RCA in Montreal. He then returned to high voltage engineering at Ion Physics in Boston, where he was first introduced to nuclear weapons simulators in the form of flash X-ray and electromagnetic pulse (EMP) systems.

Roger joined Maxwell Laboratories in San Diego, California, in 1967 and began a 35 year relationship with that company. Roger had the honor to work with many of the original thinkers in the field of Pulsed Power. The long list includes Alan Kolb, Richard Fitch, Richard Miller, John Shannon, John Harrison, Bob Hunter and Jorg Jansen. He made contributions to the Blackjack series of simulators for the Defense Nuclear Agency, and EMP generators for the US Department of Defense and foreign governments. This lead to field installation and commissioning of systems such as Casino at NSWC White Oak, Empress II at Little Creek, Virginia, and systems in France, and in Germany.

At the same time Roger managed up to forty people in the Maxwell Engineering Department. This matrix organization prompted Roger to market and manage programs within the group, as well as to support the engineering needs of the entire
company. His last major assignment before Maxwell sold its pulsed power systems business was to manage its group in Albuquerque and win a large contract at the Air Force Research Laboratory.

Roger chaired the 1991 IEEE Pulse Power Conference and was co-chairman of the 1994 BEAMS conference, both in San Diego. He has served on the IEEE Pulse Power committee for twenty years.

Since the purchase by Titan Corporation in 2001 and Titan’s purchase by L-3 Communications in 2005, Roger has directed the operation of the L-3 Pulse Sciences group in San Diego, originally Maxwell’s pulsed power group.
MONDAY, JUNE 20

Session PL1:  Plenary 1

Monday, June 20  8:00-8:50, Conference Center 12A-D

8:00  PL1-1  U.S. Army Directed Energy Weapons Technology Programs
      M. Lavan

Session 1A:  Explosive and Compact Pulsed Power I

Monday, June 20  9:30-12:00, Conference Center 10A-B

Session Chair:  Matthew Domonkos, Air Force Research Laboratory

9:30  1A-1  (INVITED) Reducing PFN Marx Generator Size Using Nested Solid Insulation
      R. J. Adler, J. A. Gilbrech, D. New

10:00  1A-2  Pulser for High Altitude Jet Engine Re-Ignition
       I. S. Roth, M. A. Kempkes, M. P. J. Gaudreau, P. VerPlanck

10:15  1A-3  1MJ Compact Pulsed Current Source
       B. E. Fridman, B. Baoming Li, V. A. Belyakov, R. S. Enikeev, N. A. Kovrizhnykh, Y. L. Kryukov, K. M. Lobanov, A. G. Roshal, R. A. Serebrov

10:30  1A-4  Development of High Power Long Longevity GaAs Photoconductive Semiconductor Switches for Compact Pulsed Power
       J. Yuan, W. Xie, H. Li, H. Liu, J. Liu, X. Wang, W. Jiang

10:45  1A-5  Development of Solid-State Pulse Forming Lines
       J. Liu, H. Li, H. Liu, J. Yuan, W. Xie
11:00 1A-6 Study of Nanosecond Pulsed Power Generator Based on Epi-Si Drift-Step Recovery Diode

11:15 1A-7 Fast Rise Time Pulsed Power Generator Using IGBTs and Coaxial MPC

11:30 1A-8 Miniature Pulsed Power Generator Using a Magnetic Pulse Compression Circuit

11:45 1A-9 Design and Optimization Techniques for the Generation of Intense, Ultrafast Pulses with Nonlinear Transmission Lines
J. M. Sanders, A. Kuthi, M. A. Gundersen

Session 1B: Microwaves I: Microwave and RF Sources and Antennae

Monday, June 20 9:30-12:00, Conference Center 10C-D

Session Chair: Don Shiffler, Air Force Research Laboratory

9:30 1B-1 (INVITED) Non-Resonant Parametric Amplification and Higher Harmonic Generation of High Power Microwave Signals in Nonlinear Transmission Lines
A. B. Kozyrev

10:00 1B-2 Pspice Simulations of Nonlinear Transmission Lines Based on Ferroelectric Dielectrics
P. Norgard, R. D. Curry

10:15 1B-3 Pulsed High Power RF Generation from Nonlinear Dielectric Ladder Networks - Performance Limits
P. W. Smith
10:30 1B-4 Characterization of a Synchronous Wave Non Linear Transmission Line  
P. D. Coleman, J. J. Borchardt, J. A. Alexander, J. T. Williams, T. Peters

10:45 1B-5 A Novel Solid-State HPM Source Based on a Gyromagnetic NLTL and SOS-Based Pulse Generator  
S. J. F. Chadwick, N. Seddon, S. Rukin

11:00 1B-6 Temperature Dependence of Ferrimagnetic Based Nonlinear Transmission Line  
J. W. B. Bragg, J. Dickens, A. Neuber

11:15 1B-7 Development of High Power Gyromagnetic Nonlinear Transmission Lines  
I. V. Romanchenko, V. V. Rostov, A. I. Klimov, I. K. Kurkan, A. V. Gunin

11:30 1B-8 Circuit Modeling of Nonlinear Lumped Element Transmission Lines  
N. S. Kuek, A. C. Liew, E. Schamiloglu, J. Rossi

11:45 1B-9 Experimental Demonstration of Nonlinear Lumped Element Transmission Lines Using COTS Components  
N. S. Kuek, A. C. Liew, E. Schamiloglu

Session 1C: Components I: Insulation and Dielectric Breakdown

Monday, June 20 9:30-12:00, Conference Center 11A-B

Session Chair: Steven Glover, Sandia National Laboratories

9:30 1C-1 Advanced Imaging of Pulsed Atmospheric Surface Flashover  
A. S. Fierro, G. R. Laity, L. L. Hatfield, J. C. Dickens, A. A. Neuber

9:45 1C-2 A Finite-Difference Time-Domain Simulation of Formative Delay Times of Plasma at High RF Electric Fields in Gases  
P. J. Ford, H. Krompholz, A. Neuber
10:00 1C-3 Study of Pulsed (nanosecond) Electric Breakdown of Pressurized Gas
V. Vekselman, S. Yatom, J. Gleizer, Y. Krasik

10:15 1C-4 Nanosecond-Scale Spectroscopy of Vacuum Ultraviolet Emission from Pulsed Atmospheric Discharges
G. R. Laity, A. A. Neuber, A. S. Fierro, J. C. Dickens, L. L. Hatfield

10:30 1C-5 High Dielectric Constant Composites for High Power Antennas
K. A. O'Connor, R. D. Curry

10:45 1C-6 Weibull Statistical Analysis of Impulse-Driven Surface Breakdown Data
M. P. Wilson, M. J. Given, I. V. Timoshkin, S. J. MacGregor, M. A. Sinclair, K. J. Thomas, J. M. Lehr

11:00 1C-7 Dielectric Surface Effects on Transient Arc Formation in Lightning Arrester Connector (LAC) Devices
H. P. Hjalmarson, A. C. Pineda, M. F. Pasik, R. E. Jorgenson

11:15 1C-8 Effect of Electrode Surface Roughness on the Breakdown Jitter of a Nanoparticle-Infused Dielectric Oil Spark Gap Switch
C. A. Yeckel, R. D. Curry

11:30 1C-9 Pulsed Pre-breakdown Phenomena in High Pressurized Carbon Dioxide Including Supercritical State

11:45 1C-10 Highly Oriented BN Nanosheets in polymer/BN Nanosheet Composite Film with Increased Thermal Conductivity Using Nano Pulse-Width Electric Field
Poster Session 1P: Components I: Insulation and Breakdown, Transmission Lines and Diagnostics

Monday, June 20 1:30-3:30, Regency Ballroom

Session Chair: Kenneth Struve, Sandia National Laboratories

1P-1 A Repetitive Operated High-Current Beam Collector
T. Xun, H. -W. Yang, J. -D. Zhang, J. Zhang, Z. -C. Zhang

1P-2 Design of Compact Feed Through for 500 kV High Voltage Cable
L. Veron, R. Rosol, J. -C. Brion

1P-3 Isolation Concepts for a HVPS-System with <5µs Pulse Generation
M. Hohmann

1P-4 Thermodynamic Modeling with Experimental Validation of the Pulsed and Periodic Operation of a High Power Resistor
D. P. Muffoletto, T. M. DiSanto, K. M. Burke, J. L. Zirnheld

1P-5 Comparison of Dielectric Strength of Transformer Oil at DC and Multimillisecond Pulses
A. Pokryvailo, C. Carp, C. Scapellati

1P-6 Streamer Initiation and Propagation in Transformer Oil Under Positive and Negative Impulse Voltages
J. Jadidian, J. G. Hwang, M. Zahn, L. A. A. Pettersson

1P-7 The Influence of Magnetite Nano Particles on the Behaviour of Insulating Oils for Pulse Power Applications
M. J. Given, M. P. Wilson, I. V. Timoshkin, T. Wang, S. J. MacGregor, J. M. Lehr

1P-8 Field Enhancement Simulation of a Nanoparticle-Infused Dielectric Oil with Roughened Electrodes
C. A. Yeckel, R. D. Curry
1P-9  Glass Ceramic Breakdown Characteristics under Repetitively Pulsed Condition
S. Wang, J. Zhang, H. Yang, T. Shu

1P-10  High Voltage Breakdown of Alumina Insulators
T. P. Hughes, L. I. Espada

1P-11  Theoretical and Experimental Investigation of Electro Discharge Destruction of Non-Conducting Materials
N. S. Kuznetsova, V. V. Lopatin, V. V. Burkin, D. V. Zhgun, N. A. Ivanov

1P-12  The Study of Gas Abnormal Breakdown Characteristic under High Repetition Rate Pulsed Power
C. Yu

1P-13  Three-Dimensional Electromagnetic Modeling of Composite Dielectric Materials
K. A. O'Connor, C. A. Eastman, N. J. Grove, R. D. Curry

1P-14  Numerical Generation of the Random Variable Impulse Breakdown Voltage of Gases
E. Dolicanin, K. Stankovic, R. Maric, B. Iricanin, G. Ilic, R. Radosavljevic

1P-15  Visualization of Positive Pulsed Streamer in Supercritical Carbon Dioxide by Schlieren Method

1P-16  Study on Contact Resistance of Electric Circuit Model for Electromagnetic Railgun
P. Liu

1P-17  Development of Small Dimension High-Voltage Electronic Vacuum Devices
1P-18  Research on Breaking Capacity of Hybrid Circuit Breaker Base on Vacuum Interrupter and SF6 Interrupter in Series  
X. Cheng

1P-19  Simulation and Experimental Research on Dynamic Dielectric Recovery Characteristics for Vacuum Switch with Double-Breaks  
X. Cheng, M. Liao, X. Duan, J. Zou

1P-20  Research on Breaking Capacity of Hybrid Circuit Breaker Base on Vacuum Interrupter and SF6 Interrupter in Series  
X. Cheng, M. Liao, X. Duan, J. Zou

1P-21  The Impact of the Shunt Compensation on Effective and Reliable Power Transmission  
Y. Dvorkin, D. Rimorov, S. Tuzhilov, A. Mamishev

1P-22  Simulation Analysis of Transmission-Line Impedance Transformers with Gaussian, Exponential, and Linear Impedance Profile for Pulsed Power Accelerators  
Y. Hu, A. Qiu, T. Huang

1P-23  Parallel Plate Transmission Line Transformer  
S. J. Voeten, S. Brussaard, G. Pemen

1P-24  Analysis of Transmission Performance of the Radial Impedance Transformers  
R. Zhang, X. Zou, X. Wang

1P-25  Development of the 1/4:7 165kV Fractional Turn Ratio Pulse Transformer  
H. Hu, K. Gan, Z. Tan, T. Li, H. Zhang

1P-26  High-Voltage Picosecond Reflectometry in Investigations of Dynamic Characteristics of Discharge Gaps  

1P-27  Coaxial Capacitive Voltage Divider for High Voltage Pulses with a Very Fast Rise Times  
T. Hobejogi, J. Biela
1P-28 Axial Propagation of Nano-Seconds Pulsed Discharge in Coaxial Reactor

1P-29 A System for Pulsed Measurements Based on LabVIEW
S. Korenev, C. Dew

1P-30 Multivariate Analysis of Pulsed Power Diagnostics on the 2.4MV, 1MA Zebra Z-Pinch Generator
V. Nalajala, B. Le Galloudec, R. Presura, V. Ivanov, V. Kantsyrev, N. Le Galloudec, A. Astanovitskiy, S. Batie, A. Covington

1P-31 Electro-Optic Kerr Effect Measurements of Intense Pulsed Electric Fields in Water
F. Banakhr, B. M. Novac, I. R. Smith, L. Pecastaing, R. Ruscassie, A. de Ferron, P. Pignolet

1P-32 Preliminary Experiment on Electro-Optical Measurement of Electric Field on Insulator Surface
W. Liu, H. Zhu, X. Zou, X. Wang

1P-33 X-Ray Diode Preparation

1P-34 Cygnus X-Ray Pinhole Camera Measurements

1P-35 Virtual Plasma Diagnostic Tool
A. Eroglu

1P-36 An Optical Streak Camera Plasma Diagnostic for Radiographic Source Development
M. D. Crain, S. L. Payne, D. W. Droemer, M. D. Johnston
1P-37  Infrared Imaging Diagnostics for Parameters of Powerful Ion Beams Formed by a Diode in a Double-Pulse Mode
Y. Isakova

Poster Session 1P:  Microwaves I: Sources and Antennae, Slow Wave Devices, Systems
Monday, June 20  1:30-3:30, Regency Ballroom
Session Chair:  Susan Heidger, Air Force Research Laboratory

1P-38  Nonlinear Dielectric-Based NLTL Modeling Using ICEPIC
B. W. Hoff, A. D. Greenwood, S. L. Heidger, D. M. French, J. Watrous

1P-39  Dielectric Nonlinear Transmission Line
D. M. French, B. W. Hoff, S. Heidger, D. Shiffler

1P-40  Multipacting Simulations in a Coaxial Transmission Line with VORPAL
C. M. Roark, C. Nieter, P. H. Stoltz

1P-41  Electric Field Distributions in High Power Microwaves Confined by Plasma Column
S. S. M. Chung

1P-42  Modular, High-Power, Wideband Transmitters for Electromagnetic Environmental Effects (E3) Testing
T. A. Holt, M. B. Lara, C. Nunnally, C. W. Hatfield, J. R. Mayes

1P-43  A Multiple Burst, Variable Frequency, High Power Driver for Antenna Characterization
K. A. O'Connor, R. D. Curry

1P-44  Pulsed Ring Down Source Array Steering
A. W. Myers, S. Holt, J. Dickens

1P-45  Modular Interchangeable High Power Helical Antennas
M. B. Lara, M. G. Mayes, W. C. Nunnally, T. A. Holt, J. R. Mayes
1P-46  Compact Relativistic Magnetron with Gaussian Radiation Pattern  
S. Prasad, M. I. Fuks, E. Schamiloglu

1P-47  Study of a Novel Compact P-Band Magnetically Insulated Transmission Line Oscillator  
X. P. Zhang, C. W. Yuan, T. Wang, H. M. Ren, L. R. Xu, Z. Q. Hong

1P-48  RF Input for Sectioned Relativistic Amplifiers  
M. Liu, M. I. Fuks, E. Schamiloglu, C. -L. Liu

1P-49  Simulated Parameters of Subgigawatt Relativistic BWOs with Permanent Magnetic Systems  

1P-50  A Novel Compact P-Band Coaxial Relativistic Backward Wave Oscillator with Only Three Periods Slow Wave Structure  
B.-L. Qian, L. Gao, X.-J. Ge

1P-51  High-Power Surface Field W-Band Cherenkov Oscillator  
I. V. Konoplev, A. Phipps, A. W. Cross, C. W. Robertson, A. R. Young, C. G. Whyte, A. D. R. Phelps

1P-52  A 1D Large Signal Time-Domain Code for TWTs  
D. T. Lopes, C. C. Motta

1P-53  A Four-Stage Depressed Collector Biasing Voltages Study Using the XMGUN Code  
C. C. Xavier, C. C. Motta

1P-54  High Power Microwave Generation from KALI 5000 Pulse Power System  
A. Roy, R. K. Menon, S. Mitra, S. Kumar, V. Sharma, A. Sharma, K. V. Nagesh, D. P. Chakravorthy

1P-55  Development of the Microwave Test Facility at the University of Missouri Center for Physical and Power Electronics  
S. R. Ashby, R. L. Duce, M. B. Young, R. D. Curry
1P-56  Multisource Radiation and Microwave Facility

1P-57  Compact High Power Microwave Source
K. H. Baxter

1P-58  Influences of Coil Current and Gas Pressure on Inductively Coupled Plasma Parameters
N. Delkash Rudsary

1P-59  A Saturable Metamaterial-Based Passive Limiter for Protection from HPM and UWB Sources
P. Kelly, J. Mankowski

1P-60  Comparison of TDR and FDR Measurements with Established Models in Sandy Soil Types
C. Umenyiora, R. L. Druce, R. D. Curry, J. J. Bowders

1P-61  Gigahertz Sources for Cancer Detection
S. Tantong, J. Baker, Z. Lu, N. E. Islam

1P-62  Design of a Damped Sinusoidal Oscillator System

Poster Session 1P:  Applications I:  Fusion, EM, Beam, and Lasers

Monday, June 20  1:30-3:30, Regency Ballroom

Session Chair:  Roger White, L-3 Communications, Pulse Sciences

1P-63  Expressions of the Optimal Electromagnetic Force
Q. A. Lv

1P-64  Unsymmetrical Lateral Electromagnetic Action and Optimization of the Distance Between Plates in the Passive Electromagnetic Armor
S. H. Chen

1P-65  Pinch Electromagnetic Action on the Shaped Charge Jet in the Passive Electromagnetic Armor
S. H. Chen
1P-66 Analysis of Conductor Impedances Accounting for Skin Effect and Nonlinear Permeability
M. P. Perkins, M. M. Ong, C. G. Brown Jr., R. D. Speer

1P-67 Magnetic Forming and Cutting of Flat Thin Al Sheets
M. T. Pereira, H. Canacsinh, L. M. Redondo

1P-68 Statistical Properties of Modern Fast Photo Detectors
V. Ivanov, Z. Insepov

1P-69 FRC Lifetime Studies for the Field Reversed Configuration Heating Experiment (FRCHX)

Poster Session 1P: Explosive and Compact Pulsed Power

Monday, June 20 1:30-3:30, Regency Ballroom

Session Chairs: David Reisman, Lawrence Livermore National Laboratory
                    Robert Druce, University of Missouri - Columbia

1P-70 Electric Breakdown of Longitudinally-Shock-Compressed Pb(Zr0.52Ti0.48)O3 Ceramics
S. I. Shkuratov, E. F. Talantsev, J. Baird

1P-71 Manufacturing of Targets and Assemblies for High Explosive and High Energy Pulsed Power Research at Los Alamos National Laboratory
F. Fierro

1P-72 Research on Magnetic Field Generated by MFCG Driven Solenoid
H. Li
1P-73 An Ancillary Boundary Integral Equation for Magnetostatic Analysis
M. S. Ingber, G. F. Kiutttu, J. A. Ingber, B. T. Smith

1P-74 The Effects of Inductance on the Metallization Removal of Exploding Films
T. M. DiSanto, M. T. Muffoletto, D. P. Muffoletto, K. M. Burke, J. L. Zirnheld

1P-75 Compact Pulsed Power Using Solid Dielectric Transmission Lines

1P-76 Pulsed Power Generator Using Solid-State LTDs
W. Jiang, A. Tokuchi

1P-77 SLEP-150M Compact Supershort Avalanche Electron Beam Accelerator
V. F. Tarasenko, I. D. Kostyrya, E. K. Baksht, D. V. R. V. Rybka

1P-78 Autonomous Compact and Repetitive Low-Energy Pulsed Power Generator
M. J. Parker, B. M. Novac, I. R. Smith, P. Senior, G. Louverdis

1P-79 Study of HV Dielectric Ceramics for Compact Pulsed Power
J. O. Rossi, L. P. Silva Neto, A. R. Silva Junior

1P-80 Dissipating Screen of Generators Based on Transformer Storage and Combination Vacuum Interrupter and Plasma Opening Switch
O. G. Egorov

1P-81 Self-Contained Source Based on an Innovating Resonant Transformer and an Oil Peaking Switch
R. Pecquois, L. Pecastaing, M. Rivaletto, A. Silvestre de Ferron, P. Pignolet, L. Caramelle, J. - M. Duband, R. Vezinet

1P-82 Rapid Capacitor Charger for Compact Pulsed Power Applications
S. L. Holt, J. C. Dickens
1P-83 Reducing PFN Marx Generator Size Using Nested Solid Insulation
R. J. Adler, J. A. Gilbrech, D. New

1P-84 Electrical Analysis of Piezoelectric Transformers and Associated High-Voltage Output Circuits

1P-85 Solid State Impulse Marx Generator
J. R. Mayes, W. C. Nunnally, W. J. Carey

1P-86 Low Cost 400-Ps Rise Time Circuit-Board Marx Generator
C. Nunnally, M. B. Lara, T. R. Smith, J. R. Mayes

1P-87 Development of a High Repetition Rate and High Voltage Switching Power Supply with a SiC-JFET for an Induction Synchrotron

1P-88 Comparison of Computations and Experiments for Tests of Ranchero Flux Compression Generators Above 50 MA

1P-89 Mini-G: the Development of an Optimized FCG Device
D. B. Reisman

1P-90 Measuring FCG Voltage Using an Electric Field Antenna
A. D. White, R. A. Anderson, J. B. Javedani, D. B. Reisman, D. A. Goerz

1P-91 A Simple, Nearly 2D Explosively Shocked NdFeB(52) Permanent Magnet and a Comparison to a CALE Calculation Suggesting the Mechanism for Magnetic Flux Release and Subsequent EMF Pulse
J. B. Chase, S. Ault, D. Reisman
1P-92 Possible Mechanisms of Electric Field-Free Gas Breakdown
S. I. Shkuratov, J. Baird, E. F. Talantsev, L. L. Altgilbers

1P-93 Fabrication Process for Producing the Dual Cavity Liner-Glide Plane Assembly Used on the MS-2 (Ranchero) High Explosive Pulse Power Experiment Fired at Los Alamos National Laboratory on 2-18-2010
R. B. Randolph

1P-94 Analysis of the Impact of Mutual Inductance on the MFCG Primary Pulse Current Magnification
C. Yu

1P-95 Peculiarities of Formation of a Conical Piston at the Helical-Conical EMG Input
B. T. Egorychev, P. V. Duday, A. V. Ivanovsky, V. B. Kudelkin, N. I. Sitnikova, A. N. Skobelev

1P-96 Power Pulser for Generation of a Series of High Voltage Pulses Based on Multi-Winding Mc-Generator
K. Gorbachev, E. Nesterov, V. Stroganov, E. Chernykh

1P-97 Study of a Possibility to Get Spherical Symmetry of a Quasi-Spherical Liner Implosion Under the Effect of Axial Magnetic Field
B. T. Egorychev, P. V. Duday, A. V. Ivanovsky, A. I. Kraev, V. B. Kudelkin, A. N. Skobelev

1P-98 The Effects of Stator Insulation Material and Methods of Fabrication on the Performance of Compact Helical Flux Compression Generators
C. S. Anderson, A. A. Neuber, M. A. Elsayed, A. J. Young

1P-99 Explosive Current Opening Switch with Variable Topology of Current Path
I. V. Morozov, V. I. Dudin

1P-100 Compact Electro-Explosive Fuse Optimization for a Helical Flux Compression Generator
J. C. Stephens, A. A. Neuber, J. C. Dickens, M. Kristiansen
1P-101 A Novel Type of MFCG with Mutual Inductance Coils
C. Yu

1P-102 Newton & Einstein and Others for Pulsed Power Inside Hydrogen's Atom
N. T. Elfikky

Session 2A: Explosive and Compact Pulsed Power II
Monday, June 20 3:30-5:30, Conference Center 10A-B
Session Chair: Gerald Kiuttu, VariTech Services

3:30 2A-1 (INVITED) Design Considerations for Flux-Trapping Helical-Flux Compression Generators Energized by Capacitive Discharge
A. Young, A. Neuber, M. Kristiansen

4:00 2A-2 COMSED 2 - Recent Advances to an Explosively Driven High Power Microwave Pulsed Power System

4:15 2A-3 Numerical Simulation of Electromagnetic Flux Compression for Super-Intense Magnetic Field Generation
W. Jiang, H. Sugiyama, A. Miyata, H. Sawabe, Y. Matsuda, S. Takeyama

4:30 2A-4 Miniature 100-kV Explosively Driven Prime Power Sources Based on Pb(Zr0.95Ti0.05)O3 Ferroelectric Ceramics

4:45 2A-5 Ferroelectric Generator Design for Multiple Initiation of Blasting Caps
A. H. Stults

5:00 2A-6 Shock Wave Generators
B. L. Freeman, G. C. Newsom, J. W. Guthrie, L. L. Altgilbers, M. S. Rader

Session 2B: Microwaves II: Microwave and RF Sources, Antennae, and Systems

Monday, June 20 3:30-5:30, Conference Center 10C-D

Session Chair: Stephen Bayne, Texas Tech University

3:30 2B-1 Operational Performance of the Horizontal Fast Rise EMP Pulser at the Patuxent River EMP Test Facility D. W. Belt, A. D. Mazuc

3:45 2B-2 High Power Microwave Threat Simulator Facility at White Sands Missile Range R. Blundell

4:00 2B-3 A Novel HPM Array System Based on Mode Locking Multi Frequency O. S. Zucker, P. K. L. Yu

4:15 2B-4 Performances of an Ultra Compact, High-Power, Monocycle Pulse Former for WB and UWB Applications P. Delmote, J.-P. Dupéroux, F. Bieth, S. Pinguet

4:30 2B-5 Delay Time Distribution of High Power Microwave Surface Flashover J. Foster, H. Krompholz, A. Neuber

4:45 2B-6 Investigation of the Transmission Properties of High Power Microwave Induced Surface Flashover Plasma S. Beeson, J. Foster, J. Dickens, A. Neuber

5:15 2B-8 Reducing Both the Physical Size and Operational Frequency of Helical Antennas by Means of Dielectric Loading
M. B. Young, K. A. O'Connor, D. A. Crosby, R. D. Curry

Session 2C: Pulsed Power Systems I: Generators and Networks
Monday, June 20 3:30-5:45, Conference Center 11A-B
Session Chair: Brett M. Huhman, US Naval Research Laboratory

3:30 2C-1 Status of the 2 MA Driver for Creating 2 MG Magnetic Fields for Cluster Fusion Experiments

3:45 2C-2 A Linear-Transformer-Driver (ltd) with Multiple Self-Triggered Switches
A. J. M. Pemen, Z. Liu, E. J. M. van Heesch

4:00 2C-3 High Power HV Generators of Sequential Two Nanosecond Pulses
G. Remnev, Y. Usov

4:15 2C-4 A High-Power, High-Energy Pulsed Power Generator for High-Impedance Loads
M. J. Parker, B. M. Novac, I. R. Smith, P. Senior, G. Louverdis

4:30 2C-5 Bipolar Pulse Generation Based on Unipolar Solid-State Marx Modulator with Blumlein Line Stack
J. P. Mendes, H. Canacsinh, L. M. Redondo, J. O. Rossi

4:45 2C-6 Optimizing Repetitive Bipolar Solid-State Marx Generators
H. Canacsinh, L. M. Redondo, J. F. Silva
5:00 2C-7 Bipolar Solid State Arbitrary-Waveform Marx Generator for Capacitive Loads
L. M. S. Redondo, H. Canacsinh, M. R. Gomes

5:15 2C-8 A Pulsed Power Generator with 20 Synchronous High-Voltage Output Pulses
G. Deng, Z. Liu, B. Wang, K. Yan

5:30 2C-9 Inductive Adder Based Method for Generating Electromagnetic Pulse with Controllable Timing
TUESDAY, JUNE 21

Session PL2: Plenary 2

Tuesday, June 21 8:00-8:50, Conference Center 12A-D

8:00  PL2-1  Status and Recent Progress in Pulsed Power Applications at Karlsruhe Institute of Technology

Session 3A: Accelerators and Beams I: LTDs and High Current Accelerators

Tuesday, June 21 9:30-12:00, Conference Center 10A-B

Session Chair: Neal Graneau, AWE

9:30  3A-1  Linear Transformer Driver (LTD) Research for Radiographic Applications

9:45  3A-2  Development of a 1 MV Ultra-Fast LTD Generator

10:00  3A-3  Tests of a 1 MV LTD Generator at CEA
M. Toury, M. Caron, L. Magnin, M. Mouillet, F. Bayol, F. Cubaynes, R. Delplanque, J. Leckbee, B. Oliver

10:15  3A-4  Experimental Validation of the First 1-MA Water Insulated Mykonos LTD Voltage Adder
10:30  3A-5  Experiments with the 2-Meter-Diameter, 810-KA LTD-III Accelerator Cavity  

10:45  3A-6  Conceptual Designs for an Upgrade of the Sphinx Z-Pinch Driver  
F. Lassalle, A. Loyen, A. Georges

11:00  3A-7  A New Triggering Technology for LTD Switches Based on Reversed-LTD Principle  
K. Liu

11:15  3A-8  Foil-Flyer Electro-Magnetic Accelerator - Experimental Campaign  

11:30  3A-9  Technology for Large Scale Trigger System Based on PCSS Triggered V/n Switch  

11:45  3A-10  High Pulse Currents  
I. V. Lavrinovich, N. A. Ratakhin, V. F. Feduschak, A. A. Erfort

Session 3B:  Microwaves III:  High Power Microwave Devices

Tuesday, June 21  9:30-12:00, Conference Center 10C-D

Session Chair:  Dale Coleman, Sandia National Laboratories

9:30  3B-1  Virtual Prototyping of a 1.0 MW Conventional Magnetron Design  

9:45  3B-2  Hysteresis Dependence of Mode Separation on Time-Varying Applied Voltage in a Magnetron with Diffraction Output  
M. I. Fuks, E. Schamiloglu
10:00  3B-3  Amplitude and Phasing Control of Superradiative Pulses by the Magnetic Bias of Saturated Ferrite
V. V. Rostov, A. A. Elchaninov, A. I. Klimov, I. V. Romanchenko, G. A. Mesyats, M. I. Yalandin

10:15  3B-4  Design of a Dual Cavity Reltron
S. Soh, E. Schamiloglu, R. B. Miller

10:30  3B-5  An "Energy Efficient" Vircator-Based HPM System
J. Walter, J. Dickens, M. Kristiansen

10:45  3B-6  A High Voltage Pulsed Power System for Repetitive Vircator Testing
P. Norgard, K. R. Clements, R. D. Curry

11:00  3B-7  3-D PIC Simulation of Virtual Cathode Oscillator
W. Jiang, K. Ito

11:15  3B-8  Design and Implementation of Dual Independent Vircators Driven by a Single Pulsed Power Source

11:30  3B-9  High Power SiC Solid State RF-Modules
R. Irsigler, R. Baumgartner, M. Hergt, T. Hughes, O. Heid

11:45  3B-10  Energy Efficiency of High Power Microwave Systems
J. T. Krile, M. Kristiansen

Session 3C:  Components II:  High Energy Density Storage, Transmission Lines, and Diagnostics

Tuesday, June 21  9:30-12:00, Conference Center 11A-B

Session Chair:  Bruce Freeman, Ktech Corporation

9:30  3C-1  High Voltage, Repetitive Pulsed Charge Discharge Testing of Prototype Capacitors
S. L. Heidger, F. Dogan, A. Devoe, D. Brown, M. Domonkos
9:45  3C-2  Test for End Connection Integrity of Metalized Film Capacitors
S. Qin, X. Qi, T. R. Jow, S. Boggs

10:00  3C-3  Effects of Nd Doped BaTiO3 Nanoparticles on the Dielectric Properties of Nd-BaTiO3/PVDF Composites
M. F. Lin, J. Z. Lim, P. S. Lee

10:15  3C-4  Cygnus Dose Quality

10:30  3C-5  (INVITED) Spectroscopic Measurements in the Post-Hole Convolute on Sandia's Z-Machine

11:00  3C-6  Design of a Diagnostic System for Use in Optical and Vuv Spectroscopy of Explosive Emission
J. M. Parson

11:15  3C-7  Thermal Imaging Diagnostics of the High-Current Pulsed Electron Beam
G. Kholodnaya, Y. Isakova, V. Koghevnikov

11:30  3C-8  Study and Diagnosis the Power Transformer Bushing Insulation System
A. K. Mehta

11:45  3C-9  Circuits for Digitally Synthesizing Very Long HPM Pulses in Compact Geometry
O. S. Zucker
Poster Session 2P: Components II: High Energy Density Storage, Opening and Closing Switches

Tuesday, June 21 1:30-3:30, Regency Ballroom

Session Chair: Michael Mazarakis, Sandia National Laboratories

2P-1 High Energy Density Film Capacitors  
S. Zhang, C. Zou, R. Orchard, D. Kushner, X. Zhou

2P-2 Study on Self-Healing and Lifetime Characteristics of Metallized Film Capacitor  
Y. Chen, H. Li, F. Lin

2P-3 Investigations on Increasing the Operation Voltage of Hybrid Supercapacitors Used in Pulsed Power System  
J. Song, L. Zhang, J. Zou

2P-4 Arc Suppression Snubbers on Energy Extraction Switchgear in the LHC Superconducting Main Circuits of the LHC Collider: Impact on the Vital Quench Protection Systems  
K. Dahlerup-Petersen, F. Formenti, B. I. Panev

2P-5 Power Triggered Vacuum Switches with Triggering Devices and Their Fields of Application  
V. A. Sidorov, D. F. Alferov, G. D. Domashenko, V. P. Ivanov

2P-6 Protection Against Pulse Overvoltages Based on a Triggered Vacuum Switch  
D. Alferov, D. Evsin, V. Filippov, V. Ivanov, V. Miroshnichenko, A. Perunov, U. Priseko, V. Sidorov

2P-7 A Two-Stage Breaker with “turnover” of a Capacitor Bank Potential  
O. G. Egorov

2P-8 Novel Switching Power Supply for the KEK Digital Accelerator  
Research and Development of Drivers for Pseudospark Switches

Optically Triggered Pseudospark Switches with Magnesium Photocathodes
E. B. Sozer, C. Jiang, M. A. Gundersen

A Dielectric Body-Discharge Nanosecond Switch Triggered by Array Microhollow Cathode Discharge
Y. Teng, K. Liu, J. Qiu

Experimental Studies of a Simultaneously Operating Multi-Pin/Plane Corona Stabilised Switch
B. M. Novac, J. L. Walsh, I. R. Smith

Numerical Simulation of Electric Field in Multichannel Multigap Gas Switches
A. V. Kharlov

Experiment Study of a Low Inductance Three Electrode Field Distortion Gas Spark Switch for Linear Transformer Driver
H. Wei, P. Liu, F. Sun, X. Jiang, J. Yin, T. Liang, Z. Liu, Z. Wang, A. Qiu

Characterization of Paschen Curve Anomalies at High PD Values

Experiments for Reducing the Jitter of an Over-Voltage Triggered Spark Gap
F. Attmann, M. Sack, G. Mueller

Time Jitter Studies of a Corona-Stabilised Closing Switch
A. Larsson, D. Yap, Y. W. Lim

Time Jitter Studies of a Small V/n Switch
A. Larsson, D. Yap, Y. W. Lim
2P-19 Test Bed for Time Jitter Studies of Laser-Triggered Gas Discharge Switches
A. Larsson, D. Yap, Y. W. Lim

2P-20 Study on Erosion Mechanism of Graphite Electrode in Two-Electrode Spark Gap

2P-21 The Research on the Trigger Characteristics of a Three-Electrode Spark Gap

2P-22 Modular Trigger Generator for Over-Voltage Triggering of Marx Generators
M. Sack, G. Mueller

2P-23 Evaluation of Experimental Silicon SGTO Devices for Pulsed Power Applications
S. Lacouture, K. J. Lawson, S. B. Bayne, M. Giesselmann, H. O'Brien, C. J. Scozzie

2P-24 Narrow and Wide Pulse Evaluation of Silicon Carbide SGTO Modules

2P-25 Analysis of Silicon Carbide MOSFET Devices During Pulsed Operation
K. J. Lawson, S. B. Bayne

2P-26 Fast, High-Voltage, High-Current SiC Thyristors for Pulsed Power
H. D. Sanders, S. C. Glidden

2P-27 Laser Pumping of 5kV Silicon Thyristors for Fast High Current Rise-Times
H. D. Sanders, S. C. Glidden, D. M. Warnow

2P-28 Attempt to a Non-Destructive Single Event Burnout Test of Fast High Current Thyristors
V. Senaj, L. Ducimetiere
Poster Session 2P: Microwaves II: High Power Microwaves

Tuesday, June 21 1:30-3:30, Regency Ballroom

Session Chair: Peter Mardahl, Air Force Research Laboratory

2P-29 Pulse Width of a Reflex Triode Virtual Cathode Oscillator
A. Roy, A. Sharma, R. K. Menon, S. Mitra, V. Sharma, K. V. Nagesh, D. P. Chakravorthy

2P-30 Investigations of a Double-Gap Vircator at Sub-Microsecond Pulse Durations
A. S. Shlapakovski, T. Queller, Y. E. Krasik

2P-31 Anode Optimization for a Compact Sealed Tube Vircator
J. Walter, J. Vara, C. Lynn, J. Dickens, A. Neuber, M. Kristiansen

2P-32 Experimental Studies on a Coaxial Vircator, Designed for Operation in TE11 Mode
M. Elfsberg, T. Hurtig, C. Möller, S. E. Nyholm

2P-33 Experimental Study of a Vircator with Premodulated Electron Beam
C. Möller, F. Bieth, P. Delmote, M. Elfsberg, T. Hurtig, S. E. Nyholm

2P-34 Suppression of Leakage Current in a Relativistic Magnetron Using Various Cathode Endcap Designs
C. J. Leach, S. D. Prasad, M. Fuks, E. Schamiloglu

2P-35 3D ICEPIC Simulations of A6 Magnetron with Transparent Cathode for Comparison of 3D MAGIC Simulations
C. L. Mendonca, T. Fleming, S. Prasad, E. Schamiloglu

2P-36 RF Frequency Switching in a Relativistic Magnetron with Diffraction Output (MDO)
M. Liu, M. I. Fuks, E. Schamiloglu, C.-L. Liu
2P-37 Metamaterial Cathodes in Multicavity Magnetrons
A. D. Andreev, K. J. Hendricks

2P-38 Mechanism Analysis of a Kind of Diode over-Current Oscillation
C. Yu

2P-39 High Power Autonomous Pulse-Train Oscillator
E. Nesterov, V. Fortov, Y. Isaenkov, V. Mikhailov, V. Ostashev, Y. Semenov, V. Stroganov

2P-40 Comparison and Time Domain Analysis of Two Common Bipolar Forming Methods in UWB Radiators
K. Hojatzadeh

Poster Session 2P: Accelerators and Beams

Tuesday, June 21 1:30-3:30, Regency Ballroom

Session Chairs: Colin Whyte, University of Strathclyde
Mark Sinclair, AWE

2P-41 Primary Analysis of Switches Trigger Based on Secondary Induced Overvoltage of LTD
P. Liu, F. Sun, H. Wei, Q. Qiu, Q. Zhang

2P-42 Circuit Simulation of Saturn with a Reflex Triode Load
R. J. Allen, B. W. Weber, R. J. Commisso, S. B. Swanekamp, D. P. Murphy

2P-43 A Microsecond LTD Stage Designed as a Prototype for an Upgrade of SPHINX Z-Pinch Driver
F. Lassalle, B. Roques, A. Loyen, T. Chanconie

2P-44 Investigation of High Current Submicrosecond LTD Stages at CEA Gramat
A. Loyen, F. Lassalle, B. Roques, F. Bayol, A. A. Kim, B. M. Kovalchuk

2P-45 A Compact 2MA LTD for High Energy Density Physics Research
S. N. Bland, R. B. Spielman, S. V. Lebedev, J. Skidmore, G. Burdiak, J. P. Chittenden, P. Cong
2P-46 Temporally Shaped Current Pulses on a Two-Cavity LTD System

2P-47 Circuit Model Development to Improve the Predictability of Shaped Current Pulses on Z

2P-48 A Novel High Performance Thyratron Tube Driver
C.-Y. Liu

2P-49 On the Dynamics of the Flow along a Cylindrical Self Magnetically Insulated Transmission Line
J. G. Leopold, R. Gad, I. Navon

2P-50 The Flow Dynamics Along Non-Uniform Self Magnetically Insulated Transmission Lines
J. G. Leopold, R. Gad, I. Navon

2P-51 PIC Simulations of Power Flow in a Linear Transformer Driver for Radiographic Applications
T. D. Pointon, D. B. Seidel, J. J. Leckbee, B. V. Oliver

2P-52 Compact High Average Gradient Particle Accelerators Utilizing Photoconductive Switches
O. S. Zucker

2P-53 AMBICA-600: A Waterline Driven Gigawatt Pulsed Electron Beam Accelerator
R. Verma, A. Shyam, T. Patel, Y. C. Saxena

2P-54 Initial Tests of the AWE Hydrus IVA Marx
2P-55 Solid State Pulsed Power System for 50 MW X-Band Klystron

2P-56 The Pulsed Kicker Power Supply Design for TPS Synchrotron Light Source
Y.-H. Liu, C. -S. Chen

2P-57 Manufacture of a Scanning Magnet Power-Supply Used in Industrial Radiation Accelerator
C. Yu

2P-58 MAGIC Implicit Particle Pusher Description and Validation
A. J. Woods, L. D. Ludeking

2P-59 Phenomena Succession at Generation of PicoSecond Runaway Electrons Beam in Air

2P-60 Laser Excitation of Electrostatic Eigen Mode of a Plasma in Azimuthal Magnetic Field and Electron Acceleration
M. Kumar, V. K. Tripathi

2P-61 Controlling Feed Electron Flow in MITL-Driven Radiographic Diodes
D. B. Seidel, T. D. Pointon, B. V. Oliver

2P-62 Plasma Lens for Transformation of Ion Beams
V. D. Bochkov, A. A. Drozdovskii, A. A. Golubev, D. D. Iosseliani, Y. B. Novozhilov, S. M. Savin, V. V. Yanenko

2P-63 Investigation of the Mechanism of Electron Current Suppression in an Ion Diode with Magnetic Self – Isolation
A. Pushkarev, Y. Isakova, V. Guselnikov

2P-64 Investigation of a Novel Cathodes for Microsecond Pulse Conditions
P. Norgård, R. D. Curry
2P-65 The Study of Pulsed Explosive Ion Emission  
A. Korenev, S. Korenev

2P-66 Low-Energy Electron Beam Source  
J. Gleizer, V. Vekselman, S. Yatom, J. Felsteiner,  
Y. Krasik

2P-67 Shielded-Grid Triode Eliminates Beam-Interception Switching Losses  
K. E. Williams

2P-68 Sub-Nanosecond Electron Emission from Electrically Gated Field Emitting Arrays  
M. Paraliev, S. Tsujino, C. Gough, E. Kirk,  
S. Ivkovic

Poster Session 2P: Pulsed Power Systems I: Electromagnetic Launch, Generators and Networks, and Lasers

Tuesday, June 21 1:30-3:30, Regency Ballroom

Session Chair: Minh Nguyen, SLAC National Accelerator Laboratory

2P-69 Transmission Line and Electromagnetic Models of the Mykonos-2 Accelerator  
E. A. Madrid, C. L. Miller, D. V. Rose, D. R. Welch,  
R. E. Clark, C. B. Mostrom, W. A. Stygar,  
M. E. Savage, D. D. Hinshelwood, K. R. LeChien

2P-70 A Versatile Marx Generator for Use in Directed Energy and Effects Testing Applications  
T. A. Holt, J. R. Mayes, M. B. Lara, C. Nunnally,  
J. M. Byman, C. W. Hatfield

2P-71 Improvements to a Small Scale Linear Transformer Driver  
D. W. Bolyard, A. Neuber, J. Krile, M. Kristiansen

2P-72 Design of a Non-Circular Linear Transformer Driver  
K. Morales, B. Hilko

2P-73 Pulsing Characteristics of RF Amplifier Topologies  
A. Eroglu
2P-74  Square Pulse LTD
A. A. Kim, M. G. Mazarakis, V. A. Sinebryukhov, V. M. Alexeenko, S. S. Kondratiev, W. A. Stygar

2P-75  10 Ohm High Voltage Subnanosecond Pulse Generation
S. El Amari, D. Arnaud-Cormos, P. Leveque, V. Couderc

2P-76  Generators of High-Power High-Frequency Pulses Based on Sealed-off Discharge Chambers with Hollow Cathode

2P-77  High-Current Pulse Generator for Plasma Focus
A. V. Nashilevskiy, V. P. Vinogradov, G. G. Kanaev, V. I. Krauz, G. G. Remnev

2P-78  Pulsed Power Generator Driven by FPGA and PC

2P-79  A FPGA Based All-Solid State Nanosecond Pulsed-Power Generator
C. Yao, X. Zhang, C. Li, F. Guo, Y. Mi, C. Sun

2P-80  Inductive Adder Based Method for Generating Electromagnetic Pulse with Controllable Timing
Z. Wang, X. P. Yan, P. Li, X. H. Hao, C. D. Yu, J. T. Wang

2P-81  Development of 20kj Fast Driver for Nx-3 Plasma Focus

2P-82  High Current All Solid State Sources for Laser Applications
V. Efano, M. Efano, P. Yarin

2P-83  Study of the Discharge Channel Evolution Characteristics in the Flashlamps
X. Li, S. Jia, R. Li, X. Song, Z. Shi, H. Li
2P-84 Comparative Analysis of High Velocity Projectile Images Using MATLAB
B. M. Huhman, A. Choi

2P-85 Application Based General Scaling in Railguns
V. W. Sung, W. G. Odendaal

2P-86 Sliding Electrical Contact Test Stand Development
D. A. Rice, S. D. Kovaleski, J. M. Gahl

2P-87 Low Voltage Low Current Massively Parallel High Performance EM Gun Topology MEMS Based Manufacturing
O. S. Zucker

2P-88 Control of Thermal Limitations in Railguns
G. A. Shvetsov, S. V. Stankevich, A. G. Anisimov, S. V. Sinyaev

2P-89 Modeling of High Voltage Fast Recovery Diode in Pulsed Power Applications
Y. Zhou, P. Yan, W. Yuan, D. Zhang

2P-90 Finite Element Analysis of 3-D Eddy Field on New Type of Interception Missile in the Electromagnetic Launching
P. Sun

2P-91 Structural Optimization of the Single-Stage Induction Coilgun Based on Finite Element Method
B. Zou

2P-92 Design of a Single Stage Supersonic Reluctance Coilgun
T. S. El-Hasan

2P-93 Analysis of a Linear Reluctance Motor for Aircraft Electromagnetic Launcher
M. Mirzaei, S. E. Abdollahi, M. Ghodsi
Session 4A: Radiation Sources I: Z and X-Pinches and Lasers

Tuesday, June 21  3:30-5:45, Conference Center 10A-B

Session Chair: Victor Kantsyrev, University of Nevada - Reno

3:30  4A-1  (INVITED) Advanced Load Current Multiplier on Zebra Generator

4:00  4A-2  Status of the Z Pulsed Power Driver
      M. E. Savage, D. S. Artery, P. A. Corcoran, K. R. LeChien, M. R. Lopez, J. A. Lott, B. S. Stoltzfus, W. A. Stygar

4:15  4A-3  Particle in Cell Simulations of Plasma Dynamics in the Z Double-Post-Hole Convolute and Inner Magnetically Insulated Transmission Line
      S. W. Vickers, J. Chittenden

4:30  4A-4  Design and Optimization of Planar Wire Array Loads for 1.7 MA LCM Current Regimes at Zebra Facility

4:45  4A-5  The Impact of Load Configuration and Wire Material on Radiation Yield from Wire Array Plasmas at University Scale Z-Pinch Pulsed Power Generators

5:00  4A-6  Simulations of Dynamic Laser / Plasma X-Ray Production
      D. R. Welch, C. L. Miller, D. V. Rose, R. B. Campbell, B. V. Oliver, T. J. Webb, D. G. Flicker
5:15  4A-7 Research of Non-Cylindrical Wire Arrays on ANGARA-5-1 Facility

5:30  4A-8 Extreme State of Water Produced by Converging Strong Shock Waves Generated Using Underwater Electrical Wire Array Explosion
Y. E. Krasik, A. Fedotov-Gefan, S. Efimov, L. Gilburd, V. Gurvich, G. Bazalitsky

Session 4B: Applications I: Fusion, EM, Beam, Laser, and Space Applications
Tuesday, June 21 3:30-5:30, Conference Center 10C-D
Session Chair: Weihua Jiang, Nagaoka University of Technology

3:30  4B-1 New Self-Magnetically Insulated Connection of Multi-Level Accelerators to a Common Load for Fusion

3:45  4B-2 Inverse Diode for Combination of Multiple Modules and Fusion Driver-Target Standoff
J. P. VanDevender, D. B. Seidel, K. A. Mikkelson, R. D. Thomas, V. J. Harper-Slaboszewicz, B. P. Peyton

4:00  4B-3 The Development of a 2.4 MJ Pulsed Power Supply for the Production of a Compact Toroid Plasma
W. Zawalski, M. Laberge, S. Howard, M. Wight, K. Epp, A. Wong

4:15  4B-4 High Energy Densities and MAGO/MTF
S. F. Garanin
4:30 4B-5 Simulation of Diocotron Instability in a Magnetically Confined Hollow Electron Beam
H. J. Lee, M. Chung, S. I. Chung

4:45 4B-6 Substrate Conditions in Low-Temperature Gallium Arsenide and Semi-Insulating Gallium Arsenide During Terahertz Pulse Generation

5:00 4B-7 Compact Nanosecond FID Pulse Generators for Accelerators, Laser and Discharge Applications
V. Efanov, M. Efanov, A. Kriklenko, A. Komashko, P. Yarin, S. Zazoulin

5:15 4B-8 Meridian Radar System - Klystron Based Transmitter for Atmospheric Research
P. Kolda, S. Lenci, Z. H. Ding, M. Kempkes, K. Schrock

Session 4C: Components III: Arc Discharge Switching

Tuesday, June 21 3:30-5:30, Conference Center 11A-B

Session Chair: Mark Savage, Sandia National Laboratories

3:30 4C-1 Simulation of a 1.0-MA Current Joint with ALE3D
J. B. Javedani, J. M. Solberg, R. N. Rieben, D. A. White, D. A. Goerz

3:45 4C-2 The Triggered Behaviour of a Controlled Corona Stabilised Cascade Switch
M. J. Given, M. P. Wilson, I. V. Timoshkin, T. Wang, S. J. MacGregor, J. M. Lehr

4:00 4C-3 Triggered Vacuum Switch and Air Spark Gap for Pulsed Power Applications
X. Duan, M. Liao, J. Zou, C. Zhao, Z. Zhou

4:15 4C-4 Arc Motion Simulation in a Rotating Arc Gap Switch Based on a Chain Model
H. Junjia, G. Rui, P. Yuan
4:30  4C-5  (INVITED) High Pressure Sealed Hydrogen Spark Switches
      S. D. Rendall, Z. Shotts, F. Rose, Z. Roberts

5:00  4C-6  Stabilities of Water Switches with Three Different Field Distributions
      P. Cong, G. Zhang, L. Sheng

5:15  4C-7  Study on the Saturation Phenomena of Discharge Channel Number of a Gas Spark Switch Gap Under Nanosecond Trigger Pulses
      J. Chang, H. Wang, Q. Zhang, A. Qiu
Wednesday, June 22

Session PL3: Marx Award Winner
Patrick A. Corcoran, L-3 Communications, Pulse Sciences
“Practical Circuit Models and Simulations using Transmission Lines”

Wednesday, June 22 8:00-8:50, Conference Center 12A-D

Session 5A: Accelerators and Beams II: High Energy Accelerators, Particle Beams, and Free Electron Lasers

Wednesday, June 22 9:30-12:00, Conference Center 10A-B

Session Chair: Frédéric Bayol, ITHPP

9:30 5A-1 Extension of the Operating Point of the Mercury IVA from 6 to 8 MV

9:45 5A-2 Status of the AWE Hydrus Fabrication

10:00 5A-3 Design and Performance of the Darht Second Axis Accelerator
K. Nielsen

10:15 5A-4 FXR Marx Triggering and Switch Characterization

10:30 5A-5 Xray Diodes Experiments on the Asterix Generator
10:45  5A-6  Generation Supershort Avalanche Electron Beam and X-Ray During Subnanosecond Breakdown in Different Gases at Pressures from 1 Torr Up To 15 Atm  
V. F. Tarasenko

11:00  5A-7  3D Simulations of the Self-Magnetic-Pinch Diode  
N. L. Bruner, D. R. Welch, B. V. Oliver, M. D. Johnston

11:15  5A-8  Multiple Pulsed Power Systems for Free Electron Maser Amplifier Experiments  
C. G. Whyte, C. W. Robertson, K. Ronald, A. R. Young, W. He, A. W. Cross, P. MacInnes, A. D. R. Phelps

11:30  5A-9  Power Positron Beams for HED Physics  
V. V. Gorev

11:45  5A-10  Space-Charge Limited Current of Charged-Particle Beam in Coaxial Drift Tube  
K. Ilyenko, G. V. Sotnikov, T. Y. Yatsenko

Session 5B: Applications II: General Applications  
Wednesday, June 22 9:30-12:00, Conference Center 10C-D  
Session Chair: Bill Reass, Los Alamos National Laboratory

9:30  5B-1  (INVITED) European Laboratory for Pulsed Power Research (EPPL)  
E. Spahn, J.-M. Löeffler, S. Balevicius

10:00  5B-2  The PHELIX Pulsed Power Project: Bringing Portable Magnetic Drive to World Class Radiography  

10:15  5B-3  The Generation of Triggered Shockwaves in Shock Tubes with Exploding Wires  
M. E. J. Rudroff, A. Lodes, R. D. Curry
10:30  5B-4 The Interaction of Shock Waves with a High Density Toroidal Air Plasma
       A. Lodes, M. E. J. Rudroff, R. D. Curry

10:45  5B-5 The PHELIX Portable Pulsed Power Machine: Hydrodynamics Experiments and Beyond

11:00  5B-6 Design of Pulsed High-Field Magnets for Pion/Muon Collection
       P. J. Turchi

11:15  5B-7 Characteristics of High Voltage Electrical Discharge Induced Non-Thermal Plasma in Aqueous Solution under Pulsed Control
       K. -Y. Shih, S. Iyonaga, M. Akiyama, N. Aoki, H. Akiyama

11:30  5B-8 Gas Temperature Measurements of Nano-Seconds Pulsed Discharge Based Ozonizer
       T. Matsumoto, N. Takamura, D. Wang, T. Namihira, H. Akiyama

11:45  5B-9 Simulation and Analysis of Magnetically-Applied-Pressure-Shear (MAPS) Experiments
       T. A. Haill, C. S. Alexander, J. R. Asay

Session 5C: Components IV: Solid State Switching

Wednesday, June 22  9:30-12:00, Conference Center 11A-B

Session Chair: Darryl Droemer, National Security Technologies

9:30  5C-1 Laser Enhanced Diffusion of Nitrogen in High Purity Semi-Insulating 4H Silicon Carbide Substrates for Non-Rectifying Contact Formation to Photoconductive Semiconductor Switches
       W. Sullivan III, C. Hettler, J. Dickens
9:45 5C-2 Analysis of Silicon Carbide JFET Devices During Pulsed Operation  

10:00 5C-3 Recombination Lifetime Modification in Bulk, Semi-Insulating 4H-SiC Photoconductive Switches  
C. Hettler, W. Sullivan III, J. Dickens

10:15 5C-4 Development of "Stitch" Super-GTOs for Pulsed Power  

10:30 5C-5 (INVITED) High Current, Multi-Filament Photoconductive Semiconductor Switching  
F. J. Zutavern, S. F. Glover, A. Mar, G. M. Loubriel, M. E. Swalby, R. T. Collins

11:00 5C-6 Novel Press Pack IGBT Device and Switch Assembly for Pulse Modulators  
P. Bill, A. Welleman, E. Ramezani, S. Gekenidis, R. Leutwyler

11:15 5C-7 Testing of a Low Inductance Stacked Mosfet Switch for Pulsed Ring-Down Sources  
D. Reale, J. Mankowski, S. Holt, J. Walter, J. Dickens

11:30 5C-8 Ceramic Packaging Reliability Study of a 13.5 kV Multichip Thyristor  
B. Vergne, C. Gauthier-Blum, V. Brommer, S. Scharnholz, E. Spahn, A. Welleman

11:45 5C-9 On-State Resistance Comparison of Semi-Insulating 6H-SiC Photoconductive Semiconductor Switches  
J. Yuan, H. Liu, J. Liu, H. Li, W. Xie
Poster Session 3P: Radiation Sources

Wednesday, June 22 1:30-3:30, Regency Ballroom

Session Chair: Ronnie Shepherd, Lawrence Livermore National Laboratory

3P-1 Xenon Theta Pinch for ICF Chamber Environment Experiments
M. A. Rhodes, J. Kane, G. Loosmore, J. Latkowski

3P-2 The High-Intensity Leopard Laser for High Energy Density Physics Research in Nevada Terawatt Facility
P. P. Wiewior, A. Covington

3P-3 Concept Design of Z-Pinch Accelerator for ICF

3P-4 Extreme State of Water Produced by Converging Strong Shock Waves Generated Using Underwater Electrical Wire Array Explosion
Y. E. Krasik, A. Fedotov-Gefen, S. Efimov, L. Gilburd, V. Gurvich, G. Bazalitsky

3P-5 Correlation Between Dd Fusion Source and X-Ray Images in Plasma Focus Device
A. Talebitaher, P. M. E. Shutler, S. V. Springham, P. Lee, R. S. Rawat

3P-6 X-Ray Radiography of the Evolution of Wire Explosion in Vacuum Using X-Pinch Radiation
X. Zhu, R. Zhang, H. Luo, X. Zou, X. Wang

3P-7 A High-Brightness Diode Laser with Kilowatt-Class Peak Output Power
Y. Xiao, M. Kanskar, D. Olson, T. Garrod, D. Kedlaya, S. H. Macomber

3P-8 Possible Way to Creation of an Effective Discharge-Pumped 13.4 nm Laser on Hydrogen-like Ions of Nitrogen
V. A. Burtsev, N. V. Kalinin
3P-9  Gas Lasers Pumped by the Generators with Inductive Energy Storage and Semiconductor Opening Switch
V. F. Tarasenko, A. N. Panchenko, A. E. Tel'minov

3P-10  Integrated Capacitor Charging Power Supply and Marx Bank with Galvanic Isolation
D. M. Johns

3P-11  Diode Particle Simulation Result Comparison with 2-D and 3-D Simulations by Using LSP and MCNP Codes
S. H. Han, S. H. Beak, S. H. Hong, J. Lee

3P-12  Extending Component Lifetime in a Repetitively Pulsed, High Power Vacuum Diode
M. C. Myers, J. Dubinger, J. L. Giuliani, F. Hegeler, A. Mangassarian, S. P. Obenschain, J. D. Sethian, W. Webster, M. F. Wolford

3P-13  Diagnostic Measurements on Explosive Emission Cathodes Operating at High Current Densities and UHV Pressures
C. F. Lynn, J. Walter, A. Neuber, M. Kristiansen

Poster Session 3P:  Applications II:  Medical, Biological, Environmental, and General

Wednesday, June 22  1:30-3:30, Regency Ballroom

Session Chair:  Jennifer Zirnheld, University of Buffalo

3P-14  A Plasma Compact Source of Low Concentration of NOx
S. Korenev

3P-15  The Properties of Millisecond Pulsed Electrical Discharge in Mixing Air and Diesel Fuel
S. Korenev, J. Love

3P-16  Pulse-Periodic Corona Discharges for Air Flow Control and Decontamination
3P-17 The Effect of the Rate of Temperature Rise on Cell Survival
S. Xiao, T. J. Camp, Y. Jing, K. H. Schoenbach

3P-18 Pulsed Discharges in Tissue
J. F. Kolb, J. Zhuang, X. Chen

3P-19 IGBT HV Pulse Generator for High Conductivity Liquid Food Treatment
M. S. Moonesan, J. F. Zhang, S. H. Jayaram

3P-20 A Study of Material Incorporation for Medaka (Oryzias lapties) Eggs by Various Voltage Pulses
S. Kono, A. Yamaguchi, T. Tanabe, N. Tominaga, H. Akiyama

3P-21 Dependence of the Type A Measurement Uncertainty on the Size of Ionization Chamber
K. Stankovic, M. Vujisic, P. Osmiokrovic

3P-22 Effect of Pulsed Electric Fields In Human Blood Cells
B. Baptista, V. Dores, T. Pinheiro, M. L. Botelho, H. Canacsinh, L. M. Redondo

3P-23 High Voltage Pulse Generator Based on TPI-Thyratrons for Pulsed Electric Field Milk Processing

3P-24 Stimulation of HeLa Cells by Intense Pulsed Ultraviolet Radiation from Z-Pinch Plasma
P. Lu, T. Watanabe, K. Mitsutake, S. Katsuki, H. Akiyama

3P-25 Optimization of Regime Parameters for Electro-Discharge Water Treatment
Y. Y. Livshiz, A. B. Izhar

3P-26 Simulation of Burst Electromagnetic Waves Inside a Human Body for Medical Applications
H. Ishizawa, M. Hashimoto, H. R. Hosseini, S. Katsuki, H. Akiyama
3P-27 Magnet Driver for Producing Ultra-High Gradient Magnetic Fields for Magnetic Resonance Imaging

3P-28 Focusing System of Burst Electromagnetic Waves for Medical Applications
M. Hashimoto, H. Ishizawa, H. Akiyama, H. Hosseine, S. Katsuki

3P-29 Development of a Cluster Burst Pulse Generator Based on a SOS Diode Switch for Bioelectronics Applications
T. Toyooka, Y. Minamitani

3P-30 The Investigation of the Proceeding Route of the Pulse Streamer Discharge in the Water Treatment by Pulsed Discharge in Air with Droplets of Water
T. Yamada, N. Tomaru, Y. Minamitani

3P-31 Detection of Neutrons Around a High-Energy Accelerator
H. Snyder, P. Berry, G. Dale, W. Myers

3P-32 Sub-Microsecond Impulsive Corona Discharges for Electrostatic Precipitation Applications
A. C. Mermigkas, I. V. Timoshkin, S. J. MacGregor, M. J. Given, M. P. Wilson, T. Wang

3P-33 Gene Analysis of HeLa Cells Subjected to Intense Burst Sinusoidal Electric Fields
M. Yano, C. Matsumoto, N. Tanaka, T. Oide, K. Abe, S. Katsuki, H. Akiyama

3P-34 Toluene Decomposition Using Nano-Seconds Pulsed Discharge
Y. Araki, D. Wang, T. Namihira, H. Akiyama

3P-35 Investigation of Outflow Conditions in Foods of Contents Inside Bacteria by Pulsed Electric Field Sterilization
K. Shinagawa, M. Kataoka, T. K. Tatsuro Kijima, Y. Takatsuka, Y. Minamitani, Y. Komatsu
3P-36  Model Study of Dielectrophoresis and Electrorotation of Biological Cells After nsPEF Induced Electroporation  
Q. Hu, O. Fadiran, W. Li, R. P. Joshi

3P-37  A Wideband Exposure System for In-Vitro Cell Study  
S. Xiao, Y. Sun, K. H. Schoenbach

3P-38  Study of Underwater Shock Wave Induced Embryonic Modification In-vivo  

3P-39  Visualization and Analysis of Underwater Shock Wave Focusing Generated by Magnetic Pulse Compression(MPC)  

3P-40  Window Effect of Tumor Cell Apoptosis with Nanosecond Pulsed Electric Field  
C. Li, C. Yao, F. Guo, Y. Mi, C. Sun, Y. Wen, J. Tang

3P-41  Treatment of Cancer Cells Using a Pulsed Power Plasma Source  
M. Thiyagarajan, L. Waldbeser, A. Whitmill

3P-42  Production of Uniform Underwater Shock Waves by Pulsed Electric Discharge  

3P-43  Gene Expression Analysis of Apoptosis Pathway in HeLa S3 Cells Subjected to Nanosecond Pulsed Electric Fields  
M. Yano, M. Yano, K. Abe, S. Katsuki, H. Akiyama

3P-44  Study of Nanosecond Pulsed Power Transmission Technique and its Application to Ozone Production  
T. Kageyama, R. Mabuchi, K. Teranishi, N. Shimomura
3P-45 Effects of Pulsed Electric Field Number on Embryonic Development of Oryzias Latipes

3P-46 Fundamental Study to Apply the Pulsed Power Technology on the Biomass Fuel Production
M. Yamanaka, A. Fujita, K. Teranishi, N. Shimomura

3P-47 Influences of Pulsed Electric Fields on the Gene Expression of Pathogenic Bacteria
Y. Manabe, R. Nakagawa, S. Zehong, M. Maetani, K. Teranishi, N. Shimomura, A. Takahashi

3P-48 Atmospheric Pulsed DBD Plasma Jet for Study on Bacterial Inactivation
J. Li, N. Sakai, M. Watanab, E. Hotta

3P-49 In Vivo Experiment of Applying Nanosecond Pulsed Electric Fields on Solid Tumor
Y. Magori, S. Ohta, T. Kageyama, K. Teranishi, N. Shimomura, Y. Uto, H. Hori

3P-50 Enhancement of Yeast Proliferation Using Pulsed Atmospheric Discharge Plasmas
S. Takeuchi, D. Obata, T. Yamamoto, S. Katsuki, H. Akiyama

3P-51 A Touchable Pulsed Air Plasma Plume Driven by DC Power Supply
X. Lu, S. Wu, Y. Pan

3P-52 Study of Proliferation of Budding Yeast Subjected to Nanosecond Pulsed Electric Fields
T. Yamano, K. Arikawa, S. Katsuki, H. Akiyama

3P-53 Improvement of Polyphenol Extraction from Grape Skin by Pulse Electric Field
K. Takaki, H. Hatayama, S. Koide, Y. Kawamura

3P-54 Improvement of Ozone Yield Using Double Loop Type Inductive Energy Storage Circuit
I. Yagi, K. Takaki, T. Go, T. Namihira
3P-55 Release of Mitochondrial Membrane Space Apoptosis-Related Proteins to Cytoplasm of SKOV3 Cells Induced by Nanosecond Pulsed Electric Fields Exposure in Vitro
Y. Mi, C. Yao, C. Li, F. Guo, Y. Wen, J. Tang

3P-56 Research on the Impact Features of a Thin-Walled Metal Tube Subjected to a Pulsed Magnetic Dynamic Load
X. Ming, H. Zhengxiang, G. Xiaohui, W. Yezhong, J. Xin

3P-57 Study of Nonlinearity Effects in Simple Circuits under Pulsed Conditions
A. T. Bowlen, R. D. Curry, S. R. Ashby, R. L. Druce

3P-58 Spectroscopic Measurements of an Atmospheric Toroidal Air Plasma

3P-59 Vapor Deposition of Thermo-Sensitive Poly(N-Isopropylacrylamide) by Atmospheric Pressure Plasma
X. L. Tang, Y. Chen, B. T. Chen, G. Qiu

3P-60 The PHELIX Liner Demonstration Experiment (PLD-1)

3P-61 Achieving High Pressure Shock Hugoniot Measurements in Cylindrical Geometry Utilizing a High-Explosive Pulsed Power Drive

3P-62 A New Magneto-Hydrodynamics Code Capability
A. M. Kaul

3P-63 Numerical Modelling of a Foil-Flyer Electromagnetic Accelerator
B. M. Novac, I. R. Smith, K. Omar, N. Graneau, M. Sinclair
3P-64  High Power Pulsed Laser Induced Breakdown Plasma at Gas-Solid Interface
M. Thiyagarajan

3P-65  Ozone Generation Using Positive- and Negative-Nano-Seconds Pulsed Discharges
N. Takamura, T. Matsumoto, D. Wang, T. Namihira, H. Akiyama

3P-66  A Traditional Analytical Tool, Modernized
A. J. Bauer

3P-67  The Decomposition of Humate Solution by Pulsed Discharge in the Bubble
F. Fukawa, K. Rokkaku, Y. Sakai, Y. Yazawa, K. Teranishi, N. Shimomura, S. Suzuki, H. Itoh

Poster Session 3P:  Pulsed Power Systems II:  Repetitive and Single Shot Systems

Wednesday, June 22  1:30-3:30, Regency Ballroom

Session Chair:  Allen Stults, Aviation and Missile Research Development and Engineering Laboratory

3P-68  Status of Genesis a 5 MA Programmable Pulsed Power Driver

3P-69  Radiographic X-Ray Pulse Jitter

3P-70  High Voltage Surge Arrestor Testing with Enhanced Transformer Drive
R. J. Adler, D. V. Price, J. Evans, D. Wastell
3P-71 A Robust Modular IGBT Power Supply for Configurable Series/Parallel Operation at High Power and Frequency
T. Ziemba, K. Miller, J. Prager, J. Carscadden

3P-72 Solid-State Marx Type Modulator for Plasma Based Ion Implantation Applications

3P-73 Solid-State Marx Generator Controlled by FPGA with Integrated Oscilloscope and Graphical User Interface
F. G. Pereira, H. Canacsinh, J. P. Mendes, P. Tavares, L. M. Redondo

3P-74 A Disk EMG System for Driving Impacting Liners to ~ 20 Km/s

3P-75 Development of a Boost Converter Topology for a High Repetition Pulsed Power Generator
A. Nami, T. Sakamoto, M. Akiyama, H. Akiyama

3P-76 A Repetitive Solid State Marx-Type Pulsed Power Generator Using Multi-Stage Switch-Capacitor Cells
T. Sakamoto, A. Nami, M. Akiyama, H. Akiyama

3P-77 Design and Evaluation of a Water Blumlein Pulse Generator
H. Heo, O. R. Choi, S. H. Nam

3P-78 Behavior of Spark Gaps in Self Breakdown Mode
H. Rahaman, B. -J. Lee, J. W. Nam, S. H. Nam

3P-79 Repetitive 300 kV Pulse Generator with Blumlein Pulse Forming Line
3P-80  A Compact High Repetition-Rate Magnetic Pulse Compression Generator
D. D. Zhang, Y. Zhou, J. Wang, T. Shao, P. Yan

3P-81  500 kV Solid-State Marx Generator for High Power Applications
H. Li, W. Xie, C. Wang, P. Jiang, Q. Tian, J. Liu, J. Yuan

Poster Session 3P:  Power Electronics

Wednesday, June 22  1:30-3:30, Regency Ballroom

Session Chair:  Michael Giesselmann, Texas Tech University

3P-82  Design and Control of an Inductive Adder for CLIC Damping Rings
J. Holma, M. M. J. Barnes, S. S. J. Ovaska

3P-83  An Isolated DC-DC Converter with High-Output-Voltage for a TWTA
T. B. Lazzarin, C. C. Motta, I. Barbi

3P-84  Gate-Drive for Solid-State Modulators with Improved Short Circuit Detection and Short Circuit Current Turn-off Capability
D. Gerber, J. Biela

3P-85  Improved Hybrid MOSFET/Driver Switching Module for Pulsed Power Applications
T. Tang, C. Burkhart

3P-86  Development of Inexpensive Electrical Probe for Wideband Voltage Measurement Up To 300 kV

3P-87  A Simple Method for Operating IGBTs in Series Connection
W. Djuriatno

3P-88  A Compact 700-kV Erected Pulse Forming Network for HPM Applications
C. Nunnally, M. B. Lara, J. R. Mayes, W. C. Nunnally, D. W. Kohlenberg
3P-89  Power Supply with Bipolar Pulsed Output Voltage and High Repetition Rate Based on a Solid-State Marx Topology
D. Tastekin, F. Blank, A. Lunk, J. Roth-Stielow

3P-90  A Comparative Investigation of IGBT and MOSFET Devices for Fast Rising Time and High Repetition Rate Pulse Generation

3P-91  Reconfigurable Compact Pulsed Power Modules
J. R. Mayes

3P-92  Recent Upgrade of the Klystron Modulator at SLAC
M. N. Nguyen, C. P. Burkhart, B. K. Lam, B. Morris

3P-93  120MW/370kV Solid State Modulator with Ultra-High Repetition Accuracy
D. Gerber, J. Biela

3P-94  An Assessment on Klystron Modulator Topologies for the ESS Project
C. A. Martins, K. Rathsman

3P-95  All Solid-State Bipolar Pulse Voltage Adder with Simple Isolation Charge Circuit and FPGA Control
D. Wang, L. Gao, L. Li, K. Liu

3P-96  200-MW Klystron-Modulator for 3-GeV PLS-II Linac
B. Park, D. S. Kim, S. S. Park, S. H. Nam, S. S. Park

3P-97  Compact Capacitor Charger Using Resonant MOSFET Inverter

3P-98  TT-MoPS Concept for Modern Modular High Current Power Supplies
M. Hohmann

3P-99  Recharge of Electrochemical Energy Storage Devices at Pulsed Elevated Rates
P. M. Novak, D. A. Wetz, B. Shrestha
3P-100 Suppressing Thermal Energy Drift in the LLNL Flash X-Ray Accelerator Using Linear Disk Resistor Stacks
B. R. Kreitzer, T. L. Houck, O. C. Luchterhand

3P-101 Klystron Modulator Technology Challenges for the Compact Linear Collider (CLIC)
D. Aguglia, C. de Almeida Martins, D. Nisbet, D. Siemaszko, E. Sklavounou, P. Viarouge

3P-102 Modeling Solid-State Marx Generator Parasitic Capacitances for Optimization Studies
H. Canacsinh, L. M. Redondo, J. F. Silva

3P-103 Voltage Quality Enhancement Using Dynamic Voltage Restorer: Voltage Sag & Simulation
O. Tasin

3P-104 Mathematical Modeling of a Solid State Pulse Power Modulator
H. P. Taskar, V. C. Chinde, H. M. Mangalvedekar, N. M. Singh

3P-105 Starting and Control of an Air-Cored High-Speed AFPM Starter / Generator
T. S. El-Hasan, M. A. Elnasser

Session 6A: Radiation Sources II: High Power Diodes

Wednesday, June 22 3:30-5:30, Conference Center 10A-B

Session Chair: Robert Commisso, Naval Research Laboratory

3:30 6A-1 An Analysis of Intense Pulsed Active Detection (IPAD) System for the Detection of Special Nuclear Materials
S. B. Swanekamp, J. P. Apruzese, R. J. Commisso, D. Mosher, J. W. Schumer
3:45  6A-2 (INVITED) High-Power, Pulsed Bremsstrahlung Source for Inducing Photo-Fission

4:15  6A-3 A Computation-Based Analysis of Photon-Induced Fission

4:30  6A-4 6-7 MeV Characteristic Gamma Source Using a Plasma Opening Switch and a Marx Bank
B. V. Weber, S. L. Jackson, D. G. Phipps, S. J. Stephanakis

4:45  6A-5 Advanced Particle-in-Cell Techniques for Pulsed Power Device and HEDP Simulation
D. R. Welch, R. E. Clark, C. Thoma, N. L. Bruner, T. C. Genoni, C. Mostrom, D. V. Rose, B. V. Oliver, M. D. Johnson, W. A. Stygar

5:00  6A-6 The Quantitative Effect of Anode Plasma on a Pinched Electron Beam from Particle in Cell Modelling of a Self Magnetic Pinch Diode
P. N. Martin, J. R. Threadgold, D. R. Welch

5:15  6A-7 High-Current Reflex Triode Research
D. P. Murphy, B. V. Weber, S. B. Swanekamp, R. J. Commisso, R. J. Allen, J. R. Goyer, J. C. Riordan

Session 6B: Power Electronics I: Power Electronics and Prime Power

Wednesday, June 22  3:30-5:30, Conference Center 10C-D
Session Chair: Ivor Smith, Loughborough University

3:30  6B-1 Discharge of Electrochemical Energy Storage Devices at Elevated Rates for Driving Pulsed Power Applications
B. Shrestha, D. A. Wetz, P. Novak
3:45  6B-2  Green Pulsed Power Achieved by Efficient Solid State Pulsed Power Technology
M. Lindholm, W. Crewson, K. Elmquist

4:00  6B-3  (INVITED) Circuit Modeling of Thermal Batteries for Pulsed Power Application
D. R. Myers, J. M. Gahl

4:30  6B-4  Unique High Energy Test Bed for Experimental Thyristors Devices
S. Lacouture, K. J. Lawson, S. B. Bayne, M. Giesselmann, H. O'Brien, C. J. Scozzie

4:45  6B-5  Enhanced MOSFET Gate Driver for IVA Based Pulsed Power Module
P. Iyengar, J. E. Fletcher, D. J. Bittlestone, S. J. Finney, M. A. Sinclair

5:00  6B-6  Modeling and Characterization of VSCF Aircraft Electric Power Systems with Nonlinear Loading
H. El-Kishky, H. Ebrahimi

5:15  6B-7  Transient Performance of Battery/Fuel Cell-Based APU on Aircraft Electric Power Systems with Nonlinear Loading
H. El-Kishky, H. Ebrahimi

Session 6C:  Pulsed Power Systems II: Electromagnetic Launch and Lasers

Wednesday, June 22  3:30-5:30, Conference Center 11A-B

Session Chairs:  Jess Neri, Naval Research Laboratory
               Frank Hegeler, Commonwealth Technologies, Inc.

3:30  6C-1  Modern Battery-Based Architectures for Applications in Lasers and Other Pulsed Power Systems
W. J. DeHope, W. J. Clark, G. F. James, G. B. McHale, B. T. Merritt, A. T. Rivera

3:45  6C-2  The ARMY’s Bounded Wave Horizontal EMP Simulator
R. Blundell
4:00 6C-3  Design and Implementation of an Advanced X-Ray Trigger Generator for EML Test Facilities
B. M. Huhman, J. M. Neri, T. R. Lockner

4:15 6C-4  (INVITED) A 40-Stage DES Plasma Arc Railgun
R. W. Karhi, D. A. Wetz, J. J. Mankowski,
M. Giesselmann, I. K. El-Dana

4:45 6C-5  Simulation and Measurement on Velocity of Flat-Plate Projectiles in a Three-Stage Reconnection Electromagnetic Launcher
X. Duan, M. Liao, J. Zou, C. Zhao, Z. Zhou

5:00 6C-6  Simulation and Experiment of a Series Augmented Electromagnetic Rail Launcher
Z. Wang

5:15 6C-7  Developmental Studies on a 1m Long Rail Gun and the Associated 20kJ Pulsed Power System
J. T. M., S. U.
Session PL4: Haas Award Winner
Roger White, L-3 Communications, Pulse Sciences
“From Coalminer’s Grandson to Peter Haas Award”

Thursday, June 23 8:00-8:50, Conference Center 12A-D

Session 7A: Pulsed Power Systems III: Repetitive and Single Shot Systems

Thursday, June 23 9:30-12:00, Conference Center 10A-B

Session Chair: Richard Ness, Ness Engineering Inc.


10:00 7A-2 Isentropic Compression Studies at the Los Alamos National High Magnetic Field Laboratory
D. G. Tasker, C. H. Mielke, G. Rodriguez, D. G. Rickel

10:15 7A-3 Cygnus Dosimetry

10:30 7A-4 Transformer-Based, Repetitive Pulsed Power Driver for a Dense Plasma Focus
C. James, B. Bures, R. E. Madden, M. Krishnan, R. Adler
10:45  7A-5  Development of Modulator Pulse Stability Measurement Device and Test Results at SLAC
       C. Huang, C. Burkhart, M. Kemp, B. Morris, T. Beukers, M. Nguyen, R. Ciprian

11:00  7A-6  SiC Super GTO Technology Development: Present Status and Future Perspective
       J. Q. Zhang, A. Agarwal, C. Capell, M. O’Loughlin, A. Burk, J. Sumakeris, J. Palmour, V. Temple,
       A. Ogunniyi, H. O'Brien, C. Scozzie

11:15  7A-7  Capacitor Bank for ITER Fast Discharge Unit
       B. E. Fridman, R. S. Enikeev, K. S. Harcheva, N. A. Kovrizhnykh, A. G. Roshal, R. A. Serebrov

11:30  7A-8  Semiconductor Switches in a Counter-Pulse Capacitor Bank
       R. S. Enikeev, B. E. Fridman, R. A. Serebrov

11:45  7A-9  Experimental Study of Repetitive LTDs Based on Solid-State Switches
       H. Liu, C. Wang, H. Li, J. Yuan, J. Liu, W. Xie

Session 7B:  Applications III: Medical, Biological, and Environmental Applications

Thursday, June 23  9:30-12:00, Conference Center 10C-D

Session Chair:  Ravi Joshi, Old Dominion University

9:30  7B-1  Single Nanosecond Pulsed Power Induced Structural Modifications of Medaka Fish Embryo

9:45  7B-2  Permeabilisation Obtained by Microsecond and Nanosecond Electric Pulses: Experimental Proofs of the Relevant Parameters
       A. Silve, R. Vezinet, L. M. Mir

10:00  7B-3  Study of Reflector Antennas for Focusing Subnanosecond Electric Pulses in Biological Tissues
       C. Bajracharya, S. Xiao, K. H. Schoenbach
10:15 7B-4 Response of HeLa Cells to Transient Thermal Shock

10:30 7B-5 Modification of Dielectric Characteristics of Cells by Intense Pulsed Electric Field
J. Zhuang, K. H. Schoenbach, J. F. Kolb

10:45 7B-6 Analysis of Subnanosecond High-Intensity, Electrical Pulsing of Biological Cells
Q. Hu, R. P. Joshi

11:00 7B-7 Influence of Gas Flow Rate and Pressure in Reactor on Ozone Production Using a Compact Pulsed Power Generator
F. Tanaka, T. Iwaishi, T. Sakugawa, H. Akiyama

11:15 7B-8 Response of Blood Sugar in Cells to Electromagnetic Radiation Exposure Using Gtem Cells
N. Boriraksantikul, S. Tantong, P. Kirawanich, J. Viator, N. Islam

11:30 7B-9 Pulsed High-Voltage Generator for Atmospheric Discharge
W. Jiang, A. Tokuchi

11:45 7B-10 A Comparison Of The Efficacy Of Pulsed UV Light And Pulsed Plasma Gas-Discharge Systems For The Novel Inactivation Of Cryptosporidium Spp. And Other Clinically Relevant Microorganisms In Drinking Water
J. C. Hayes, A. M. Fogarty, N. J. Rowan

Session 7C: Power Electronics II: Modulators and Power Supplies
Thursday, June 23 9:30-12:00, Conference Center 11A-B
Session Chair: Bucur Novac, Loughborough University

9:30 7C-1 (INVITED) A Solid State Marx Modulator with Dynamic Adjustable Output Voltage
R. L. Cassel
10:00  7C-2  "HiVoMoPS"-Klystron Modulator for Pulsed and Cw-Operation Applications
       M. Hohmann

10:15  7C-3  (INVITED) Final Design of the SLAC P2 Marx Klystron Modulator
       M. A. Kemp, A. Benwell, C. Burkhart, R. Larsen, K. Macken, D. MacNair, M. Nguyen, J. Olsen

10:45  7C-4  Rep-Rated Operation of a Modular Compact HV-Capacitor Charger
       T. T. Vollmer, M. G. Giesselmann

11:00  7C-5  MOS-FET Based Marx Generator for Application to Electron Guns
       A. Tokuchi, W. Jiang

11:15  7C-6  Pulse to Pulse Stability at Parts per Million (ppm) Level
       M. Lindholm, W. Crewson, K. Elmquist

11:30  7C-7  High Power Pulse Quality Using Solid State Technology
       M. Lindholm, W. Crewson, K. Elmquist

11:45  7C-8  A Solid State Modulator for the Portable C Band Accelerator System
       K. Gan, H. Hu, T. Li, H. Zhang
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<td>Pulsed Power Systems I: Electromagnetic Launch, Generators and Networks, and Lasers</td>
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<td>Applications; Applications II: Medical, Biological, Environmental, and General</td>
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**Abbreviation Session Name Room**

**Session Time**

**Registration**

**Poster Sessions**

**Oral Sessions**

**Companion Program**

**Lunch**

**Break**

**Breakfast**

**Exhibitor Display**

**Conference Banquet**

**Lunch**

**Break**

**Exhibitor Display**

**Welcome Reception**

**Registration Times**

**Monday 7am-5pm**

**Tuesday 8am-5pm**

**Wednesday 8am-5pm**

**Thursday 8am-5pm**

**8:00 AM - 12:00 PM**

**Plenary 1 (PL)**

**Microwaves III: High Power Microwave Devices CC 10C-D**

**Accelerators and Beams II: High Energy Accelerators, Particle Beams, and Free Electron Lasers CC 10A-B**

**Components III: Arc Discharge Switching CC 11A-B**

**Power Electronics I: Power Electronics and Prime Power CC 10C-D**

**Applications II: General Applications CC 11A-B**

**Ec pointers**
## Room Dimensions & Capacities

### Second Floor

<table>
<thead>
<tr>
<th>Room Name</th>
<th>Length x Width x Height</th>
<th>Feet</th>
<th>Banquet</th>
<th>Reception</th>
<th>Theater</th>
<th>Classroom</th>
<th>Boardroom</th>
<th>U-Shape</th>
<th>Hollow Square</th>
<th>Exhibit</th>
</tr>
</thead>
<tbody>
<tr>
<td>A &amp; B</td>
<td>103' x 58' x 20'</td>
<td>5,974</td>
<td>540</td>
<td>645</td>
<td>780</td>
<td>540</td>
<td>360</td>
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<tr>
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### Third Floor

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<th>Theater</th>
<th>Classroom</th>
<th>Boardroom</th>
<th>U-Shape</th>
<th>Hollow Square</th>
<th>Exhibit</th>
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### Diagrams

- First Floor (Lobby Level)
- Second Floor
- Third Floor
- Conference Center First Floor
- Conference Center Second Floor