

EAPPC-BEAMS 2010
FINAL PROGRAM

October 11, 2010 (Monday)
ORAL PRESENTATION

[PL1] Current Activities on Korean Accelerator Community

Date: October 11, 2010 (Monday)

Time: 09:20 – 10:00

Session Chair: Weihua Jiang (Nagaoka University of Technology, Japan)

[PL1]	09:20 - 10:00	CURRENT ACTIVITIES ON KOREAN ACCELERATOR COMMUNITY
		In Soo Ko Pohang Accelerator Laboratory POSTECH, Korea

[MoA1] Pulse Power Switch (1)

Date: October 11, 2010 (Monday)

Time: 10:20 – 11:05

Session Chair: Yun Sik Jin (KERI, Korea)

[MoA1-1]	10:20 - 10:35	Measurement of the Heat Transfer from a Spark Gap Electrode Through its Connecting Rod Florian Attmann, Martin Sack, Andreas Wolf, and Georg Miller Karlsruhe Institute of Technology, Germany
[MoA1-2]	10:35 - 10:50	TIME JITTER OF GAS-DISCHARGE CLOSING SWITCHES – A REVIEW Anders Larsson National University of Singapore, Singapore
[MoA1-3]	10:50 - 11:05	OVERVOLTED BREAKDOWN AND RECOVERY OF SHORT NITROGEN SPARK GAPS Xinjing Cai, Xiaobing Zou, Xinxin Wang, Liming Wang, Zhicheng Guan, and Weihua Jiang Tsinghua University, China

[MoB1] High-Power Microwaves 1

Date: October 11, 2010 (Monday)

Time: 10:20 – 11:30

Session Chair: John Maenchen (Sandia National Laboratories, USA)

- [MoB1-1] 10:20 - 10:45 [Invited Talk] A6 MAGNETRONS DRIVEN BY A TRANSPARENT CATHODE: RECENT RESULTS FROM EXPERIMENTS AND PIC SIMULATIONS**
Edl Schamiloglu, Mikhail Fuks, Sarita Prasad, Christopher Leach, Cedric Michel, Meiqin Liu, and Marvin Roybal
University of New Mexico, USA
- [MoB1-2] 10:45 - 11:00 AMPLIFICATION AND NONLINEAR COMPRESSION OF ULTRASHORT MICROWAVE PULSES BY QUASI-STATIONARY ELECTRON BEAMS: THEORY AND EXPERIMENT**
Michael Yalandin¹, Marat Ulmasculov¹, Konstantin Sharipov¹, Sergey Shunailov¹, Anna Reutova¹, Naum Ginzburg², and Alexander Sergeev²
¹Institute of Electrophysics RAS, Russian Federation
²Institute of Applied Physics RAS, Russian Federation
- [MoB1-3] 11:00 - 11:15 PLASMA EXPANSION AND IMPEDANCE COLLAPSE IN A FOIL-LESS DIODE FOR A KLYSTRON-LIKE RELATIVISTIC BACKWARD WAVE OSCILLATOR**
Renzhen Xiao, Jun Sun, Shaofei Huo, Xiaoze Li, Ligang Zhang, Xiaowei Zhang, and Lijun Zhang
Northwest Institute of Nuclear Technology, China
- [MoB1-4] 11:15 - 11:30 POWERFUL PLANAR GYROTRON WITH TRANSVERSE EXTRACTION OF ELECTROMAGNETIC ENERGY**
Sergeev Alexander and Zotova Irina
Institute of Applied Physics RAS, Russian Federation

[MoA2] Pulse Power Switch (2)

Date: October 11, 2010 (Monday)

Time: 13:00 – 14:15

Session Chair: Emil Spahn (ISL, France)

- [MoA2-1] 13:00 - 13:15 NEW DEVELOPMENTS OF LORENTZ DRIFT SWITCHES FOR HIGH CURRENT AND HIGH VOLTAGE APPLICATIONS**
Marcus Iberler, Karsten Esser, Benjamin Koubek, Byung-Joon Lee, Johanna Otto, Mathias Pfaff, Tim Rienecker, Joerg Wiechula, and Joachim Jacoby
Goethe University Frankfurt, Germany
- [MoA2-2] 13:15 - 13:30 CIRCUIT BREAKERS FOR MEDIUM VOLTAGE DC SHIPBOARD POWER**
Michael Kempkes, Ian Roth, Timothy Hawkey, and Marcel Gaudreau
Diversified Technologies, Inc., USA
- [MoA2-3] 13:30 - 13:45 EXPERIMENTAL AND NUMERICAL STUDY OF 6H-SIC PHOTOCONDUCTIVE SEMICONDUCTOR SWITCH**
Jianqiang Yuan¹, Hongtao Li¹, Weiping Xie¹, Hongwei Liu¹, Jinfeng Liu¹, Xinxin Wang², and Weihua Jiang²
¹Institute of Fluid Physics (CAEP), China
²Tsinghua University, China
- [MoA2-4] 13:45 - 14:00 LIFE TESTING AND DAMAGE COMPARING OF GAAS PCSSS WITH DIFFERENT ILLUMINATING FASHIONS OF TRIGGERRING LASER**
Jinfeng Liu, Hongwei Liu, Jianqiang Yuan, Yue Zhao, Chuanwei Wang, Hongtao Li, and Weiping Xie
Institute of Fluid Physics (CAEP), China
- [MoA2-5] 14:00 - 14:15 PERFORMANCE COMPARISON OF SEMI-INSULATING SIC MATERIALS FOR PHOTOCONDUCTIVE SWITCHES**
James Dickens, Cameron Hettler, Colt James, and Andreas Neuber
Texas Tech University, USA

[MoB2] Beam Source

Date: October 11, 2010 (Monday)

Time: 13:00 – 14:15

Session Chair: Jianjun Deng (Institute of Fluid Physics (CAEP), China)

- | | | |
|----------|---------------|---|
| [MoB2-1] | 13:00 - 13:15 | PLASMA COMPRESSION EFFECT IN AN ION DIODE WITH PASSIVE ANODE
Alexander Pushkarev and Yulia Isakova
Tomsk Polytechnic University, Russian Federation |
| [MoB2-2] | 13:15 - 13:30 | INJECTION CRITERIA AND ENERGY CHARACTERISTICS OF RUNAWAY ELECTRON BEAM ACCELERATED WITH A NONUNIFORM FIELD IN ATMOSPHERIC GAP
Gennady Mesyats ¹ , Valery Shpak ² , Michael Yalandin ² , Anna Reutova ² , and Sergey Shunaylov ²
¹ Lebedev Physical Institute of RAS, Russian Federation
² Institute of Electrophysics UB RAS, Russian Federation |
| [MoB2-3] | 13:30 - 13:45 | APPLICATION OF THE COAXIAL VACUUM LINE TO FORMING OF DIPLOID BREMSSTRAHLUNG BEAMS.
Dmitry Ivaschenko, Nikolay Mordasov, Alexander Chlenov, and Valentin Kamensky
Research Institute of Scientific Instruments, Russian Federation |
| [MoB2-4] | 13:45 - 14:00 | CONTRIBUTION OF THE EXPLOSIVE EMISSION CATHODE PERIPHERY ON THE OPERATION OF APLANAR ELECTRON DIODE
Yulia Isakova, Galina Kholodnaya, and Alexander Pushkarev
Tomsk Polytechnic University, Russian Federation |
| [MoB2-5] | 14:00 - 14:15 | COMPACT 350 KV TESLA BASED PULSED TRANSFORMER WITH WATERLINE FOR ELECTRON BEAM GENERATION
Pankaj Deb, Surender Sharma, Rohit Shukla, Partha Banerjee, Rashmita Das, Prabakaran T, Basant Das, Biswajit Adhikary, and Anurag Shyam
Bhabha Atomic Research Center, India |

[MoA3] Pulse Power Switch (3)

Date: October 11, 2010 (Monday)

Time: 14:35 – 15:50

Session Chair: Mark Sinclair (Hydrodynamics, UK)

- | | | |
|-----------------|----------------------|--|
| [MoA3-1] | 14:35 - 14:50 | POWER SUPPLY DEVELOPMENT OF COMPACT SIMULATOR FOR BEAM DYNAMICS STUDY
Theerawit Wiboonphon, Anucha Namprom, Toru Sasaki, Takashi Kikuchi, and Nobuhiro Harada
Nagaoka University of Technology, Japan |
| [MoA3-2] | 14:50 - 15:05 | EXPERIMENTAL COMPARISON AND STUDY ON THE PERFORMANCE OF PULSE THYRISTOR AND GATE-TURN-OFF THYRISTOR FOR PULSED POWER APPLICATIONS
Dongdong Wang, Kefu Liu, Jian Qiu, and Junfeng Rao
Fudan University, China |
| [MoA3-3] | 15:05 - 15:20 | PULSE MODULATOR USING SOLID STATE SWITCH
Eun-Yong Shim, Hyo-yol Liu, Seoung-yun Lee, Tae-won Seo, and Seung-kyo Lee
Dawonsys Co. Ltd., Korea |
| [MoA3-4] | 15:20 - 15:35 | NOVEL HIGH REPETITIVE SOLID STATE PUSLED POWER MODULATOR
S. R. Jang ¹ , H. J. Ryoo ² , and G. Goussev ² .
¹ University of Science & Technology, Korea
² Korea Electrotechnology Research Institute, Korea |
| [MoA3-5] | 15:35 - 15:50 | HIGH CURRENT, HIGH VOLTAGE SOLID STATE CLOSING SWITCH FOR PULSE MODULATORS
Adriaan Welleman, Sotirios Gekenidis, and Philip Bill
ABB Switzerland Ltd, Semiconductors, Switzerland |

[MoB3] Accelerator Technology

Date: October 11, 2010 (Monday)

Time: 14:35 – 16:00

Session Chair: Timothy Goldsack (Atomic Weapons, UK)

- [MoB3-1] 14:35 - 15:00 [Invited Talk] DEVELOPMENT OF THE PEFP 100MEV PROTON LINEAR ACCELERATOR ***
Hyeok-Jung Kwon, Yong-Sub Cho, Han-Sung Kim, Kyeong-Tae Seol, Dae-Il Kim, Ji-Ho Jang, In-Seok Hong, Young-Gi Song, Eun-Mi An, Kyung-Jean Min, Sang-Pil Yun, and Bum-Sik Park
Korea Atomic Energy Research Institute, Korea
- [MoB3-2] 15:00 - 15:15 INDUCTION ACCELERATION IN SYNCHROTRONS AND CYCLOTRONS**
Ken Takayama¹ and Weihua Jiang²
¹High Energy Accelerator Research Organization, Japan
²Nagaoka University of Technology, Japan
- [MoB3-3] 15:15 - 15:30 PULSED POWER RESEARCH AT AWE**
Mark Sinclair
Hydrodynamics, UK
- [MoB3-4] 15:30 - 15:45 SOLID STATE TRANSMITTER FOR A 2 MW KLYSTRON**
Michael Kempkes, Kenneth Schrock, Timothy Hawkey, and Marcel Gaudreau
Diversified Technologies, Inc., USA
- [MoB3-5] 15:45 - 16:00 NUMERICAL STUDY FOR ELECTRON BEAM DYNAMICS IN COMPACT SIMULATOR FOR HEAVY ION INERTIAL FUSION**
Anucha Namprom, Theerawat Wiboonphon, Toru Sasaki, Takashi Kikuchi, and Nobuhiro Harada
Nagaoka University of Technology, Japan

[PL2] R&D Status of High Current Accelerators at IFP

Date: October 12, 2010 (Tuesday)

Time: 08:30 - 09:10

Session Chair: Yun Sik Jin (KERI, Korea)

[PL2] 08:30 - 09:10 R&D STATUS OF HIGH CURRENT ACCELERATORS AT IFP
Jianjun Deng
Institute of Fluid Physics (CAEP), China

[TuA1] Pulsed Power-Repetitive Devices(1)

Date: October 12, 2010 (Tuesday)

Time: 09:10 – 10:10

Session Chair: Phil Mason (Mbda-systems, UK)

[TuA1-1] 09:10 - 09:25 SOS-BASED SOLID-STATE GENERATORS OPERATING AT PULSE REPETITION FREQUENCY UP TO 20 KHZ
Sergei Lyubutin, Maxim Pedos, Andrey Ponomarev, Sergei Rukin, Boris Slovikovsky, Sergei Tsyranov, and Pavel Vasiliev
Institute of Electrophysics Russian Academy of Sciences, Russian Federation

[TuA1-2] 09:25 - 09:40 MODULAR, ULTRA-COMPACT MARX GENERATORS FOR REPETITIVE HIGH-POWER MICROWAVE SYSTEMS
Rainer Bischoff, Jean-Pierre Duperoux, and Sylvain Pinguet
French-German Research Institute of Saint-Louis (ISL), France

[TuA1-3] 09:40 - 09:55 BEHAVIOR OF A SPARK GAP PULSER AT HIGH REPETITION RATE
J.W. Nam¹, H. Rahaman², and S.H. Nam²
¹Hankuk Academy of Foreign Studies, Korea
²Pohang Accelerator Laboratory POSTECH, Korea

[TuA1-4] 09:55 - 10:10 HIGH VOLTAGE MULTI-PULSE GENERATION BY PULSE CIRCULAR TRANSMISSION
Huang Ziping, Li Yuan, and He Jialong
IFP, China

[TuB1] Laser Accelerated Beams

Date: October 12, 2010 (Tuesday)

Time: 09:10 – 10:10

Session Chair: Carl Ekdahl (Los Alamos National Laboratory, USA)

- | | | |
|----------|---------------|--|
| [TuB1-1] | 09:10 - 09:25 | RECENT RESEARCH ACTIVITIES ON PROTON ACCELERATION DRIVEN BY ULTRASHORT ULTRAINENSE LASER SYSTEM AT APRI
I. W. Choi, K. H. Pae, I J. Kim, K. H. Nam, H. Yun, C.-L. Lee, S. K. Lee, T. J. Yu, J. H. Sung, and J. Lee
Gwangju Institute of Science and Technology, Korea |
| [TuB1-2] | 09:25 - 09:40 | RESULTS OF THE CAPILLARY PLASMA SOURCE DEVELOPMENT FOR LASER WAKEFIELD ACCELERATION
Hyyong Suk, Nasr Hafz, Min-Seok Kim, Do-Geun Jang, Dong-Gyu Jang, Seong Yong Oh, and Han Sup Uhm
Gwangju Institute of Science and Technology, Korea |
| [TuB1-3] | 09:40 - 09:55 | CONTROLLING THE POINTING ANGLE OF A RELATIVISTIC ELECTRON BEAM IN A WEAKLY-NONLINEAR LASER WAKEFIELD ACCELERATOR
Nasr Hafz
Gwangju Institute of Science and Technology, Korea |
| [TuB1-4] | 09:55 - 10:10 | LASER INDUCED ELECTRON, IONS AND FAST NEUTRONS FROM A DEUTERATED POLYSTYRENE TARGET
Sungman Lee, Sangsoon Park, and Hyungki Cha
Korea Atomic Energy Research Institute, Korea |

[TuA2] Pulsed Power-Repetitive Devices(2)

Date: October 12, 2010 (Tuesday)

Time: 10:30 – 11:40

Session Chair: Adriaan Welleman (ABB Switzerland Ltd., Semiconductors, USA)

- | | | |
|----------|---------------|--|
| [TuA2-1] | 10:30 - 10:55 | [Invited Talk] A REPETITIVE TESLA-CHARGED PFL PULSED POWER GENERATOR
Bucur Novac ¹ , Ivor Smith ¹ , and Partha Sarkar ²
¹ Loughborough University, UK
² Cardill University, UK |
| [TuA2-2] | 10:55 - 11:10 | REPETITIVE SOS-BASED GENERATOR FOR TECHNOLOGICAL APPLICATIONS
Sergei Lyubutin, Maxim Pedos, Andrey Ponomarev, Sergei Rukin, Boris Slovikovsky, Sergei Tsyanov, and Pavel Vasiliev
Institute of Electrophysics RAS, Russian Federation |
| [TuA2-3] | 11:10 - 11:25 | COMPACT LTD MODULES FOR PULSED POWER GENERATION
Weihua Jiang and Akira Tokuchi
Nagaoka University of Technology, Japan |
| [TuA2-4] | 11:25 - 11:40 | REPETITIVE COMPACT PULSED POWER GENERATOR USING IGBTs AND PULSE COMPRESSION CIRCUIT.
Takashi Sakugawa ¹ , Hidenori Akiyama ¹ , Yuta Itoh ¹ , Kanako Kouno ¹ , Keita Matsuo ¹ , Kenichi Suematsu ² , and Atsushi Kouda ²
¹ Kumanoto Univ, Japan
² Suematsu Electronics Co. Ltd., Japan |

[TuB2] High-Power Microwaves 2

Date: October 12, 2010 (Tuesday)

Time: 10:30 – 11:40

Session Chair: Phil Mason (MbdA-Systems, UK)

- [TuB2-1] 10:30 - 10:55 **[Invited Talk] RECENT ADVANCE IN LONG-PULSE HPM SOURCES WITH REPETITIVE OPERATION IN S, C AND X BAND**
Jun Zhang, Zhen-xing Jin, Jian-hua Yang, Hui-huang Zhong, Ting Shu, Jian-de Zhang, Cheng-wei Yuan, Zhi-qiang Li, Yu-wei Fan, Sheng-yue Zhou, and Liu-rong Xu
National University of Defense Technology, China
- [TuB2-2] 10:55 - 11:10 **PARTICLE-IN-CELL SIMULATIONS OF A VIRTUAL CATHODE OSCILLATOR WITH FEEDBACK MECHANISM**
Tomas Hurtig¹, Francois Bieth², Philippe Delmote², Mattias Elfsberg¹, and Sten E. Nyholm¹
¹Swedish Defence Research Agency, Sweden
²French-German Research Institute of Saint-Louis, France
- [TuB2-3] 11:10 - 11:25 **A NOVEL TECHNIQUE FOR FREQUENCY TUNING FERRITE FILLED NONLINEAR TRANSMISSION LINES**
James-William Bragg, James Dickens, and Andreas Neuber
Texas Tech University, USA
- [TuB2-4] 11:25 - 11:40 **IMPROVED METHODOLOGY FOR CALCULATION OF HIGH POWER MICROWAVE SYSTEM EFFICIENCIES**
Magne Kristiansen and John Krile
Texas Tech University, USA

[TuA3] Pulsed Power Component

Date: October 12, 2010 (Tuesday)

Time: 13:00 – 14:15

Session Chair: Xinxin Wang (Tsinghua University, China)

- [TuA3-1] 13:00 - 13:15 **THE DESIGN PROJECT OF THE PULSE GENERATOR BASED ON AN INDUCTIVE STORAGE AND A COMBINATION OF VACUUM INTERRUPTER AND PLASMA OPENING SWITCH**
Egorov Oleg
TRINITI, Russian Federation
- [TuA3-2] 13:15 - 13:30 **HIGH-VOLTAGE PULSED-POWER GENERATOR FOR DRIVING HIGH IMPEDANCE LOADS**
Bucur Novac¹, Michael Parker¹, Ivor Smith¹, Peter Senior¹, and Gerry Louverdis²
¹Loughborough University, UK
²Dstl, UK
- [TuA3-3] 13:30 - 13:45 **FLEXIBLE CONTROL OF PULSED POWER USING FPGA AND PC**
Masahiro Akiyama¹, Mamoru Suemitsu¹, Yasuhiro Ohshima², Kazunori Mitsutake¹, Takahisa Ueno³, Takashi Sakugawa¹, and Hidenori Akiyama¹
¹Kumamoto Univ., Japan
²Sojo University, Japan
³Oita National College of Technology, Japan
- [TuA3-4] 13:45 - 14:00 **1 MA-LTD STAGE**
Zhou Liangji
Institute of fluid physics (CAEP), China
- [TuA3-5] 14:00 - 14:15 **The Z PULSED POWER DRIVER SINCE REFURBISHMENT**
M. E. Savage, B. W. Atherton, M. E. Cuneo, M. C. Herrmann, M. Jones, K. R. LeChien, R. J. Leeper, G. T. Leifeste, R. W. Lemke, F. W. Long, M. R. Lopez, M. K. Matzen, G. R. McKee, A. C. Owen, J. L. Porter, B. S. Stoltzfus, K. W. Struve, W. A. Stygar, and R. D. Thomas
Sandia National Laboratories, USA

[TuB3] High-Power Microwaves 3

Date: October 12, 2010 (Tuesday)

Time: 13:00 – 14:00

Session Chair: Georg Mueller (KIT&IHM, Germany)

- | | | |
|----------|---------------|---|
| [TuB3-1] | 13:00 - 13:15 | A KLYSTRON-LIKE RELATIVISTIC BACKWARD WAVE OSCILLATOR
Renzheng Xiao, Xiaowei Zhang, Lijun Zhang, Xiaoze Li, Ligang Zhang, Wei Song, Yongmei Hu, Jun Sun, Shaofei Huo, Changhua Chen, and Qingyuan Zhang
Northwest Institute of Nuclear Technology, China |
| [TuB3-2] | 13:15 - 13:30 | A CASCADE BACKWARD-WAVE AMPLIFIER DRIVEN BY RELATIVISTIC ELECTRON BEAM
Edward Abubakirov, Andrey Denisenko, Andrey Konyushkov, Evgeny Soluyanov, and Vladimir Yastrebov
Institute of Applied Physics RAS, Russian Federation |
| [TuB3-3] | 13:30 - 13:45 | ON THE RELAXATION OF E-BEAM UNDER WEAK BEAM-PLASMA COUPLING
Eduard Rostomyan
Institute of Radiophysics and Electronics Armenian National Ac. Sci., Armenia |
| [TuB3-4] | 13:45 - 14:00 | INFLUENCE OF DISSIPATION ON WEAK BEAM-PLASMA INTERACTION
Eduard Rostomyan
Institute of Radiophysics and Electronics Armenian National Ac. Sci., Armenia |

[PS1] Poster Session

Date: October 12, 2010 (Tuesday)

Time: 14:15 – 16:15

Topics Include: 20. High Power Microwaves
30. Radiography
40. Other Related Topics
51. Pulsed Power Technology - Closing/Opening Switches
52. Pulsed Power Technology - Solid State Switches
53. Pulsed Power Technology - Repetitive Devices
54. Pulsed Power Technology - Compact Devices
55. Pulsed Power Technology – Components
56. Pulsed Power Technology - Insulation and Breakdown

- [PS1-1] 14:15 - 16:15 EXPERIMENTAL STUDIES ON A COAXIAL VIRCATOR OPERATING IN TE₁₁ MODE**
Mattias Elfsberg, Tomas Hurtig, Cecilia Möller , and Sten E Nyholm
Swedish Defence Research Agency, Sweden
- [PS1-2] 14:15 - 16:15 FAST MARX GENERATOR FOR DIRECTLY DRIVING VIRTUAL CATHODE OSCILLATOR**
Biswajeet Adhikary and Anurag Shyam
Bhabha Atomic Research Centre, India
- [PS1-3] 14:15 - 16:15 HIGH POWER MICROWAVE GENERATION FROM A REFLEX TRIODE VIRTUAL CATHODE OSCILLATOR**
Amitava Roy¹, Archana Sharma¹, Rakhee Menon¹, Sabyasachi Mitra¹, K.V. Nagesh¹, D.P. Chakravarthy¹, D Senthil Kumar², Saket Khandekar², Vijay Bhaskar Somu², Srinivas Nekkanti², Ajay Kumar Saini², Shiva Rai³, Dheeraj Kumar Singh³, and Vishnu Sharma¹
¹BARC, India
²MTRDC, DRDO, India
³LRDE, DRDO, India

- [PS1-4] 14:15 - 16:15 MICROWAVE RADIATIONS FROM AN AXIAL VIRCATOR DRIVEN BY COMPACT AND PORTABLE PULSE POWER SOURCE**
Rohit Shukla, Basanta Das, Partha Banerjee, Surender Sharma, Rashmita Das, Pankaj Deb, Prabakaran T., Biswajit Adhikary, and Anurag Shyam
Bhabha Atomic Research Centre, India
- [PS1-5] 14:15 - 16:15 NUMERICAL STUDY OF SLOW-WAVE INSTABILITIES IN OVERSIZED COAXIAL SLOW-WAVE STRUCTURE**
Kazuo Ogura¹, Shingo Abe¹, Hiroki Kimura¹, Kazumasa Yamamoto¹, Kiyoyuki Yambe¹, and M. D. Ruhul Amin²
¹Niigata University, Japan
²Rajshahi University of Engineering and Technology, Bangladesh
- [PS1-6] 14:15 - 16:15 EXPERIMENTAL STUDY ON WEAKLY RELATIVISTIC OVERSIZED BACKWARD WAVE OSCILLATOR WITH COAXIAL RECTANGULAR CORRUGATIONS**
Masatoh Takahashi¹, Kazuo Ogura¹, Hiroyuki Yoshimura¹, Hiroshi Iiduka¹, Akira Sugawara¹, Kiyoyuki Yambe¹, and Won-Sop Kim²
¹Niigata University, Japan
²Jeonnam Provincial College, Korea
- [PS1-7] 14:15 - 16:15 HORN ARRAY ANTENNA WITH SPILT WAVEGUIDE**
Sang Heun Lee¹, Jaebok Lee¹, Young Joong Yoon¹, Junyeon Kim², Jinwoo Shin², and Seulgi Park³
¹Yonsei University, Korea
²Agency for Defense Development, Korea
³LIG Nexl, Korea
- [PS1-8] 14:15 - 16:15 RAPID START OF ROBUST RADIATION HELPED BY A NON-COMPETITIVE NEIGHBOR MODE IN A GIGAWATTS-CLASS MAGNETICALLY INSULATED LINE OSCILLATOR**
Daeho Kim¹, Sunshin Jung¹, and Gun-Sik Park²
¹Korea Electrotechnology Research Institute, Korea
²Seoul National University, Korea

- [PS1-9] 14:15 - 16:15 EFFICIENCY ENHANCEMENT BY IMPROVED AXIAL POWER EXTRACTION IN A GIGAWATT-CLASS MAGNETICALLY INSULATED LINE OSCILLATOR**
Daeho Kim¹, Hoe-Chun Jung², Sun-Hong Min², Sang-Ho Shin², Moon-Jong Rhee², Gun-Sik Park², Chun-Ho Kim³, and Dong-Woo Yim³
¹Korea Electrotechnology Research Institute, Korea
²Seoul National University, Korea
³Agency of Defense Development, Korea
- [PS1-10] 14:15 - 16:15 THEORETICAL DESIGN AND PARTICLE SIMULATION OF A MODERATE ENERGY P-BAND RELATIVISTIC BACKWARD WAVE OSCILLATOR**
Liang Gao, Xingjun Ge, and Guangxing Du
National University of Defense Technology, China
- [PS1-11] 14:15 - 16:15 THE DEVELOPMENT OF HIGH EFFICIENCY CURRENT SOURCE POWER SUPPLY FOR INDUSTRIAL MAGNETRON DRIVE**
Sung Roc Jang¹, Hong Je Ryoo², Suk Ho Ahn¹, Seung Bok Ok¹, and Jong Soo Kim²
¹University of Science & Technology, Korea
²Korea Electrotechnology Research Institute, Korea
- [PS1-12] 14:15 - 16:15 HIGH-RESOLUTION X-RAY IMAGING BASED ON PIXEL-STRUCTURED CSI:TL SCINTILLATING SCREENS FOR INDIRECT X-RAY IMAGE SENSORS**
Bo Kyung Cha¹, Jong Yul Kim², Youngju Kim³, Gyuseong Cho², Dong Hoon Lee¹, Bonghoe Kim¹, Yoon Geum Hwang¹, Sungchae Jeon¹, and Young Huh¹
¹Korea Electrotechnology Research Institute, Korea
²KAIST, Korea
³NFR, Korea
- [PS1-13] 14:15 - 16:15 CHARACTERISTIC OF MICRO-PATTERN GAS DETECTOR WITH PIXEL READ-OUT FOR X-RAY IMAGING**
Dong Hoon Lee, Bonghoe Kim, Sungchae Jeon, Young Huh, Bokyung Cha, and Yoon Geum Hwang
Korea Electrotechnology Research Institute, Korea

- [PS1-14] 14:15 - 16:15 **FAULT MODES IN PULSED POWER MACHINES**
Mark Sinclair
AWE, UK
- [PS1-15] 14:15 - 16:15 **PLASMACHEMICAL SYNTHESIS OF COMPOSITE NANODISPERSED OXIDES**
Remnev Gennady, Sazonov Roman, Ponomarev Denis, Kholodnaya Galina, and Razumeyko Olga
Tomsk Polytechnic University, Russian Federation
- [PS1-16] 14:15 - 16:15 **PLASMA CHEMICAL SYNTHESIS OF A NANODISPERSE TITANIUM DIOXIDE UNDER THE INFLUENCE OF A PULSED ELECTRON BEAM**
Remnev Gennady, Sazonov Roman, Ponomarev Denis, Kholodnaya Galina, and Kochkorov Bolotbek
Tomsk Polytechnic University, Russian Federation
- [PS1-17] 14:15 - 16:15 **MEASUREMENT OF ELECTRON ENERGY DURING PULSED DISCHARGE IN ATMOSPHERIC GAS**
Sho Okada, Douyan Wang, Takao Namihira, Sunao Katsuki, and Hidenori Akiyama
Kumamoto University, Japan
- [PS1-18] 14:15 - 16:15 **3D PIC METHOD FOR MODELING AND SIMULATING THE BEAM TRANSPORT SYSTEM OF LINEAR INDUCTION ACCELERATOR**
Chang-hong Yang¹, Lin Meng¹, Kai-zhi Zhang², Da-gang Liu¹, Shu-qing Liao², and Zhi-yong Dai²
¹University of Electronic Science and Technology of China, China
²Institute of Fluid Physics (CAEP), China
- [PS1-19] 14:15 - 16:15 **PRIMARY ANALYSIS OF SWITCHES TRIGGER BASED ON THE SECONDARY INDUCED VOLTAGE OF LTD**
Fengju Sun¹, Peng Liu², Aici Qiu², Jiahui Yin¹, Tianxue Liang¹, Xiaofeng Jiang¹, and Zhigang Liu¹
¹the Northwest Institute of Nuclear Technology, China
²Xi'an Jiaotong University, China

- [PS1-20] 14:15 - 16:15 **SPECTRAL DIAGNOSIS OF ACETONE SPECIES IN ARGON PLASMA JET WITH INTERMEDIATE FREQUENCY AT ATMOSPHERIC PRESSURE**
Xiaoliang Tang, Baotong Chen, Manli Cheng, Xiaoli Chen, and Gao Qiu
Donghua University, China
- [PS1-21] 14:15 - 16:15 **THE PERFORMANCE OF MULTIGAP GAS SWITCH FOR FAST LTD DEPENDING ON THE ISOLATION BETWEEN THE SWITCH AND TRIGGER PULSE GENERATOR**
Xiaofeng Jiang¹, Fengju Sun¹, Tianxue Liang¹, Jiahui Yin¹, Zhigang Liu¹, Xuandong Liu², Peng Liu², Zhiguo Wang¹, and Hao Wei¹
¹Northwest Insitute of Nuclear Technology, China
²Xi'an Jiaotong University, China
- [PS1-22] 14:15 - 16:15 **ANALYSIS OF A SPARK GAP DESIGN FOR HIGH VOLTAGE PULSE GENERATOR**
H. Rahaman, H. Hoon, S.S. Park, and S.H. Nam
Pohang Accelerator Laboratory POSTECH, Korea
- [PS1-23] 14:15 - 16:15 **STUDY OF REPETITION-RATE LASER TRIGGERED GAS SWITCH**
Zhang Yonghui, Luo Min, Tan Jie, and Gong Shenggang
Institute of Applied Electronics (CAEP), China
- [PS1-24] 14:15 - 16:15 **PHYSICAL AND EXPERIMENT STUDY ON SEMICONDUCTOR OPENING SWITCHES AT LOWER CURRENT DENSITY PUMPING**
Zhenjie Ding
NINT, China
- [PS1-25] 14:15 - 16:15 **DEVELOPMENT OF HIGH VOLTAGE SUB NANOSECOND GAS SWITCH**
Sheng-guang Cao, Da Li, Shu Li, and Jian-chun Wen
National University of Defense Technology, China
- [PS1-26] 14:15 - 16:15 **CHARACTERISTICS OF HIGH CURRENT SWITCHING OF SHAPED CHARGE CLOSING SWITCHES**
Eun Soo Lee and So Young Song
Agency for Defense Development, Korea

- [PS1-27] 14:15 - 16:15 **ARC EXTINGUISHING CHARACTERISTICS BY SELF-GENERATION MAGNETIC FIELD ON TRIGGERED VACUUM GAP WITH DUAL TRIGGER ELECTRODES**
Hikaru Kobayashi, Akira Sugawara, Yasuyoshi Ono, Ryota Kobayashi, Kiyoyuki Yambe, and Kazuo Ogura
Niigata University, Japan
- [PS1-28] 14:15 - 16:15 **EXAMINATION OF OPENING SWITCH USING RELAY WITH SELF-CURRENT-DETECTION FEATURE**
Genki Sugai¹, Akira Sugawara¹, Teppei Sato¹, Kenji Tanabe², and Masami Takada²
¹Niigata University, Japan
²Daito Communiation Apparatus Co. Ltd., Japan
- [PS1-29] 14:15 - 16:15 **REP-RATE OPERATION OF MULTI GAP GAS SWITCH FOR FAST LINEAR TRANSFORMER DRIVER**
Xuandong Liu
Xi'an Jiaotong University, China
- [PS1-31] 14:15 - 16:15 **DYNAMIC ANALYSIS OF FAST ELECTRODYNAMIC (THOMPSON) DRIVE MECHANISM**
Peyman Dordizadeh-Basirabad, Pedram Gharghabi, and Kaveh Niayesh
University of Tehran, Iran
- [PS1-32] 14:15 - 16:15 **RESEARCH ON THE WORKING GAS PRESSURE OF SPARK GAP SWITCH IN HIGH POWER LASER SYSTEM**
Lee Li, Han Zeng, Gang Liu, Li Cai, Ning Liu, Guan Hu, and Fuchang Lin
Huazhong University of Science and Technology, China
- [PS1-33] 14:15 - 16:15 **EXPERIMENTAL RESEARCH ON SILVER WIRES FUSE OPENING SWITCH DRIVEN BY DYNAMIC TRANSFORMER TYPE MAGNETOCUMULATIVE GENERATOR FOR HIGH VOLTAGE PULSE GENERATION**
Cheonho Kim, Jeonghyeon Kuk, and Jaimin Lee
Agency for Defense Development, Korea
- [PS1-34] 14:15 - 16:15 **PORTABLE SPARK GAP PULSER WITH MONOPOLAR OR BIPOLAR WAVEFORMS**
Wonho Kim¹ and SeungKab Ryu²
¹HVP Co. Ltd., Korea
²ETRI, Korea

- [PS1-35] 14:15 - 16:15 **CALCULATIONS AND TESTS OF INSTANTANEOUS JUNCTION TEMPERATURE OF HIGH POWER THYRISTORS**
Wanxin Lu, Ling Dai, Wenting Li, Qin Zhang, Hanbin Dong, Jing Nan, and Fuchang Lin
Huazhong University of Science and Technology, China
- [PS1-37] 14:15 - 16:15 **Overview of the Korea Electrotechnology Research Institute's Solid State Pulsed Power Modulator**
H.J Ryoo¹, S.R Jang², S.H Ahn², and G.H Rim¹
¹Korea Electrotechnology Research Institute, Korea
²UST, Korea
- [PS1-38] 14:15 - 16:15 **DIGITALIZED SUB-NANOSECOND FULL SOLID STATE PULSER**
Wonho Kim¹ and SeungKab Ryu²
¹HVP Co. Ltd., Korea
²ETRI, Korea
- [PS1-39] 14:15 - 16:15 **TEST OF PFN MARX PULSE GENERATOR FOR RKA**
SoungSoo Park¹, Hoon Heo¹, SangHee Kim¹, SungChel Kim¹, SeungHwan Kim¹, YongJung Park¹, ManSu Hong¹, SangHoon Namv, Hasibur Rahaman², JunHo So³, JinWoo Shin³, Woon Jang³, and ChangSik Kim⁴
¹Pohang Accelerator Laboratory, POSTECH, Korea
²Pohang Accelerator Laboratory, India
³Agency for Defence Development, Korea
⁴Airwins Company, Korea
- [PS1-40] 14:15 - 16:15 **TEST OF MODULATOR FOR PLS-II LINAC**
SoungSoo Park¹, SangHee Kim¹, SeJin Kwon¹, Kyungryul Kim¹, Chongdo Park¹, KyungTea Lee², and DongHwan Kim²
¹Pohang Accelerator Laboratory, POSTECH, Korea
²M&K Company, Korea
- [PS1-41] 14:15 - 16:15 **1.2MV PULSED POWER TRANSFORMER ELECTRIC-FIELD DISTRIBUTION EXPERIMENTAL RESEARCH**
Chenggang Ma, Min Xie, and Yawei Li
Institute of Fluid Physics (CAEP), China
- [PS1-42] 14:15 - 16:15 **THE PRACTICAL APPLICATION OF MAGNETIC PULSE COMPRESSORS (MPC)**
Jaegu Choi
Korea Electrotechnology Research Institute, Korea

- [PS1-43] 14:15 - 16:15 **4-STAGE COMPACT REPETITIVE LTD SYSTEM**
Jie Tan, Min Luo, and Fei Xiang
the Institute of Applied Electronics, China
- [PS1-44] 14:15 - 16:15 **DESIGN OF 100KV AND 2KHZ REPETITION-RATE HIGH-VOLTAGE PULSED POWER SUPPLY**
Ding Ming-Jun, Jia Xing, Wang Hao, and Huang Lei
China Academy of Engineering Physics, China
- [PS1-45] 14:15 - 16:15 **COMPACT HIGH-CURRENT E-BEAM DIODE**
Anna Reutova, Valery Shpak, Sergey Shunaylov, and Michael Yalandin
Institute of Electrophysics UD RAS, Russian Federation
- [PS1-46] 14:15 - 16:15 **A 150KV-10A MARX GENERATOR BASED ON SOLID-STATE SWITCHES**
Jian Qiu, Kefu Liu, and Yu Lei
Fudan University, China
- [PS1-47] 14:15 - 16:15 **AN AUTONOMOUS, VERY COMPACT PULSED POWER DEVICE BASED ON A SYNCHRONIZED SPARK GAPS ARRANGEMENT AND AN INNOVATING RESONANT TRANSFORMER**
Romain Pecquois¹, Laurent Pecastaing², Marc Rivaletto², Antoine De Ferron², Pascal Pignolet², Laurent Caramelle¹, Jean-Marc Duband¹, and René Vézinet³
¹Hi Pulse, France
²LGE Pau, France
³CEA Gramat, France
- [PS1-48] 14:15 - 16:15 **A NEW TYPE OF BIPOLAR PULSE GENERATOR**
Jin-liang Liu, Xin-bing Cheng, Jia-huai Feng, and Jian-de Zhang
National University of Defense Technology, China
- [PS1-49] 14:15 - 16:15 **RESULTS OF COMPACT HIGH VOLTAGE PULSE TRANSFORMER MADE USING A CAPACITOR BANK ASSEMBLED IN THE SHAPE OF PRIMARY**
Rohit Shukla, Partha Bannerjee, Surender Sharma, Rashmita Das, Pankaj Deb, Prabakaran T., Basanta Das, Biswajit Adhikary, and Anurag Shyam
Bhabha Atomic Research Centre, India

- [PS1-50] 14:15 - 16:15 A STUDY OF THE EFFECT OF RESIDUAL GAS PRESSURE ON PRODUCTION OF MICROWAVE IN VIRTUAL CATHODE OSCILLATOR**
 Basanta Das, Rohit Shukla, Partha Banerjee, Surender Sharma, Rashmita Das, Pankaj Deb, Prabhakaran T., Biswajit Adhikary, and Anurag Shyam
 Bhabha Atomic Research Centre, India
- [PS1-51] 14:15 - 16:15 DEVELOPMENT OF 150 KJ COMPACT PULSED POWER SYSTEM FOR ETC ACCELERATOR**
 Byung Ha Lee, Seong Ho Kim, Young Hyun Lee, Kyung Seong Yang, and Jin Sung Kim
 Agency for Defense Development, Korea
- [PS1-52] 14:15 - 16:15 A SHOCK WAVE DRIVEN PULSED POWER SUPPLIES, UTILIZING MATERIALS WITH CONDUCTIVITY TRANSITION.**
 David Hemmert¹, Stanislav Kolosenok², Vladimir Soukhomlinov², and Yurii Tolmachev²
¹Hem Technologies, USA
²SPbSU, Russian Federation
- [PS1-53] 14:15 - 16:15 GENERATOR OF NANOSECOND PULSES BASED ON INDUCTIVE STORAGE OF SOLID CONDUCTOR.**
 Egorov Oleg
 TRINITY, Russian Federation
- [PS1-54] 14:15 - 16:15 VULNERABILITY TEST WITH 2.4NS RISE TIME, 300KV, ~500MW COMPACT COAXIAL MARX GENERATOR**
 Prabhakaran T, Rohit Shukla, Partha Banerjee, Surender sharma, Rashmita Das, Pankaj Deb, Basanta Das, Biswajit Adhikary, and Anurag Shyam
 Bhabha Atomic Reseach Centre, India
- [PS1-55] 14:15 - 16:15 RESPONSE SURFACE METHODOLOGY APPLICATION FOR OPTIMAL SHAPE DESIGN OF ARC SHIELD IN VACUUM INTERRUPTER AS COMPACT CIRCUIT BREAKER OF PULSE GENERATION DEVICE**
 Chi-Wuk Gu¹, Hui-Dong Hwang², Heung-Jin Ju², Seung-Kil Choi³, and Kwang-Cheol Ko²
¹VITZROTECH Co. Ltd., Korea
²Hanyang University, Korea
³Ansan College of Technology, Korea

- [PS1-56] 14:15 - 16:15 PORTABLE 100KV-CLASS NANOSECOND PULSE GENERATOR USING LC RESONANCE**
Young-Kyung Jeong¹, Moon-Que Lee¹, and Dong-Gi Youn²
¹Seoul National University, Korea
²EMGUARD Co. Ltd., Korea
- [PS1-57] 14:15 - 16:15 AUTONOMOUS, REPETITIVE AND COMPACT MARX WITH ITS OWN INTEGRATED PULSE FORMING LINE**
Laurent Pecastaing¹, Marc Rivaletto¹, Antoine De Ferron¹, Baptiste Cadilhon², Bruno Cassany², Patrick Modin², and Michel Teboul³
¹LGE, France
²CEA CESTA, France
³TECHNIX, France
- [PS1-60] 14:15 - 16:15 STUDY OF A MAGNETIC SWITCH FOR SG-III ENERGY MODULE**
Liu Yi, Lin Fuchang, Li Li, Hu Guan, and Liu Gang
HuaZhong University of Science and Technology, China
- [PS1-61] 14:15 - 16:15 DESIGN AND MODELING OF CAPACITOR BANK POWER SUPPLY FOR ITS FAST CHARGING**
Surender Sharma, Pankaj Deb, Rohit Shukla, Partha Banerjee, Prabaharan T, Rashmita Das, Basant Das, Biswajit Adhikary, and Anurag Shyam
Bhabha Atomic Research Center, India
- [PS1-62] 14:15 - 16:15 10KJ/S,100KV CAPACITOR CHARGING POWER SUPPLY USING FULL -BRIDGE PARALLEL-RESONANT INVERTER**
Ren Qingyi, Wan Guiji, and Feng Zhongmin
Institute of Fluid Physics (CAEP), China

October 13, 2010 (Wednesday)
ORAL PRESENTATIONS

**[PL3] Big Pressure – Small Error Bars: The Challenge to
High-Energy Density**

Date: October 13, 2010 (Wednesday)

Time: 08:30 - 09:10

Session Chair: Markus Loeffler (International Society on Pulsed Power Applications e.V.,
Germany)

[PL3]	08:30 - 09:10	BIG PRESSURE – SMALL ERROR BARS: THE CHALLENGE TO HIGH-ENERGY DENSITY SCIENCES
		Christopher Deeney U.S. Department of Energy, USA

[WeA1] Pulsed Power-Insulation and Breakdown

Date: October 13, 2010 (Wednesday)

Time: 09:10 – 10:20

Session Chair: Koichi Takaki (Iwate University, Japan)

- | | | |
|-----------------|----------------------|---|
| [WeA1-1] | 09:10 - 09:35 | [Invited talk] PULSED POWER AND PULSED BEAM DEVELOPMENT IN INDIA – AN UPDATE
Anurag Shyam
Bhabha Atomic Research Centre, India |
| [WeA1-2] | 09:35 - 09:50 | THE INFLUENCE OF INTER-LAYER PRESSURE ON PERFORMANCE OF HIGH ENERGY DENSITY METALLIZED FILM CAPACITOR
Li Hua, Chen Yaohong, Peng Bo, Lv Fei, Zhang Miao, and Lin Fuchang
Huazhong University of Science and Technology, China |
| [WeA1-3] | 09:50 - 10:05 | ON PULSED HIGH-VOLTAGE INSULATION DESIGN
M. Markovits, E. Hillel, C. Leibovitz, I. Navon, and J. G. Leopold
Department of Applied Physics, Rafael Laboratories, Israel |
| [WeA1-4] | 10:05 - 10:20 | FABRICATION AND OPERATION TESTING OF A DUAL RESONANCE PULSE TRANSFORMER FOR PFL PULSE CHARGING
SooWon Lim ¹ , ChuHyun Cho ² , HongJe Ryoo ² , JongSoo Kim ² ,
GeunHie Rim ² , and YunSik Jin ²
¹ University of Science and Technology, Korea
² Korea Electrotechnology Research Institute, Korea |

[WeB1] EMP

Date: October 13, 2010 (Wednesday)

Time: 09:10 – 10:20

Session Chair: Roger white (L-3 Communications, USA)

- [WeB1-1] 09:10 - 09:35 [Invited Talk] ANALYTICAL INVESTIGATION OF ELECTRICAL BREAKDOWN PROPERTIES IN A NITROGEN-SF6 MIXTURE GAS**
Han S. Uhm¹, Yong S. Byeon¹, Ki B. Song¹, Eun H. Choi¹, Han-Yong Ryu², and Jaimin Lee²
¹Kwangwoon University, Korea
²Agency for Defense Development, Korea
- [WeB1-2] 09:35 - 09:50 ANALYSIS AND DESIGN OF SWITCHED LOW-IMPEDANCE TRANSMISSION LINE OSCILLATORS FOR HIGH POWER WIDEBAND PULSE RADIATORS**
Ji Heon Ryu, Dong Woo Yim, and Jaimin Lee
Agency for Defense Development, Korea
- [WeB1-3] 09:50 - 10:05 IMPACT OF METAL THICKNESS AND FIELD-SHAPER ON THE TIME-VARIANT PROCESSES DURING IMPULSE ELECTROMAGNETIC FORMING IN TUBULAR GEOMETRIES**
Pedram Gharghabi, Peyman Dordizade-Basirabad, and Kaveh Niayesh
University of Tehran, Iran
- [WeB1-4] 10:05 - 10:20 MEASUREMENT OF EXTREME ULTRAVIOLET (EUV) INTENSITY OF COAXIAL FOCUSED PLASMA IN ACCORDANCE WITH THE PRESSURE OF ARGON AND NE-XE(30%) FOR EUV LIGHT SOURCE**
Sunghee Lee, Youngjune Hong, and Eunha Choi
Kwangwoon University, Korea

[WeA2] EM Launcher

Date: October 13, 2010 (Wednesday)

Time: 10:40 – 11:35

Session Chair: Eun Ha Choi (Kwangwoon University, Korea)

- | | | |
|----------|---------------|---|
| [WeA2-1] | 10:40 - 11:05 | [Invited Talk] EUROPEAN LABORATORY FOR PULSED POWER RESEARCH (EPPL)
Emil Spahn ¹ , Markus Loeffler ² , and Saulius Balevicius ³
¹ ISL, France
² FHGE, Germany
³ SPI, Lithuania |
| [WeA2-2] | 11:05 - 11:20 | EXPERIMENTAL INVESTIGATION OF ENERGY LOSSES IN REVERSE SWITCHING DYNISTORS
Haiyang Wang
Northwest Institute of Nuclear Technology, China |
| [WeA2-3] | 11:20 - 11:35 | DESIGN AND OPERATION OF THE COMPACT 600KJ PULSE FORMING NETWORK FOR ELECTROMAGNETIC LAUNCH
Li Wenting, Zhang Qin, Dai Lin, Lin Fuchang, Lu Wanxin, Dong Hanbin, Nan Jing, and Wang Yanzhao
Huazhong University of Science and Technology, China |

[WeB2] Beam Transport and Interaction

Date: October 13, 2010 (Wednesday)

Time: 10:40 – 11:50

Session Chair: Edl Shamilioglu (University of New Mexico, USA)

- | | | |
|-----------------|----------------------|--|
| [WeB2-1] | 10:40 - 11:05 | [Invited Talk] EXTREME STATES OF MATTER IN LASER AND PARTICLE BEAMS
Vladimir Fortov
Joint Institute for High Temperature, Russian Federation |
| [WeB2-2] | 11:05 - 11:20 | PRELIMINARY STUDY OF BEAM PARAMETER REQUIREMENTS FOR A PROTON DIELECTRIC WALL CANCER THERAPY ACCELERATOR*
Yu-Jiuan Chen
Lawrence Livermore National Laboratory, USA |
| [WeB2-3] | 11:02 - 11:35 | BEAM DYNAMICS IN A LONG-PULSE LINEAR INDUCTION ACCELERATOR
Carl Ekdahl
Los Alamos National Laboratory, USA |
| [WeB2-4] | 11:35 - 11:50 | SURFACE WAVE DRIVEN PLASMA MONOPOLE ANTENNA PARAMETERS
F. Sadeghi-Kia ¹ , F. Hodjat-Kashani ¹ , J. Rashed-Mohassel ² , and J. Ghayoomeh ¹
¹ Iran University of Science and Technology, Iran
² University of Tehran, Iran |

[WeC2] EMP Meeting (Classified)

Date: October 13, 2010 (Wednesday)

Time: 10:40 – 11:50

Session Chair: Yeon-Choon Chung (Seokyeong University, Korea)

- | | | |
|-----------------|----------------------|---|
| [WeC2-1] | 10:40 - 11:05 | INVESTIGATIONS ON THE COMMERCIAL AND MILITARY EMP STANDARDS AND THEIR TEST REQUIREMENTS
Yeon-Choon Chung
Seokyeong University, Korea |
| [WeC2-2] | 11:05 - 11:20 | COUPLING AND INTERACTION OF HIGH-POWER ELECTROMAGNETIC (HPEM) RADIATION
Kwang-Uk Chu and Kyoung-Hoon Lee
The Attached Institute of ETRI, Korea |
| [WeC2-3] | 11:02 - 11:35 | ELECTROMAGNETIC MODELING OF HIGH POWER MICROWAVE COUPLING MECHANISM INTO LARGE STRUCTURES (REVIEW)
Jong-Gwan Yook ¹ and Jae W. Lee ²
¹ Yonsei University, Korea
² Korea Aerospace University, Korea |
| [WeC2-4] | 11:35 - 11:50 | PRESENT DAY CHALLENGES IN UNDERSTANDING THE E3 COMPONENT OF NUCLEAR EMP AND THE GEOMAGNETIC SOLAR STORM TO NATIONAL INFRASTRUCTURE
Byeong-Kwon Park
Daelim University College, Korea |

[WeA3] Z-pinch, Imploding Liners

Date: October 13, 2010 (Wednesday)

Time: 13:10 – 14:40

Session Chair: J. H. Cho (KERI, Korea)

- | | | |
|----------|---------------|---|
| [WeA3-1] | 13:10 - 13:25 | WALL CONFINEMENT TECHNIQUE BY MAGNETIC GRADIENT INVERSION.
Jean-Pierre Petit and Jean-Christophe Dore
Lambda Laboratory, France |
| [WeA3-2] | 13:25 - 13:40 | TRANSMISSION EFFICIENCY OF AN ELECTROMAGNETIC PULSE IN THE VACUUM CONCENTRATOR OF ANGARA-5-1 INSTALLATION
Alexander Gribov, Vladimir Alexandrov, Evgeny Grabovski, Georgy Oleinik, and Alexander Samokhin
SRC RF TRINITY, Russian Federation |
| [WeA3-3] | 13:40 - 13:55 | DEVELOPMENT OF THE PROTOTYPE MODULE OF THE 6MV/10MA Z-PINCH PRIMARY TEST STAND
Hongtao Li, Jianjun Deng, Shuping Feng, and Weiping Xie
Institute of Fluid Physics (CAEP), China |
| [WeA3-4] | 13:55 - 14:10 | DISTRIBUTION OF CONDUCTING AND NONCONDUCTING MATTER IN THE DISCHARGE CHANNEL UPON WIRE EXPLOSION
Svetlana Tkachenko ¹ , Vladimir Gasilov ² , Talat Khattatov ¹ , Aleksandr Krukovskiy ² , Albert Mingaleev ³ , Olga Olhovskaya ² , Sergey Pikuz ³ , Vera Romanova ³ , and Tatiana Shelkovenko ³
¹ Moscow Institute of Physics and Technology, Russian Federation
² Keldysh Institute of Applied Mathematics RAS, Russian Federation
³ Lebedev Physical Institute RAS, Russian Federation |

- [WeA3-5] 14:10 - 14:25 IMPLOSION OF CONICAL AND QUASI-SPHERICAL WIRE LINERS AT THE ANGARA-5-1 FACILITY**
Grabovski Eugene¹, Smirnov Valentine¹, Aleksandrov Vladimir¹, Fedulov Mike¹, Frolov Igor¹, Gribov Alexander¹, Gritsouk Arkady¹, Laukhin Yan¹, Medovshikov Stanislav¹, Mitrofanov Konstantin¹, Oleinik Georgy¹, Samokhin Alexander¹, Volkov Georgy¹, Zaitsev Vladimir¹, Sasorov Pavel², Gasilov Vladimir³, S.V. D. Yachenko Sergey³, and olkhovskaya Olga³
¹SRC RF TRINITI, Russian Federation
²ITEP, Russian Federation
³IMM RAS, Russian Federation
- [WeA3-6] 14:25 - 14:40 A TIME-RESOLVED SPECTROSCOPIC DIAGNOSTIC FOR IMPLODING WIRE ARRAY**
Yury Kalinin¹, Sergey Anan'ev¹, Sergey Dan'ko¹, Ye Fan², Yi Qin², Shuqing Jiang², Feibiao Xue², Zhenghong Li², Jianlun Yang², and Rongkun Xu²
¹Russian Research Center Kurchatov Institute, Russian Federation
²Institute of Nuclear Physics and Chemistry, China

[WeB3] Diagnostics and Applications

Date: October 13, 2010 (Wednesday)

Time: 13:10 – 14:10

Session Chair: Laurent Veron (CEA, France)

- [WeB3-1] 13:10 - 13:25 EXPERIMENTS OF THE TIME-RESOLVED BEAM ENERGY SPECTRUM MEASUREMENT FOR DRAGON-I**
Shuqing Liao¹, Xiaoguo Jiang^v, Nan Chen¹, Kaizhi Zhang¹, Jingshui Shi¹, and Yuzheng Lin²
¹IFP (CAEP), China
²Tsinghua University, China
- [WeB3-2] 13:25 - 13:40 INVESTIGATIONS OF LASER RADIATION DYNAMICS IN SEMICONDUCTORS DUE TO PICOSECOND ELECTRON BEAMS AND ELECTRIC FIELD PULSES**
Anna Reutova¹, Sergey Shunaylov¹, Michael Yalandin¹, Maksim Bochkarev¹, Konstantin Berezhnoy², and Alexander Nasibov²
¹Institute of Electrophysics UB RAS, Russian Federation
²Lebedev physical Institute RAS, Russian Federation
- [WeB3-3] 13:40 - 13:55 INTENSE PULSED ELECTRON BEAM: APPLICATION TO MATERIAL STUDY**
Luc Voisin¹, Béatrice Birel¹, Thierry Desanlis¹, Alain Galtie¹, David Hebert¹, Jean Pierre Lasserre¹, Yann Loreau¹, Alexandre Serrand¹, Christian Noel², and Olivier Pierret²
¹CEA CESTA, France
²CEA DIF, France
- [WeB3-4] 13:55 - 14:10 DIAGNOSTIC EQUIPMENT OF A TEMP-4M GENERATOR OF HIGH CURRENT PULSED ION BEAMS**
Yulia Isakova
Tomsk Polytechnic University, Russian Federation

[PS2] Poster Session 2

Date: October 13, 2010 (Wednesday)

Time: 14:40 – 16:40

Topics include:

11. Applications - Environmental
12. Applications - Medical
13. Applications - Biological
14. Applications - Industrial
16. Applications - EM Launchers
17. Applications - Z-pinch and Imploding Liners
18. Applications - Soft/hard X-Ray
19. Applications - Lasers
61. Particle Beam Technology - Beam Sources
63. Particle Beam Technology - Interaction with Matter
64. Particle Beam Technology - High Power electron and Ion Beams Physics
65. Particle Beam Technology - Accelerator Technology
66. Particle Beam Technology - Applications of Particle Beams
67. Particle Beam Technology - Diagnostics and Experimental Equipment
68. Particle Beam Technology - Theory and Simulations
69. Particle Beam Technology - Beams from Lasers
70. Electromagnetic Pulse

- [PS2-1] 14:40 - 16:40 LONG GAP DISCHARGE IN WATER**
Y. S. Jin¹, J. H. Cho¹, H. J. Ryoov, J. S. Kim¹, G. H. Rim¹, and S. W. Lim²
¹Korea Electrotechnology Research Institute, Korea
²UST, Korea
- [PS2-2] 14:40 - 16:40 DEGRADATION OF RHODANMINE-B BY HIGH-VOLTAGE PULSED DIELECTRIC BARRIER DISCHARGE IN WATER-GAS MEDIUM**
Haiyan Zhao, Kefu Liu, Jian Qiu, and Jian He
Fudan University, China

- [PS2-3] 14:40 - 16:40 **IMPROVEMENT OF ENERGY TRANSFER EFFICIENCY DURING OZONE PRODUCTION USING NANO-SECONDS PULSED DISCHARGE**
Araki Yoshitaka, Mastumoto Takao, Wang Douyan, Namihira Takao, and Akiyama Hidenori
Kumamoto University, Japan
- [PS2-4] 14:40 - 16:40 **INFLUENCE OF FEEDING GAS HUMIDITY IN NANO-SECONDS PULSED DISCHARGE BASED OZONIZER**
Tomoyuki Hirota, Takao Matsumoto, Douyan Wang, Takao Namihira, and Hidenori Akiyama
Kumamoto Univ., Japan
- [PS2-5] 14:40 - 16:40 **A STUDY OF THE EFFECT OF SALINITY ON PULSED ARC DISCHARGE IN WATER**
Seok-geun Lee, Sooseok Choi, Kyoung-Jae Chung, and Y. S. Hwang
Seoul National University, Korea
- [PS2-6] 14:40 - 16:40 **INFLUENCE OF GAS COMPOSITIONS ON NO REMOVAL USING NANO-SECONDS PULSED DISCHARGE**
Yuusuke Shimasaki, Takao Matsumoto, Douyan Wang, Takao Namihira, and Hidenori Akiyama
Kumamoto Univ., Japan
- [PS2-7] 14:40 - 16:40 **STUDY OF THE PLASMA EFFICIENCY OF DIELECTRIC BARRIER DISCHARGES BY VARIATION OF ELECTRICAL PULSE SHAPE**
Batu Klump, Christian Hock, Marcus Iberler, Byung-Joon Lee, Benjamin Koubek, Andreas Schoenlein, and Joachim Jacoby
Goethe University Frankfurt, Germany
- [PS2-8] 14:40 - 16:40 **STERILIZATION OF ESCHERICHIA COLI BASED ON ND:YAG RESONATOR WITH A PULSED XENON FLASHLAMP**
Dong-Gil Lee, Chang-Doo Park, Kyoung-Hoon Lee, Gun-Ho Lee, and Hee-Je Kim
Pusan National University, Korea

- [PS2-9] 14:40 - 16:40 **DECOMPOSITION OF SULFUR HEXAFLUORIDE BY USING NONTHERMAL PLASMA-ASSISTED CATALYTIC PROCESS**
Dong-Hong Kim and Young Sun Mok
Jeju National University, Korea
- [PS2-10] 14:40 - 16:40 **PRODUCING BIOACTIVE COATINGS ON STEEL AND TI SUBSTRATES FROM ABLATION PLASMA**
Saltymakov Maxim¹, Tverdokhlebov Sargei², Pushkarev Aleksander¹, Shvetsov Egor², and Volokitina Tatiana²
¹High Voltage Research Institute, Russian Federation
²National Research Tomsk Polytechni University, Russian Federation
- [PS2-11] 14:40 - 16:40 **THICKNESS EFFECTS OF THE METALLIC FOIL AND INSULATOR OF AN ELECTROMAGNETIC CYLINDRICAL SHOCK WAVE TRANSDUCER EMPLOYED IN EXTRACORPOREAL SHOCK WAVE THERAPY**
Min Choi¹, Sung Cho¹, Kang Lee², and Dong Paeng¹
¹Jeju National University, Korea
²Kangwon National University, Korea
- [PS2-12] 14:40 - 16:40 **30W FIBER COUPLED LASER DIODE OPTICAL MODULE FOR MEDICAL APPLICATIONS**
Duchang Heo, Dae-Sic Lee, Kwang-Hoon Kim, and Uk Kang
Korea Electrotechnology Research Institute, Korea
- [PS2-13] 14:40 - 16:40 **HIGH FREQUENCY DOPPLER ULTRASOUND TRANSDUCER FOR THE PERIPHERAL CIRCULATORY SYSTEM**
Young Min Bae, Uk Kang, Jeongwon Yang, and Kuang Hoon
Korea Electrotechnology Research Institute, Korea
- [PS2-14] 14:40 - 16:40 **A STUDY ON THE OPTICAL LENS COUPLED CCD BASED HIGH RESOLUTION GAMMA RAY DETECTOR**
Young-Jun Jung¹, Hakjae Lee¹, Kisung Lee¹, Joochul Yoon², and SungChae Jeon³
¹Korea University, Korea
²Newcastle Univerity, UK
³Korea Electrotechnology Research Institute, Korea

- [PS2-15] 14:40 - 16:40 **QUANTUM DOT-BASED OPTICAL IMMUNOSENSING SYSTEM FOR SIMULTANEOUSLY DETECTING TUMOR MARKERS**
Seo Young Son, Young Min Bae, and Kyeong-Hee Lee
Korea Electrotechnology Research Institute, Korea
- [PS2-16] 14:40 - 16:40 **IMPROVEMENT OF POLYPHENOL EXTRACTION FROM GRAPE SKIN BY PULSE DISCHARGES UNDER WATER**
Koichi Takaki, Hitoshi Hatayama, Shoji Koide, and Yukio Kawamura
Iwate University, Japan
- [PS2-17] 14:40 - 16:40 **DEVELOPMENT OF AN ELECTRO-OPTIC KERR EFFECT SENSOR FOR UNDERWATER STUDIES OF INTENSE TRANSIENT ELECTRIC FIELDS**
Fahd Banakhr¹, Bucur Novac¹, Ivor Smith¹, Laurent Pecastaing², Rebert Ruscassie², Antoine De Ferron², and Pascal Pignolet²
¹Loughborough University, UK
²University of Pau, France
- [PS2-18] 14:40 - 16:40 **STUDY OF ELECTRICAL EXPLOSION OF WIRE METHOD FOR THE PRODUCTION OF NANOPOWDER**
Rashmita Das, Basanta Das, Rohit Shukla, Partha Banerjee, Surender Shrama, Pankaj Deb, Prabakaran T, Biswajit Adhikary, and Anurag Shyam
Bhabha Atomic Research Centre, India
- [PS2-19] 14:40 - 16:40 **ENERGY SAVING USING IGBT**
Tejinder Saggu and Arvind Dhingra
AICTE, India
- [PS2-20] 14:40 - 16:40 **OVER-VOLTAGE TRIGGER DEVICE FOR MARX GENERATORS**
Martin Sack, René Stängle , and Georg Müller
Karlsruhe Institute of Technology, Germany
- [PS2-21] 14:40 - 16:40 **OPTIMUM DISCHARGE CONDITIONS FOR SMALLER PARTICLES AT THE AG WIRE EXPLOSION IN LIQUID MEDIA**
Chuhyun Cho, Chungil Kang, Yooncheol Ha, Yunsik Jin, and Geunhie Rim
Korea Electrotechnology Research Institute, Korea

- [PS2-22] 14:40 - 16:40 **INTRODUCTION OF RECYCLED AGGREGATE PRODUCTION SYSTEM BASED ON PULSED DISCHARGE INSIDE OF WASTE CONCRETE**
K. Ogata, T. Aoki, S. Iizasa, M. Shigeishi, M. Ohtsu, T. Namihira, and H. Akiyama
Kumamoto University, Japan
- [PS2-23] 14:40 - 16:40 **SHEATH DYNAMICS AND PLASMA RECOVERY IN PLASMA SOURCE ION IMPLANTATION**
Kyoung-Jae Chung, S. W. Jung, J. M. Choe, G. H. Kim, and Y. S. Hwang
Seoul National University, Korea
- [PS2-24] 14:40 - 16:40 **LI STORAGE CHARACTERISTICS OF SN@C NANOCOMPOSITE MATERIAL SYNTHESIZED BY ELECTRICAL EXPLOSION METHOD**
Yoon-Cheol Ha, Chungil Kang, Minwoo Kim, and Chuhyun Cho
Korea Electrotechnology Research Institute, Korea
- [PS2-25] 14:40 - 16:40 **PULSED POWER SYSTEMS FOR ELECTROMAGNETIC AND ELECTROHYDRAULIC FORMING**
Anurag Shyam¹, Rishi Verma², Rajesh Kumar², Rohit Shukla¹, Surender Sharma¹, and Biswajeet Adhikar¹
¹Bhabha Atomic Research Centre, India
²Institute for Plasma Resaerch, India
- [PS2-26] 14:40 - 16:40 **APPLICATION OF ELECTROMAGNETIC PULSE POWER TO THE CONSOLIDATION OF NANO-SIZED POWDERS**
Jung G. Lee, M. K. Lee, and C. K. Rhee
KAERI, Korea
- [PS2-27] 14:40 - 16:40 **THERMAL CONDUCTIVITY ENHANCEMENT OF ETHYLENE GLYCOL-BASED NANOFLUID CONTAINING OXIDE NANOPARTICLES**
Gyoung-Ja Lee, Chang-Kyu Kim, and Chang-Kyu Rhee
KAERI, Korea
- [PS2-28] 14:40 - 16:40 **PREPARATION OF CARBON ENCAPSULATED AG NANOPARTICLES FOR DISPERSION IN LA0.6SR0.4CO0.3FE0.7O3-Δ**
S. H. Jun, Y. R. Uhm, C. K. Rhee, and R. H. Song
KAERI, Korea

- [PS2-29] 14:40 - 16:40 **EXPERIMENTAL AND COMPUTATIONAL INVESTIGATION OF MONOLITHIC ARMATURE WITH DIFFERENT ARM LENGTH**
Mintang Li, Ping Yan, Weiqun Yuan, Yaohong Sun, Tao Shao, Jue Wang, and Yuan Zhou
Chinese Academy of Sciences, China
- [PS2-30] 14:40 - 16:40 **EFFECTS OF ARMATURE'S STRUCTURE AND MATERIAL ON INITIAL CONTACT INTERFACIAL CONDITIONS**
Mintang Li, Ping Yan, Weiqun Yuan, Yaohong Sun, Tao Shao, Jue Wang, and Yuan Zhou
Chinese Academy of Sciences, China
- [PS2-31] 14:40 - 16:40 **MULTIPLE CONTINUOUS PULSED MAGNETIC TRAVELING WAVE PROPULSION BASED ON INTERLACED COIL LAYOUT**
Fang Guo¹ and Yuejin Tang²
¹Naval University of Engineering, China
²Huazhong University of Science and Technology, China
- [PS2-32] 14:40 - 16:40 **TWO-DIMENSIONAL NUMERICAL STUDIES OF ABLATED-PLASMA DYNAMICS OF WIRE-ARRAY Z-PINCHES**
Ning Ding, Jun Huang, Shun Kai Sun, and De Long Xiao
Institute of Applied Physics and Computational Mathematics, China
- [PS2-33] 14:40 - 16:40 **X-PINCH-BASED NEUTRON SOURCE**
Yury Kalinin, Sergey Anan'ev, Yury Bakshaev, Vladimir Bryzgunov, Andrey Chernenko, Sergey Dan'ko, Evgeny Kazakov, Valery Korolev, Evgeniya Smirnova, Gennady Ustroev, Viktor Vikhrev, and Andrey Zelenin
Russian Research Centre Kurchatov Institute, Russian Federation
- [PS2-34] 14:40 - 16:40 **3-D PIC SIMULATIONS OF THE EFFECT ON ELECTRON FLOW IN THE MITL OF Z**
Laqun Liu, Dagang Liu, and Lin Meng
University of Electronic Science and Technology of China, China
- [PS2-35] 14:40 - 16:40 **X-RAY BACKLIGHTING OF DEVELOPMENTS WIRE-ARRAY Z-PINCHES USING AN X-PINCH AND THE DENSITY MEASUREMENT OF THE CORNAL PLASMAS**
Ran Zhang, Xiaobing Zou, Xinxin Wang, and Tong Zhao
Tsinghua University, China

- [PS2-36] 14:40 - 16:40 **BENCHMARKS OF A NEW MATLAB X-RAY FEL SIMULATION PROGRAM WITH GENESIS**
Xiaowei Gu and Meng Lin
University of Electronic Science and Technology of China, China
- [PS2-37] 14:40 - 16:40 **OBTAINING GW X-RAY RADIATION SOURCE WITH THE EEHG SCHEME**
Xiaowei Gu and Lin Meng
University of Electronic Science and Technology of China, China
- [PS2-38] 14:40 - 16:40 **EFFECT OF ANNEALING TEMPERATURE ON THE POLLYCRYSTALLINE LEAD OXIDE FILM DERIVED BY SEDIMENTATION METHOD**
Sang Sik Kang¹, Young Zun Choi¹, Mi Hyeun Lee¹, Bong Jae Jung¹, Kyu Seuk Cho², and Ji Koon Park¹
¹Korea International University, Korea
²Inje University, Korea
- [PS2-39] 14:40 - 16:40 **CHARACTERISTIC EVALUATION OF CDS CELL FOR THE PORTABLE X-RAY DOSIMETER INSTRUMENTATION**
Ji-koon Park¹, Hyun-hee Kim¹, Il-hong Choi¹, Si-cheul Noh², Heung-ho Choi¹, Sang-hee Nam², and Sang-sik Kang¹
¹Korea International University, Korea
²Inje University, Korea
- [PS2-40] 14:40 - 16:40 **INFLUENCE OF NITROGEN PRESSURE ON GROWTH OF ALUMINUM NITRIDE THIN FILMS BY PULSE LASER DEPOSITION**
Zhiping Wang, Hiroaki Ito, and Katsumi Masugata
University of Toyama, Japan
- [PS2-41] 14:40 - 16:40 **THE CAPILLARY DISCHARGE X-RAY LASER PULSE POWER SUPPLY DESIGN**
Xing Jia, Min Xie, Ningxiang Cao, and Weijun Deng
Institute of Fluid Physics (CAEP), China
- [PS2-42] 14:40 - 16:40 **PHYSICAL PARAMETERS OF LASER-PRODUCED PLASMA IN HIGH PRESSURE FLUID**
K. Kotake, R. Tsuruga, M. Matsuda, D. Wang, T. Namihira, and H. Akiyama
Kumamoto University, Japan

- [PS2-43] 14:40 - 16:40 **A SIMPLE DSSC SEALING TECHNIQUE ADOPTING A CO₂ LASER BEAM EXCITED BY THE 60HZ AC DISCHARGES**
Dong-Gil Lee¹, Seong-Wook Park¹, Sam-Kwang Cho¹, Seong-Hun Kim¹, and Hee-Je Kim²
¹National Fisheries Reserch & Development Institute, Korea
²Pusan National University, Korea
- [PS2-44] 14:40 - 16:40 **MULTI-ARC SOURCE OF INTENSE LARGE AREA MICROSECOND ELECTRON BEAMS**
Vladimir Engelko¹ and Georg Mueller²
¹Efremov Institute of Electrophysical Apparatus, Russian Federation
²Institute for Pulsed Power and Microwave Technology, Germany
- [PS2-45] 14:40 - 16:40 **EMISSION CHARACTERISTIC OF HIGH ENERGY PULSED ION BEAM PRODUCED IN DENSE PLASMA FOCUS DEVICE**
Hiroaki Ito, Yuuki Nishino, Hamid Yousefi, and Katsumi Masugata
University of Toyama, Japan
- [PS2-46] 14:40 - 16:40 **GENERATION OF HIGH CURRENT PULSED HEAVY ION BEAM FOR APPLICATION OF MATERIALS PROCESSING**
Hiroaki Ito, Yasushi Ochiai, and Katsumi Masugata
University of Toyama, Japan
- [PS2-47] 14:40 - 16:40 **THE COMPACT PULSE ELECTRON ACCELERATOR.**
Alexandr Nashilevskiy, Vitaliy Ezhov, Gennady Kanaev, and Gennady Remnev
National Research Tomsk Politechnic University, Russian Federation
- [PS2-49] 14:40 - 16:40 **A STUDY ON THE CONTROL OF A CW CO₂ LASER OUTPUT USING RESONANCE CHARACTERISTICS**
Guo-Cheng Xu, Ji-Tae Hong, Dong-Gil Lee, and Hee-Je Kim
Pusan National Uiversity, Korea/ National Fisheries Research & Development Insitute, Korea

- [PS2-50] 14:40 - 16:40 **A STUDY FOR FEASIBLE PRODUCTION OF DEUTERIATED TITANIUM FILM BY USING DENSE PLASMA FOCUS**
Basanta Das, Rashmita Das, Rohit Shukla, Partha Banerjee, Surender Sharma, Pankaj Deb, Prabhakaran T., Biswajit Adhikary, and Anurag Shyam
Bhabha Atomic Research Centre, India
- [PS2-51] 14:40 - 16:40 **HYDRODYNAMIC RESPONSE OF CONVERTER TARGET IMPACTED BY HIGH-CURRENT RELATIVISTIC ELECTRON BEAM**
Jun Zhu, Haijun Yu, Xiaoguo Jiang, Nan Chen, and Yuan Wang
Institution of Fluid Physics (CAEP), China
- [PS2-53] 14:40 - 16:40 **SIMULATION ANALYSIS OF TRANSMISSION-LINE IMPEDANCE TRANSFORMERS FOR PETAWATT-CLASS PULSED POWER ACCELERATORS**
Yixiang Hu¹, Fengju Sun², Tao Huang², Ai'ci Qiu¹, Peitian Cong², Zhengzhong Zeng², Liangping Wang², Jiangtao Zeng², Yan Li², and Tianshi Lei²
¹Xi'an Jiaotong University, China
²Northwest Institute of Nuclear Technology, China
- [PS2-54] 14:40 - 16:40 **EFFECT OF THE PULSE TRANSFORMER CHARGING TIME ON THE OUTPUT VOLTAGE OF INTENSE ELECTRON-BEAM ACCELERATOR**
Yi Yin, Huihuang Zhong, Jinliang Liu, Jianhua Yang, and Jiahuai Feng
National University of Defense Technology, China
- [PS2-55] 14:40 - 16:40 **THREE-ELECTRODE GAS-FILLED CONTROLLABLE DISCHARGER**
Yegorov Ivan, Remnev Gennady, Stepanov Andrey, and Kaikanov Marat
Tomsk Polytechnic University, Russian Federation

- [PS2-56] 14:40 - 16:40 **DYNAMIC MODEL FOR THE Z ACCELERATOR VACUUM SECTION BASED ON TRANSMISSION LINE CODE**
Yixiang Hu¹, Ai'ci Qiu², Liangping Wang², Tao Huang², Peitian Cong², Xinjun Zhang², Yan Li², Zhengzhong Zeng², Tieping Sun², Tianshi Lei², Hanyu Wu², Ning Guo², and Juanjuan Han²
¹Xi'an Jiaotong University, China
²Northwest Institute of Nuclear Technology, China
- [PS2-57] 14:40 - 16:40 **PULSED POWER SYSTEM OF THE 20 MEV PROTON LINAC***
Dae-Il Kim, Hyeok-Jung Kwon, and Yong-Sub Cho
KAERI, Korea
- [PS2-58] 14:40 - 16:40 **STATUS OF THE DIELECTRIC WALL ACCELERATOR**
George Caporaso
Lawrence Livermore National Laboratory, USA
- [PS2-59] 14:40 - 16:40 **INCREASING CORROSION RESISTANCE OF STAINLESS STEEL OPERATING IN CHLORINE-CONTAINING ATMOSPHERE.**
Vladimir Engelko¹, Vjacheslav Schulov², Konstantin Tkachenko¹, and Andrey Chilirjaka¹
¹Efremov Institute of Electrophysical Apparatus, Russian Federation
²Moskow Aviation Institute, Russian Federation
- [PS2-60] 14:40 - 16:40 **ORIGIN AND DEVELOPMENT OF SURFACE WAVINESS DUE TO INTENSE PULSED ELECTRON BEAM TREATMENT**
Wladimir An, Renate Fetzer, Georg Mueller, and Alfons Weisenburger
Karlsruhe Institute of Technology, Germany
- [PS2-61] 14:40 - 16:40 **OUTPUT CHARACTERISTICS OF THE HIGH POWER MICROWAVE GENERATED FROM AN AXIAL AND TRIODE VIRTUAL CATHODE OSCILLATOR**
Ki Baek Song, Yong Seong Byeon, and Eun Ha Choi
Kwangwoon University, Korea

- [PS2-62] 14:40 - 16:40 DEVELOPMENT OF A TABLE-TOP TERAHERTZ FREE ELECTRON LASER BASED ON A COMPACT MICROTRON**
Young Uk Jeong¹, Seong Hee Park¹, Kitae Lee¹, Yong-Ho Cha¹,
Jungho Mun¹, Kyu Ha Jangv, Junghye Sunwoo¹, Ji Young Lee¹,
Kyung Nam Kimv, Byung Cheol Lee¹, Deok Hyeon Kim²,
Hyeongki Cha¹, Byung Heon Cha¹, and Grigory Kazakevich³
¹Korea Atomic Energy Research Institute, Korea
²Hanbat National University, Korea
³BINP, Russian Federation
- [PS2-63] 14:40 - 16:40 STUDY OF INCREASE IN TIME-CONSTANT OF SELF-INTEGRATING ROGOWSKI COILS BY MULTILAYERED COIL-WINDING FOR LOW-FREQUENCY CURRENT MEASUREMENT**
Rohit Shukla, Surender Sharma, Partha Banerjee, Rashmita Das,
Pankaj Deb, Prabaharan T, Basanta Das, Biswajit Adhikary, and
Anurag Shyam
Bhabha Atomic Research Centre, India
- [PS2-65] 14:40 - 16:40 NUMERICAL SIMULATION OF KINETIC ALFVÉN WAVE EXCITATION BY MAGNETOSONIC WAVE IN HIGH BETA PLASMAS**
Sanjay Kumar and R. P. Sharma
Indian Institute of Technology, India
- [PS2-66] 14:40 - 16:40 INVESTIGATIONS INTO THE EFFECTS OF THE SWITCH JITTER ON THE OPERATING PERFORMANCE OF LTD**
Liu Peng¹, Sun Fengju², Yin Jiahui², Liang Tianxue², and Qiu Aici¹
¹Xi'an Jiaotong University, China
²Northwest Insitute of Nuclear Technology, China
- [PS2-67] 14:40 - 16:40 SIMULATION STUDY ON HIGH-QUALITY PROTON GENERATION FROM THIN TARGETS DRIVEN BY INTENSE SHORT PULSE LASERS**
Ki Hong Pae, Il Woo Choi, and Jongmin Lee
GIST, Korea

- [PS2-68] 14:40 - 16:40 **APPLICATION OF RESPONSE SURFACE METHODOLOGY TO OPTIMAL DESIGN OF A CATHODE GEOMETRY IN INERTIAL ELECTROSTATIC CONFINEMENT DEVICE**
Heung-Jin Ju¹, Bongseong Kim¹, Hui-Dong Hwang¹, Jeong-Ho Park¹, Seung-Kil Choi², and Kwang-Cheol Ko¹
¹Hanyang Univeristy, Korea
²Ansan College of Technology, Korea
- [PS2-70] 14:40 - 16:40 **PLASMA DENSITY STRUCTURE EFFECT ON THE ELECTRON ENERGY IN LASER WAKEFIELD ACCELERATION**
Jaehoon Kim, Geun Ju Kim, Seung Hoon Yoo, and Jong Uk Kim
Korea Electrotechnology Research Institute, Korea
- [PS2-71] 14:40 - 16:40 **AN OVERVIEW OF LASER-DRIVEN PARTICLE-BEAM STUDIES AT AWE ALDERMASTON.**
Timothy Goldsack
AWE, UK
- [PS2-72] 14:40 - 16:40 **HIGH ENERGY PHOTON GENERATION USING LASER ACCELERATED ELECTRON BEAMS**
Seong Hee Park¹, Ho-hyoung Lee², Kitae Lee¹, Yong-Ho Cha¹, and Young Uk Jeong¹
¹Korean Atomic Energy Research Institute, Korea
²KAIST, Korea
- [PS2-73] 14:40 - 16:40 **ENHANCED PROTON BEAM GENERATION FROM AN AULMINUM-COATED PLASTIC TARGET IRRADIATED BY AN ULTRA-INTENSE LASER PULSE**
Kitae Lee¹, Ji Young Lee², Seong Hee Park¹, Yong-Ho Cha¹, Yong Woo Lee¹, Kyung Nam Kim³, and Young Uk Jeong¹
¹Korea Atomic Energy Research Institute, Korea
²Hannam University, Korea
³Kongju National University, Korea
- [PS2-74] 14:40 - 16:40 **FORMERS OF HIGH-VOLTAGE SUBNANOSECOND PULSES BASED ON COMPRESSION ENERGY SCHEMES WITH CAPACITOR STORAGE AND SPARKS DISCHARGERS.**
M. R. Ulmaskulov, V. G. Shpak, M. Y. Yalandin, S. A. Shunailov, and K. A. Sharypov
Institute of Electrophysics, RAS, Russian Federation

- [PS2-75] 14:40 - 16:40 **HV IMPULSE GENERATOR USING FERROELECTRIC MATERIALS**
 Seung-Moon Han¹, Chang-Su Huh¹, and Jin-Soo Choi²
¹Inha University, Korea
²Agency Defence for Development, Korea
- [PS2-76] 14:40 - 16:40 **Study on erosion resistance of glassy carbon to fusion thermal loads by high-intensity pulsed ion beam experiment**
 X.P. Zhu, T.K. Song, and M.K. Lei
 Dalian University of Technology, China
- [PS2-77] 14:40 - 16:40 **Mechanism of nitriding and carbonitriding under high-intensity pulsed ion beam irradiation**
 X. P. Zhu, F. G. Zhang, Y. Tang, and M. K. Lei
 Dalian University of Technology, China
- [PS2-78] 14:40 - 16:40 **ELECTICAL PROPERTIES OF INDUCTIVELY COUPLED ELECTRODELESS LAMP**
 Changquan Wang¹, Guixin Zhang¹, Jinyang Dong¹, Xinxin Wang¹, ZANJI Wang¹, Mingsong Shao¹, and Jianzhou Zhu²
¹Tsinghua University, China
²Beijing Century of Energy Technologies Ltd. Company, China
- [PS2-79] 14:40 - 16:40 **CAPILLARY PLASMA SOURCE DEVELOPMENT FOR HIGH ENERGY FS ELECTRON BEAMS AT GIST**
 Min-Seok Kim¹, Do Geun Jang¹, Han S. Uhm^{2, 3}, Seok Won Hwang⁴, and Hyyong Suk^{1, 3}
¹Gwangju Institute of Science and Technology, Korea
²Kwangwoon University, Korea
³Advanced Photonics Research Institute, Korea
⁴Pusan National University, Korea
- [PS2-80] 14:40 - 16:40 **HIGH-POWER FEMTOSECOND LASER SYSTEM FOR THE LASER-PLASMA ACCELERATOR**
 In Hyuk Nam, Min Seok Kim, Dong Gyu Jang, and Hyyong Suk
 Gwangju Institute of Science and Technology, Korea

[PL4] Progress in High Power-Particle Beams and Pulsed Power Applications at Karlsruhe Institute of Technology

Date: October 14, 2010 (Thursday)

Time: 08:30 - 09:10

Session Chair: Geun-Hie Rim (KERI, Korea)

[PL4] 08:30 - 09:10 PROGRESS IN HIGH POWER-PARTICLE BEAMS AND PULSED POWER APPLICATIONS AT KARLSRUHE INSTITUTE OF TECHNOLOGY

Georg Mueller¹, Wladimir An¹, Thomas Berghöfer¹, Mattia DelGiaccio¹, Christian Eing¹, Vladimir Engelko², Renate Fetzner¹, Bianca Flickinger¹, Wolfgang Frey¹, Harald Giese¹, Martina Göttel¹, Christian Gusbeth¹, Annette Heinzl¹, Peter Hoppé¹, Adrian Jianu¹, Martin Sack¹, Josef Singerv, Ralf Strässner¹, Lars Wegner¹, and Alfons Weisenburger¹

¹Karlsruhe Institute of Technology (KIT), Germany

²Efremov Institute of Electrophysical Apparatus, Russian Federation

[ThA1] Biological, Industrial Applications

Date: October 14, 2010 (Thursday)

Time: 09:10 – 10:20

Session Chair: Hong Je Ryoo (Korea Electrotechnology Research Institute, Korea)

- [ThA1-1] 09:10 - 09:35 [Invited Talk] RESPONSE OF MAMMALIAN CELLS TO PULSED ELECTRIC FIELDS**
Sunao Katsuki, Keisuke Abe, Tatsuya Dan, and Hidenori Akiyama
Kumamoto University, Japan
- [ThA1-2] 09:35 - 09:50 EFFECTS OF PULSE VOLTAGE STIMULATION ON FRUIT BODY FORMATION IN LENTINULA EDODES CULTIVATION**
Koichi Takaki¹, Ryo Yamaguchi¹, Tomohiro Kusaka¹, Hisayoshi Kofujita¹, Kyusuke Takahashi², Yuichi Sakamoto³, Maki Narimatsu⁴, and Kenichi Nagane⁵
¹Iwate University, Japan
²Morioka Forest Association, Japan
³Iwate Biotechnology Research Center, Japan
⁴Iwate Prefectural Forestry Technical Center, Japan
⁵Nagane Co. Ltd., Japan
- [ThA1-3] 09:50 - 10:05 ENERGY TRANSFER EFFICIENCY OF NANO-SECONDS PULSED POWER GENERATOR FOR NON-THERMAL PLASMA PROCESSING**
Mikiya Matsuda, Takao Matsumoto, Douyan Wang, Takao Namihira, and Hidenori Akiyama
Kumamoto University, Japan
- [ThA1-4] 10:05 - 10:20 NUMERICAL AND EXPERIMENTAL INVESTIGATION OF INWARD TUBE FORMING BY ELECTROMAGNETIC FORMING**
Hossein Ebrahimi Haratmeh¹, Ali Reza Fallahi A. ¹, Mahmood Farzin², Mehdi Ataran³, and Seyfollah Toroghi³
¹Amirkabir University of Technology (Tehran Polytechnic), Iran
²Isfahan of Technology, Iran
³Pulse Niroo Co., Iran

[ThB1] High-Power Beams

Date: October 14, 2010 (Thursday)

Time: 09:10 – 10:20

Session Chair: Gerald Cooperstein (Naval Research Laboratory, USA)

- | | | |
|----------|---------------|---|
| [ThB1-1] | 09:10 - 09:35 | [Invited Talk] THE PHYSICS OF BEAM TRANSPORT IN HIGH POWER ELECTRON BEAM DIODES*
B. V. Oliver
Sandia National Laboratories, USA |
| [ThB1-2] | 09:35 - 09:50 | DEVELOPMENT OF HIGH POWER ACCELERATOR FOR ENVIRONMENTAL APPLICATION
Bumsoo Han ¹ , Sungmyun Kim ¹ , Won-Gu Kang ¹ , Nikolai Kuksanovz ² , and Kwang-Young Jeong ³
¹ EB TECH, Korea
² BINP, Russian Federation
³ Kongju National University, Korea |
| [ThB1-3] | 09:50 - 10:05 | MULTI-MA REFLEX TRIODE RESEARCH
B. Weber ¹ , S. Swanekamp ¹ , R. Commisso ¹ , D. Murphy ¹ , R. Allen ¹ , V. Harper-Slaboszewicz ² , K. Mikkelson ² , J. Goyer ³ , and J. Riordan ³
¹ Naval Research Laboratory, USA
² Sandia National Laboratories, USA
³ L-3 Pulse Sciences Division, USA |
| [ThB1-4] | 10:05 - 10:20 | SMALLER SPOT SIZE FLASH X-RAY GENERATION FROM KALI 5000 SYSTEM
Rakhee Menon, Amitava Roy, Sabyasachi Mitra, Senthil Kumar, Vishnu Sharma, Archana Sharma, K. V. Nagesh, and D. P. Chakravarthy
BARC, India |

[ThA2] Environmental Applications

Date: October 14, 2010 (Thursday)

Time: 10:40 – 11:50

Session Chair: Markus Loeffler (International Society on Pulsed Power Applications e.V., Germany)

- [ThA2-1] 10:40 - 11:05 **[Invited Talk] APPLICATION OF HIGH POWER ELECTRON ACCELERATOR FOR TEXTILE DYEING WASTEWATER TREATMENT**
Bumsoo Han¹, Jin-Kyu Kim¹, Yuri Kim¹, Jangseung Choi², and Myunjoo Lee³
¹EB TECH, Korea
²DYETEC, Korea
³KAERI, Korea
- [ThA2-2] 11:05 - 11:20 **E-BEAM FLUE GAS TREATMENT PLANT FOR “SVILOZA POWER STATION”AD**
Jin-Kyu Kim¹, Bumsoo Han¹, Yuri Kim¹, Nikolai Doutskinov², and Konstantin Nikolov³
¹EB TECH, Korea
²NEK, Bulgaria
³SVILOZA Power Station, Bulgaria
- [ThA2-3] 11:20 - 11:35 **PERFORMANCES OF 2 NS PULSED DISCHARGE PLASMA**
Takao Matsumoto, Douyan Wang, Takao Namihira, and Hidenori Akiyama
Kumamoto University, Japan
- [ThA2-4] 11:35 - 11:50 **BIOMEDICAL APPLICATION OF NANOSECOND ELECTRIC PULSE GENERATED UNDERWATER SHOCK WAVES**
S. H. R. Hosseini, S. Iwasaki, T. Sakugawa, and H. Akiyama
Kumamoto University, Japan

[ThB2] Particle-Beam Theory and Simulation

Date: October 14, 2010 (Thursday)

Time: 10:40 – 11:10

Session Chair: Edek Blaugrund (Weizmann Institute of Science, Israel)

**[ThB2-1] 10:40 - 10:55 PARTICLE-IN-CELL SIMULATIONS OF LASER GUIDING IN A
PLASMA CHANNEL AND CAPILLARY DISCHARGE**

Min Sup Hur

Ulsan National Institute of Science and Technology, Korea

**[ThB2-2] 10:55 - 11:10 THE CHARACTERISTICS OF PULSED-DC DISCHARGES IN
ATMOSPHERIC PRESSURE PLASMAS**

Hae June Lee, Hyo Won Bae, Jong Bong Lee, Seok Won
Hwang, and Ho-Jun Lee

Pusan National University, Korea