

**2011 Abstracts IEEE  
International Conference on  
Plasma Science**

**(ICOPS 2011)**

**Chicago, Illinois, USA  
26 – 30 June 2011**



IEEE Catalog Number: CFP11ICO-PRT  
ISBN: 978-1-61284-330-8

# TABLE OF CONTENTS

<b>Simulation of Current Free Double Layers in Highly Electronegative Plasma Using Monte Carlo Collision in OOPIC Pro and XOOPIC .....</b>	<b>1</b>
<i>Corey Allen Henderson, Noah Hershkowitz</i>	
<b>An Implicit Maxwell Solver .....</b>	<b>2</b>
<i>Andrew J. Christlieb</i>	
<b>Investigation of Low Pressure Capacitively Coupled Plasma Behavior Using PIC-MCC Simulation .....</b>	<b>3</b>
<i>Kallol Bera</i>	
<b>Kinetic Self-Consistent Simulations of Electromagnetic Effects in CCP Plasmas with a 2D Darwin PIC/MCC Code .....</b>	<b>4</b>
<i>Denis Eremin</i>	
<b>Single-Electron Based Model of the Child-Langmuir Law .....</b>	<b>5</b>
<i>Yingbin Zhu, Lay Kee Ang</i>	
<b>High Order PIC Simulation of High Power Millimeter Wave Sources .....</b>	<b>6</b>
<i>Jonathan Neudorfer</i>	
<b>Simulation of Self-Neutralization Techniques for Charged Particle Thrusters .....</b>	<b>7</b>
<i>David C. Liaw</i>	
<b>Multiple-Beam Amplifiers .....</b>	<b>8</b>
<i>Khanh Nguyen</i>	
<b>Development of a 10-kW W-Band Sheet Beam Extended Interaction Klystron (EIK) .....</b>	<b>9</b>
<i>John A. Pasour</i>	
<b>Three-Dimensional, Time-Dependent Simulation of Inductive Output Tubes .....</b>	<b>10</b>
<i>Henry Freund</i>	
<b>350 MHz, 200 kW CW, Multiple Beam Inductive Output Tube .....</b>	<b>11</b>
<i>Robert L. Ives</i>	
<b>Development of a 1.5 MW Conventional Magnetron via Numerical Simulation .....</b>	<b>12</b>
<i>Michael Lambrecht</i>	
<b>Possible Effect of Metallic Dust on Operation of Rep-Rate, High-Power Microwave Devices .....</b>	<b>13</b>
<i>Gregory S. Nusinovich, Dmytro G. Kashyn</i>	
<b>The Concepts of in-Phase Multichannel Ka-band HPM Oscillators .....</b>	<b>14</b>
<i>Michael I Yalandin</i>	
<b>High-Energy Bremsstrahlung Diagnostics to Characterise Hot Electron Production in Short-Pulse Laser-Plasma Experiments .....</b>	<b>15</b>
<i>Anthony L Meadowcroft, Ray D. Edwards</i>	
<b>Ionization Energy Shift in Iridium Measured with a Lutetium Edge Filter .....</b>	<b>16</b>
<i>Nino R. Pereira</i>	
<b>X-Ray Diagnostics in a Mega-Amp Dense Plasma Focus Device - Focus Fusion-1 .....</b>	<b>17</b>
<i>S. Krupakar Murali</i>	
<b>Time Resolved Visible Spectroscopy Characterizations of Single Wire Aluminum Plasmas .....</b>	<b>18</b>
<i>Kate S. Blesener</i>	
<b>Same-Shot X-Ray Thomson Scattering and Streaked Imaging of Radiative Shock Experiments at Omega .....</b>	<b>19</b>
<i>Channing M Huntington</i>	
<b>Characterization of the Pulse-Burst Laser System for High-Repetition-Rate Thomson Scattering .....</b>	<b>20</b>
<i>Wayne S. Harris</i>	
<b>Experimental Measurements of the Dynamic Electric Field Topology Associated with Magnetized RF Sheaths .....</b>	<b>21</b>
<i>Elijah H. Martin</i>	
<b>Focusing of Laser-Accelerated Protons for Fast Ignition Studies .....</b>	<b>22</b>
<i>Claudio Bellei</i>	
<b>Basic Study of a Diagnostic Electron Beam Traversing a Plasma and Electromagnetic Wave .....</b>	<b>23</b>
<i>Ronald L. Williams, Arnesto L. Bowman</i>	
<b>The Effect of Fast Electron Scattering on Determining the Laser-Induced Electron Divergence .....</b>	<b>24</b>
<i>Sheng Jiang</i>	
<b>Study of EMHD Waves in a Magnetic Bubble .....</b>	<b>25</b>
<i>V. P. Anitha</i>	
<b>The Role of Laser Wavelength on Dual Pulse Laser-Breakdown Spectroscopy .....</b>	<b>26</b>
<i>Ryan W. Coons</i>	

<b>How the Plasma Bullet Stops Propagating</b> .....	27
<i>Mounir Laroussi</i>	
<b>ITER ECH Transmission System Test Stand and Prototype Component Development</b> .....	28
<i>Tim S. Bigelow</i>	
<b>FRC Lifetime Studies for the Field Reversed Configuration Heating Experiment</b> .....	29
<i>Theodore C Grabowski</i>	
<b>Theta-Pinch Preionization and Trapped Flux in FRC Formation</b> .....	30
<i>Michael H. Frese, Sherry D. Frese</i>	
<b>High Power Excilamps</b> .....	31
<i>Victor F. Tarasenko</i>	
<b>Diagnostic Study of Micro-Discharges of Inert Gas under Atmospheric Pressure</b> .....	32
<i>Chih Chun Wang</i>	
<b>Flexible and Transparent Microplasma Devices for Ultraviolet Medical Treatment</b> .....	33
<i>T. G. Oh</i>	
<b>Ashing Process Using an Atmospheric Pressure, DBD-Generated Plasma</b> .....	34
<i>Seungryul Yoo</i>	
<b>Hop Structure Optimization</b> .....	35
<i>Marcus I. Pearlman</i>	
<b>Space Charge Limited Current in a Gap Combined of Several Kinds of Medium</b> .....	36
<i>Yingbin Zhu, L. K. Ang</i>	
<b>Field Emission Properties of Nano-Layered Carbon Lateral Edge Emitters</b> .....	37
<i>Nalin Kumar</i>	
<b>Study on Electrical Characteristics of HfO<sub>2</sub> Treated by NF<sub>3</sub> Plasma</b> .....	38
<i>Jung-Chan Lee</i>	
<b>Optical Characterization of Atmospheric Torch Operating Modes</b> .....	39
<i>Anthony J. McWilliams</i>	
<b>Charging of Dust Grain Clusters in Flowing Plasmas</b> .....	40
<i>Gennady Miloshevsky, Ahmed Hassanein</i>	
<b>Non-Gaussian Velocity Distribution of Microparticles in Plasma under Microgravity Conditions</b> .....	41
<i>Amit Mukhopadhyay</i>	
<b>Defect Dynamics and Plastic Deformations in Complex Plasmas</b> .....	42
<i>Celine Durniak, Dmitry Samsonov</i>	
<b>Modeling of Dust Transport and Impact on Fusion Edge Plasmas</b> .....	43
<i>Roman Smirnov</i>	
<b>Investigation of Beam Parameters to Design Plasma Filled BWO</b> .....	44
<i>Niraj Kumar</i>	
<b>Rapid Formation of Distributed Plasma Discharges Using X-Band Microwaves</b> .....	45
<i>David Holmquist</i>	
<b>Conservation of Energy Analysis of Collisional Cross-Field Diffusion</b> .....	46
<i>Brooke S. Stutzman, John P. Verboncoeur</i>	
<b>Experimental Investigation of Air Breakdown Utilizing a 1.5-MW, 110 GHz Gyrotron</b> .....	47
<i>Jason S. Hummelt</i>	
<b>Design of an ECH System for a Small Modular Stellarator</b> .....	48
<i>Humberto J. Trimino</i>	
<b>Modeling of a Tokamak Antenna Module with VORPAL</b> .....	49
<i>Christine M. Roark</i>	
<b>Validation and Uncertainty Quantification of ICEPIC/EMPHASIS Codes for a Series of Gas Cell Experiments at NRL</b> .....	50
<i>Keith L. Cartwright</i>	
<b>An Improved Self-Consistent Fitting Model for Characterizing Field Emitters</b> .....	51
<i>M. C. Lin</i>	
<b>An Investigation into Radial Gradients in an Electrothermal Plasma Source Using a Semi 2-D Approach</b> .....	52
<i>A. Leigh Winfrey</i>	
<b>One Dimensional Modeling of Atomic and Molecular Species in DC and RF Ion Sources</b> .....	53
<i>Elizabeth Surrey, Andrew Jt Holmes</i>	
<b>Numerical Study of the Start-up Scenario of a 670 GHz Gyrotron Operation at TE<sub>31,8</sub> Mode</b> .....	54
<i>Ruifeng Pu</i>	
<b>Characterization of a Helicon Ion Source for Helium-3 Fusion in an Inertial Electrostatic Confinement Device</b> .....	55
<i>Gabriel E Becerra</i>	

<b>Simulation of Microwave Plasma Discharge in 915 MHz CVD Reactor for Single Crystal Diamond Deposition</b> .....	56
<i>Joseph Lai</i>	
<b>Two Dimensional Child-Langmuir Law for a Sharp Field Emitter</b> .....	57
<i>Song Sun, Lay Kee Ang</i>	
<b>The Monte Carlo Simulation of a 1MW Neutral Beam Injector on RFX-mod</b> .....	58
<i>Nicola Pilan</i>	
<b>Contribution of the Photonetic Doppler Velocimetry to the Cesar Electron Beam Analyze</b> .....	59
<i>Luc Voisin</i>	
<b>Using a Relativistic Electron Beam to Generate Warm Dense Matter for Equation of State Studies</b> .....	60
<i>Michael J. Berninger</i>	
<b>Application of the NRL High-Impedance Radiography Diode to a 2.3-MV Generator</b> .....	61
<i>Raymond J. Allen</i>	
<b>Characterization of Heavy-Ice Deposition-Thickness on Flat Metal Targets for Deuteron Ion Acceleration</b> .....	62
<i>Matthew S. Engle</i>	
<b>Design, Construction and First Tests of a Stainless Steel Load for High Power mm-Wave Radiation</b> .....	63
<i>Stefan Illy</i>	
<b>Numerical Studies on the Parasitic Modes in Gyrotron Beam Tunnels</b> .....	64
<i>George P. Latsas</i>	
<b>Parametric Study on the Ohmic Loading of the 170-GHz 2-MW EU Coaxial Gyrotron Cavity</b> .....	65
<i>Zisis C. Ioannidis</i>	
<b>Effects of Long-Line Reflection on the Instantaneous Tunability of Gyrotron Backward-Wave Oscillators</b> .....	66
<i>Shih-Hung Chen</i>	
<b>Excitation of Backward Waves in Beam Tunnels with Saw-Teeth Wall Profiles in Gyrotrons</b> .....	67
<i>Dmytro Kashyn</i>	
<b>Free Electron Maser Amplifier Experiments</b> .....	68
<i>Colin G. Whyte</i>	
<b>Regimes for Efficiency Enhancement of Fast-Wave Amplifiers</b> .....	69
<i>K. Matheson</i>	
<b>Investigation of a Laboratory Plasma for a Geophysical Simulation Experiment</b> .....	70
<i>Sandra L. McConville</i>	
<b>Numerical and Laboratory Investigation of Astrophysical Cyclotron Emission Processes</b> .....	71
<i>David C. Speirs</i>	
<b>Growth Mechanism of ZnO Thin Films Deposited by an Atmospheric Pressure Plasma Jet</b> .....	72
<i>Hsin Chieh Li</i>	
<b>Modeling of Convective Plasma Flow in High Pressure Microwave Plasma-Assisted CVD Diamond Reactors</b> .....	73
<i>Collin S. Meierbachtol</i>	
<b>Atmospheric Pressure Microwave-Powered Microplasma Source</b> .....	74
<i>Peiyao Liu</i>	
<b>Spectroscopic Investigation of Multiple Boltzmann Distributions of Argon Atomic and Ionic Excited States in an Expanding H<sub>2</sub>O-Ar DC Arc Jet</b> .....	75
<i>Viktor Sember</i>	
<b>Microwave Plasma Assisted Reactor Design for High Deposition Rate Diamond Synthesis</b> .....	76
<i>Yajun Gu</i>	
<b>Characteristics of Pulsed Discharge Plasmas at Atmospheric Pressure for Preparation of Large-Area Amorphous Carbon Films</b> .....	77
<i>Yusuke Kikuchi</i>	
<b>Plasma Based Nano-Technology Laboratory</b> .....	78
<i>Charles A. Gentile, Yevgeny Raitses</i>	
<b>Towards Recombination Pumped H-like N X-Ray Laser</b> .....	79
<i>Itay Gissis</i>	
<b>The LLNL Z-Pinch Ion Probe Experiment (ZIPX)</b> .....	80
<i>Vincent Tang</i>	
<b>Anisotropy and Feedthrough in Magneto-Rayleigh-Taylor Instabilities</b> .....	81
<i>Y. Y. Lau</i>	
<b>Seeded Magneto-Rayleigh Taylor Experiments on Planar Foils Using a 1-MA Linear Transformer Driver</b> .....	82
<i>David A. Chalenski</i>	

<b>Spectroscopic Analysis of Foil Plasmas on a 1-MA Linear Transformer Driver</b> .....	83
<i>Sonal G. Patel</i>	
<b>Multidimensional Radiation MHD Modeling of Argon on Deuterium Gas Puff Z-Pinch Loads as a Neutron Source</b> .....	84
<i>Young K. Chong</i>	
<b>Nuclear Reaction Kinetics in Deuterium Gas Puffs</b> .....	85
<i>Brian D. Appelbe, Jeremy Chittenden</i>	
<b>Comparison of Implosion Characteristics of Gases in a 1.5 kJ Plasma Focus</b> .....	86
<i>Brian L. Bures</i>	
<b>MHD Simulation of Low Current Pinch Plasma Dynamics</b> .....	87
<i>Syed M. Hassan</i>	
<b>NX-3 Plasma Focus Device: High Flux Pulsed Neutron Source</b> .....	88
<i>Rishi Verma</i>	
<b>Neutron Yield, Implosion Time and Energy Efficiency from a Low Energy, High Repetition Rate Plasma Focus at the 100 kA Level</b> .....	89
<i>Brian L. Bures</i>	
<b>Capillary Discharge as a Table-Top Soft X-Ray Source</b> .....	90
<i>Maria Pia Valdivia</i>	
<b>Influence of Volume Dielectric Barrier Discharge in Argon and Argon Oxygen Atmospheres on Water and E. coli Suspensions</b> .....	91
<i>Katrin Oehmigen</i>	
<b>Plasma-Cell-Interaction: Expression of Surface Molecules on HaCaT Keratinocytes after Treatment with Dielectric Barrier Discharge (DBD) Plasma</b> .....	92
<i>Beate Haertel</i>	
<b>Global Characterization of Physical Plasma Impact on Vegetative Microorganisms</b> .....	93
<i>Jorn Winter</i>	
<b>Influence of Non-Thermal Atmospheric Pressure Plasma on DNA of Human Keratinocytes (HaCaT): Role of Reactive Oxygen Species</b> .....	94
<i>Susanne Blackert</i>	
<b>Chemical Species Generated in Water by an Atmospheric-Pressure Air Plasma Jet</b> .....	95
<i>Xiaolong L. Hao</i>	
<b>Focused Laser Initiated RF Sustained High Pressure Air Plasmas</b> .....	96
<i>Ryan C. Giar, John E. Scharer</i>	
<b>Thomson Scattering from a Laser Induced Breakdown in 1 Atmosphere of Helium</b> .....	97
<i>Elena Nedanovska</i>	
<b>Photoionization in Precursor of Laser-Induced Plasma by Ultraviolet Radiation</b> .....	98
<i>Kohei Shimamura</i>	
<b>Numerical Simulation of Laser-Produced Plumes</b> .....	99
<i>Atsushi Sunahara</i>	
<b>Plasma Evolution Induced by Long Nanosecond Laser Pulse Ablation: Time-Resolved Measurement and Physics-Based Modeling</b> .....	100
<i>Sha Tao</i>	
<b>Study of Short-Pulsed Laser-Induced Plasma Confined in a Microhole</b> .....	101
<i>Sha Tao, Benxin Wu</i>	
<b>Underwater Laser Filamentation and Guiding of Electrical Discharges</b> .....	102
<i>Michael H. Helle</i>	
<b>Investigation of Plasma Flow Redirection by an Externally Applied Magnetic Field</b> .....	103
<i>Christopher Plechaty</i>	
<b>Numerical and Experimental Analysis of THz Sheet Beam Traveling Wave Tube Amplifier (TWTA)</b> .....	104
<i>Anisullah Baig</i>	
<b>Development of a 670 GHz Extended Interaction Klystron Amplifier</b> .....	105
<i>David Chernin</i>	
<b>670 GHz Power Amplifier Development at Northrop Grumman</b> .....	106
<i>Jack C. Tucek</i>	
<b>Measurement of Surface Roughness Effects on Conductivity in the Terahertz Regime with a High-Q Quasioptical Resonator</b> .....	107
<i>Benjamin B. Yang, John H. Booske</i>	
<b>Plasma Creation by a Powerful Electromagnetic Radiation of Terahertz Gyrotrons</b> .....	108
<i>Vladimir L. Bratman</i>	
<b>220 GHz Power Amplifier Development at Northrop Grumman</b> .....	109
<i>Mark A. Basten</i>	

<b>Examination of Electromagnetic Attenuation Induced by Atmospheric Water Content on Terahertz Radiation</b> .....	110
<i>Marcus J. Weber</i>	
<b>Thermodynamics of Microplasma Initiation in Liquids</b> .....	111
<i>Robert Geiger</i>	
<b>Plasma Acid and its Applications</b> .....	112
<i>Natalie Shainsky</i>	
<b>Study of Generation Mechanism of OH Radical in an Atmospheric Pressure Argon Microwave Plasma Jet with Addition of Water Content</b> .....	113
<i>Nimisha Srivastava, Chuji Wang</i>	
<b>Independently Controlled Rf Micro-Dielectric Barrier Discharge Arrays</b> .....	114
<i>Jun-Chieh Wang</i>	
<b>High Speed Monitoring of the Discharge Regimes of a Non-Thermal Atmospheric Pressure Plasma Jet</b> .....	115
<i>Sebastian Peters</i>	
<b>Propagation of Ion Plasma Wave-Packet as the Plasma Bullet in a Plasma Jet-Plume</b> .....	116
<i>Guangsup Cho</i>	
<b>Analysis of Implosion and Stagnation of Stainless Steel Wire Array Z-Pinches at 18MA on the Z Generator</b> .....	117
<i>D. J. Ampleford</i>	
<b>2D Radiation MHD Model Assessment of Initial Argon Gas Distributions to be Imploded on the Z Machine*</b> .....	118
<i>J. W. Thornhill</i>	
<b>Anisotropy and Pulse Shaping of Radiation Emitted from Multi-Planar Wire Arrays</b> .....	119
<i>V. L. Kantsyrev</i>	
<b>3-Dimensional Modeling of Nested Al and Ni-clad Ti on Al Wire Array Z Pinches</b> .....	120
<i>Christopher A. Jennings</i>	
<b>Cold K-Shell Emission from the Implosion of Brass Planar Wire Arrays and X-Pinches Performed at the 1-MA Zebra Generator at UNR</b> .....	121
<i>Nicholas D. Ouart</i>	
<b>Spectroscopic Modeling for HEDP Experiments</b> .....	122
<i>I. E. Golovkin</i>	
<b>Analysis of Radiation from Uniform and Combined Ag Planar Wire Arrays</b> .....	123
<i>Michael E. Weller</i>	
<b>A Comparison of Emissive Probe Techniques for Electric Potential Measurements in a Complex Plasma</b> .....	124
<i>J. P. Sheehan</i>	
<b>Effects of Wire Thickness, Neutral Pressure and Gas Composition on the Inflection Point Technique</b> .....	125
<i>Noah Hershkowitz</i>	
<b>The Plasma-Sheath-Transition in RF-Modulated Low Temperature Plasmas: On the Existence of a Modified Bohm Criterion</b> .....	126
<i>Ralf Peter Brinkmann</i>	
<b>Dynamics of Atmospheric Pressure He/H<sub>2</sub>O Microplasmas: a New Double Layer Structure</b> .....	127
<i>Kirsty McKay</i>	
<b>Ion Beam Observation in the Madhex Helicon Source</b> .....	128
<i>Matthew D. Wiebold</i>	
<b>Excitation of Large-Scale Plasma Sheets and Micropulsations by Injected High Power Radio Waves</b> .....	129
<i>Rezy Pradipta</i>	
<b>Characterization of Plasmas in Saline Solutions under Different Bubble Behavior</b> .....	130
<i>Hung Wen Chang, Cheng Che Hsu</i>	
<b>Microwave Plasma Assisted Synthesis of Single Crystal Diamond at High Pressures and High Power Densities</b> .....	131
<i>Jing Lu</i>	
<b>High-Functionally Composite Materials by Gas Tunnel Type Plasma Spraying</b> .....	132
<i>Akira Kobayashi</i>	
<b>Measuring Fill Gas Pressure in an Electrodeless Lamp by RF Impedance Diagnostics</b> .....	133
<i>Richard P. Gilliard</i>	
<b>Glow-to-Arc Transition in Mercury-Free HID Lamps: Cathode Phenomena and Salt Evaporation Model</b> .....	134
<i>Natalia Yu. Babaeva</i>	
<b>Investigation of Plasma Detachment Mechanisms in a Magnetic Nozzle</b> .....	135
<i>Paul-Quentin Elias, Renaud Gueroult</i>	

<b>Two-Dimensional Laser Collision-Induced Fluorescence Mapping of Electron Density and Temperature near Plasma Cathode Apertures .....</b>	<b>136</b>
<i>Brandon R. Weatherford</i>	
<b>Nuclear Diagnostic Commissioning for the National Ignition Campaign .....</b>	<b>137</b>
<i>Sebastien Le Pape</i>	
<b>Performance Characteristics of the Neutron Imaging Diagnostic at NIF .....</b>	<b>138</b>
<i>Frank E. Merrill</i>	
<b>Measuring Neutron Yield and <math>\gamma</math> Anisotropies with Activation Foils at the National Ignition Facility .....</b>	<b>139</b>
<i>Darren Bleuel</i>	
<b>The Radiochemical Analysis of Gaseous Samples (RAGS) Apparatus for Nuclear Diagnostics at the National Ignition Facility .....</b>	<b>140</b>
<i>Dawn A. Shaughnessy</i>	
<b>Introducing Hairpin Probe for Electron Density Measurement in a Kamaboko-III Negative Ion Source .....</b>	<b>141</b>
<i>Gurusharan Singh Gogna</i>	
<b>Increased Resolution ECE Imaging of Temperature Profiles/Fluctuations in Tokamak Plasmas .....</b>	<b>142</b>
<i>Xiangyu Kong</i>	
<b>Measurement of Ablative Richtmyer-Meshkov Growth in Planar Geometry .....</b>	<b>143</b>
<i>Steven H. Batha</i>	
<b>Investigation of Electrical Conductivity and Equations of State of Metals Using Different Timescale Underwater Electrical Wire Explosion .....</b>	<b>144</b>
<i>Daniel Sheftman, Yakov E. Krasik</i>	
<b>Velocity and Temperature Measurements of Z Pinch Plasmas Using Optical Thomson Scattering .....</b>	<b>145</b>
<i>Adam J. Harvey-Thompson</i>	
<b>Plasma Dynamics and Stability of Radial Foil Explosions on COBRA .....</b>	<b>146</b>
<i>Pierre A. Gourdain</i>	
<b>Asymmetric Spreading of a Radial Foil Plasma Jet Due to Imposed Magnetic Field .....</b>	<b>147</b>
<i>Peter Schrafel</i>	
<b>Equations of State for Metals at High Energy Densities .....</b>	<b>148</b>
<i>Konstantin V. Khishchenko</i>	
<b>PIC/MCC Simulations and Measurements of Microdischarges in MEMS Structures .....</b>	<b>149</b>
<i>Ayyaswamy Venkatraman</i>	
<b>Chemistry of Atmospheric Pressure Low Temperature Plasma Jets for Different Experimental Parameters .....</b>	<b>150</b>
<i>Erdinc Karakas</i>	
<b>Ion Acceleration in the Madhex Helicon Source .....</b>	<b>151</b>
<i>Yung-Ta Sung</i>	
<b>Ambipolar Diffusion in Weakly Ionized Plasmas .....</b>	<b>152</b>
<i>Jaime H. Hoyos</i>	
<b>Control of the Contact Hole Diameter Using Inductively Coupled Fluorocarobon and Hydrocarbon Plasmas .....</b>	<b>153</b>
<i>Jun-Hyun Kim</i>	
<b>Investigation of the Moving Striation in a Low Pressure Mercury Discharge .....</b>	<b>154</b>
<i>Yoshio Watanabe, Masato Kawagoe</i>	
<b>Radar Cross Section Simulation of Metal Cone Covered with Plasma .....</b>	<b>155</b>
<i>Shen Shou Max Chung</i>	
<b>Particle-in-Cell Simulation of Plasmonic Nanoparticle .....</b>	<b>156</b>
<i>Wee Shing Koh</i>	
<b>Heat Transfer in Beam Optics Analyzer .....</b>	<b>157</b>
<i>Thuc Bui</i>	
<b>Integrated Thermal &amp; EM Simulation Capability in the VORPAL Software .....</b>	<b>158</b>
<i>David Smithe</i>	
<b>Particle-in-Cell (PIC) Tools for Simulation of Electrodynamic Bare Tether Plasma Interactions .....</b>	<b>159</b>
<i>Sudhakar Mahalingam</i>	
<b>Optimization and Characterization of Xenon Ions Density in a Hall Plasma Thruster .....</b>	<b>160</b>
<i>Danjuma Ibrahim Ndihihdah</i>	
<b>Two-Stream Instability in Plasma Klystron .....</b>	<b>161</b>
<i>Peter Mardahl</i>	
<b>Ion Source Characterization and Testing .....</b>	<b>162</b>
<i>Emily Ann Baxter</i>	

<b>Electron Gun Design for High Voltage Piezoelectric Accelerators</b> .....	163
<i>Brady B. Gall</i>	
<b>Cylindrical Atmospheric Plasma Source Using Parallel MHCD and Repetitive Impulse Voltage to the Third Axial Electrode</b> .....	164
<i>Mitsuaki Maeyama</i>	
<b>Integrated Cylindrical Plasma Source Using Parallel Operated MCS Discharges</b> .....	165
<i>Taichi Asano</i>	
<b>Atmospheric Pressure Microwave Plasma Torch</b> .....	166
<i>Ferhat Bozduman</i>	
<b>Ion Emission Dynamics in Ultrafast Laser Ablated Plasmas</b> .....	167
<i>Brandon Verhoff</i>	
<b>Plasma Diagnostics with a High-Aspect Ratio Cylindrical Probe Used as an Impedance Probe</b> .....	168
<i>David N. Walker</i>	
<b>Ambient Ionization for Methane Quantification in Simulated Martian Atmosphere Using Miniature Inductively Coupled Plasmas</b> .....	169
<i>Mazdak Taghioskoui</i>	
<b>Tongue-Shaped Ultrahigh Frequency Atmospheric Pressure Plasma Jet</b> .....	170
<i>Mazdak Taghioskoui</i>	
<b>Electrical Modeling of Strongly-Coupled Microstrip Resonator Arrays for Microplasma Generation</b> .....	171
<i>Alan R. Hoskinson</i>	
<b>Simulation of a Capacitively Coupled Silane/hydrogen Discharge</b> .....	172
<i>Fu-Wei Gu</i>	
<b>Minimizing Damage of Porous SiCOH Using He/H<sub>2</sub> Plasmas</b> .....	173
<i>Juline Shoeb, Mark J. Kushner</i>	
<b>Optical Diagnostics on Transient Plasma Ignition</b> .....	174
<i>Scott J. Pendleton, Martin A. Gundersen</i>	
<b>Spatially Resolved Simulation of an Radio-Frequency Driven Atmospheric Pressure Plasma Jet in Ambient Air</b> .....	175
<i>Torben Hemke</i>	
<b>Intense Plasma Emissions by Plasma Direct Jet-to-Jet Coupling in Atmospheric Pressure Plasma Jet Arrays</b> .....	176
<i>Jae Young Kim, Sung-O Kim</i>	
<b>Observation of Plasma Bullet with a Charge-Coupled Device Camera and a Photo-Sensor Amplifier</b> .....	177
<i>Yunjung Kim</i>	
<b>Discharge Mechanism of Aqua-Plasma Inside an Oscillating Bubble in Electrolyte</b> .....	178
<i>Sung-Young Yoon</i>	
<b>Performance of 5 x 5 Arrays of Al/Al<sub>2</sub>O<sub>3</sub> Microcavity Plasma Jet Devices: Spatially Resolved Optical Emission Profiles in He Flow</b> .....	179
<i>J. H. Cho</i>	
<b>Effect of Twist Wavelength on X-Ray Power Output in Al Cable Array Z-Pinches</b> .....	180
<i>Cad L. Hoyt</i>	
<b>Nested Array Dynamics from Ni-clad Ti - Al Wire Array Z Pinches</b> .....	181
<i>C. A. Coverdale</i>	
<b>Comparison of Multi-Dimensional MHD Simulations Against Exact Solutions for a Stagnating Z Pinch</b> .....	182
<i>John L. Giuliani</i>	
<b>New Exact MHD Solutions Describing the Stagnating Z-Pinch Plasma</b> .....	183
<i>A. L. Velikovich</i>	
<b>Wire Array Z-Pinch Experiments on MAGPIE Facility</b> .....	184
<i>Sergey Lebedev</i>	
<b>Analytical Analysis of the Ablation Phase of Low Wire Number Wire Arrays</b> .....	185
<i>Simon C. Bott</i>	
<b>Plasma Evolution and Modulated Structures along the Wire Within Aluminum Z-Pinch/X-Pinch Loads on QG-I Facility</b> .....	186
<i>Gang Wu</i>	
<b>Study of Plasma Diffusion Across Magnetic Fields Using Double Planar Wire Arrays</b> .....	187
<i>Derek A. Mariscal</i>	
<b>Preliminary Opacity Experiments in Dense High Z Plasmas on the MAGPIE Facility</b> .....	188
<i>Louisa A. Pickworth</i>	
<b>Optical and Electrical Diagnostic of Underwater Zn-wire Explosion</b> .....	189
<i>Vaclav Prukner</i>	



<b>Intense Ultrashort Laser - Xe Cluster Interaction</b> .....	190
<i>Jack Davis</i>	
<b>HEIGHTS Simulation and Optimization of Laser Produced Plasma EUV Sources</b> .....	191
<i>Tatyana Sizyuk, Ahmed Hassanein</i>	
<b>Laser-Produced Carbon Plasma Evolution and Lifecycle</b> .....	192
<i>Mathew Polek</i>	
<b>X-Ray Emission in the Water-Window from Laser-Produced Boron-Nitride Plasma</b> .....	193
<i>Matthew L. Crank</i>	
<b>Crater Formation and Signal Intensity in Nano- and Femto-Second Laser Ablation Inductively Coupled Plasma Mass Spectrometry</b> .....	194
<i>Nicole L. Lahaye</i>	
<b>Effects of Pre-Pulses on Extreme Ultraviolet Conversion Efficiency in Laser-Produced Tin Plasmas</b> .....	195
<i>Justin R. Freeman</i>	
<b>Time-of-Flight Spectroscopy and Fast Imaging Studies of Carbon Dimers in Laser-Produced Plasmas</b> .....	196
<i>Khaled F. Al-Shboul</i>	
<b>The Role of Excitation Wavelength on Debris for CO<sub>2</sub> and Nd:YAG Laser-Produced Plasma EUVL Sources</b> .....	197
<i>Matthew D. Fields</i>	
<b>Late Time Magnetic Field in Laser Produced Plasmas</b> .....	198
<i>Sandra Stein</i>	
<b>Experimental Study of Shock Wave Discontinuities and Interactions with Laser Induced Plasmas</b> .....	199
<i>Magesh Thiyagarajan</i>	
<b>Portable Plasma Torch Treatment on E. Coli, S. Aureus, N. Meningitidis and Other Clinical Isolates and Other Clinical Isolates</b> .....	200
<i>Magesh Thiyagarajan, Lillian Waldbeser</i>	
<b>Synthesis of Nanoparticles Using an Atmospheric Pressure Plasma Jet</b> .....	201
<i>Shih Min Chang, Cheng Che Hsu</i>	
<b>Decomposition of Cellulose by Plasma in Salt Solutions</b> .....	202
<i>Shiue Hua Wang</i>	
<b>Decomposition of Perfluorooctane Sulfonate in Water Using Atmospheric Plasma</b> .....	203
<i>Hayato Obo</i>	
<b>Sterilization of Organic Sheet by Plasma-Based Ion Implantation</b> .....	204
<i>Noriyuki Sakudo</i>	
<b>Atmospheric Pressure Plasma Decomposition of Azo Dyes in Water</b> .....	205
<i>Szetsen Lee</i>	
<b>Optical Emission Spectroscopy Analysis of Silane/Methane/Hydrogen Plasma for Deposition of a SiC:H Film</b> .....	206
<i>Ching-Po Lin</i>	
<b>Dielectric Barrier Atmospheric Discharge Combined with Petri-Dish</b> .....	207
<i>Junggil Kim</i>	
<b>Sterilization Effect of Various Gas Non-Thermal Plasma</b> .....	208
<i>Toshihiro Takamatsu</i>	
<b>Atmospheric Pressure Air Plasma Jet Assisted Blood Coagulation</b> .....	209
<i>Yong Hee Kim</i>	
<b>Atmospheric Pressure Plasma Jet Effects on Sterilization of E. coli and S. aureus</b> .....	210
<i>Taner Aktan</i>	
<b>Antibacterial Efficacy of Nonthermal Atmospheric Pressure Plasma Against Candida albicans</b> .....	211
<i>Taner Aktan</i>	
<b>A Self-Pulsed Air Plasma Plume for Biomedical Applications</b> .....	212
<i>Xinpei Lu</i>	
<b>Tooth Whitening by a Direct Current Cold Plasma Micro-Jet</b> .....	213
<i>Xiaohui Yang</i>	
<b>Nanosecond Pulsed Electric Fields Combined with Gemcitabine as a Potential Breast Cancer Therapy</b> .....	214
<i>Shan Wu</i>	
<b>A High-Energy Resolution X-Ray Spectrometer with Interchangeable Detectors (HEX-ID) for Short-Pulse Laser-Plasma Experiments</b> .....	215
<i>David F. Martin, Anthony L. Meadowcroft</i>	
<b>Spectral Characterization of Al and Ar K-Shell Z-Pinch Source on Sphinx</b> .....	216
<i>Thierry D' Almeida</i>	
<b>Determination of the Rocking Curve and Reflection Efficiency of a SiO<sub>2</sub> Crystal Imager using Zr, Nb, Mo and Ag Ka X-Rays</b> .....	217
<i>Perrin E. Schiebel</i>	

<b>Development of a Microchannel Plate Based Gated X-Ray Imager for Imaging and Spectroscopy Experiments on Z</b> .....	218
<i>Ming Wu</i>	
<b>Multi-Color Gated X-Ray Pinhole Imaging of Z-Pinch Implosions on the Saturn and Z Pulsed Power Generators</b> .....	219
<i>B. Jones</i>	
<b>Improved Visualization of Z-Pinch Dynamics from Inversion of Streak Camera Data into Video Format</b> .....	220
<i>Adam D. Cahill</i>	
<b>Streamer Dynamics in Transformer Oil: Influence of Applied Voltage Rise Time</b> .....	221
<i>Jouya Jadidian</i>	
<b>Optical and Electrical Diagnostics of 100 Micron Diameter Wires Exploded in Air</b> .....	222
<i>Jane M. Lehr</i>	
<b>Pulsed HV Vacuum Breakdown of Aluminium and Velvet Cathodes</b> .....	223
<i>Bertrand Etchessahar, Remi Nicolas</i>	
<b>Breakdown Electron Temperature in Spark Gap Switch by High Voltage Pulses</b> .....	224
<i>Yong Seong Byeon</i>	
<b>Device Development and Pulse Performance of Super-12 Si SGTO</b> .....	225
<i>Aderinto Ogunniyi</i>	
<b>Diffusive Radial Expansion Effect on Long-Rail Spark Dynamical Impedances</b> .....	226
<i>Lawrence S. N. Wang</i>	
<b>Three-Dimensional MHD Simulations of a Plasma Switch Opening</b> .....	227
<i>Michael H. Frese, Volodymyr Makhin</i>	
<b>Performance of NIF Ignition Type Implosions</b> .....	228
<i>Joseph D. Kilkenny</i>	
<b>Neutron Time-of-Flight Measurements on the National Ignition Facility</b> .....	229
<i>James P. Knauer</i>	
<b>Uncertainty Analysis for Ablator Areal Density Measurements Using Gamma-Ray Emission of Imploded Capsules at the OMEGA Laser</b> .....	230
<i>Nelson M. Hoffman</i>	
<b>Initiation of Quasi Spherical Direct Drive Capsules for Inertial Fusion</b> .....	231
<i>John P. Vandevender</i>	
<b>Imploding Plasma Liners as a Standoff Driver for Magneto-Inertial Fusion</b> .....	232
<i>Scott C. Hsu</i>	
<b>Advanced Fusion Reactors for Space Propulsion and Power Systems</b> .....	233
<i>John J. Chapman</i>	
<b>Modeling of Drive Induced Oscillation in a Coupled Cavity TWT</b> .....	234
<i>Alexander N. Vlasov</i>	
<b>Modeling of the Wide-Band Coupled-Cavity TWTs with the Large-Signal Code TESLA-CC</b> .....	235
<i>Igor A. Chernyavskiy</i>	
<b>Effects of Non-Periodic Variations in Periodic RF Structures</b> .....	236
<i>Vadim Jabotinski</i>	
<b>Status of the Michelle Code and Applications to RF Guns</b> .....	237
<i>John Petillo</i>	
<b>GPU-Accelerated 3D Electromagnetic PIC Simulations</b> .....	238
<i>Simon J. Cooke</i>	
<b>Study on Low-Frequency Oscillations in a Gyrotron Using a 3D CFDTD PIC Method</b> .....	239
<i>M. C. Lin, D. N. Smithe</i>	
<b>Temporal Particle-in-Cell in Beam Optics Analyzer</b> .....	240
<i>Thuc Bui</i>	
<b>Single-File Diffusion in a Dusty Plasma</b> .....	241
<i>Terrence E. Sheridan</i>	
<b>Wave Phenomena in Complex Plasmas</b> .....	242
<i>Dmitry Samsonov</i>	
<b>Viscosity Quantified in 2D Dusty Plasma Experiment</b> .....	243
<i>Yan Feng</i>	
<b>Observation of Cusp Structures in Dusty Plasma Simulations</b> .....	244
<i>Sanat Kumar Tiwari</i>	
<b>Theoretical Studies for the CARE II Rocket Experiment to Excite Plasma Waves in the Ionosphere by High Speed Dust Injection</b> .....	245
<i>Paul A. Bernhardt, Marlene Rosenberg</i>	

<b>Permeability Characteristics of Hollow Nanoparticles Fabricated by Low-Pressure Plasma Deposition</b> .....	246
<i>Anaram Shahravan, Themis Matsoukas</i>	
<b>Aerosol/Cluster Formation and Hydrogen Co-Deposition by Colliding Ablation Plasma Plumes of Lithium and Lead</b> .....	247
<i>Yoshi Hirooka</i>	
<b>Effects of Plasma Exposure on Defects in Novel Dielectric Materials</b> .....	248
<i>He Ren</i>	
<b>Screening and Electric Double Layer in Strongly Coupled Plasmas</b> .....	249
<i>Igor V. Morozov, Genri E. Norman</i>	
<b>Time-Resolved Study and Comparison of Plasmas in High Power Pulsed and Modulated Pulse Power Magnetron Sputtering</b> .....	250
<i>Liang Meng</i>	
<b>Separation of Ion and Photon Damage Effects on Novel Dielectric Materials During Plasma Exposure</b> .....	251
<i>He Ren</i>	
<b>Hanging Ten to the Tenth on a Plasma Wave: the Grand Challenge of Extending the High Energy Frontier</b> .....	252
<i>Tom Katsouleas</i>	
<b>Characteristics of Impurity-Dependent Breakdown in Helium Dielectric Barrier Discharge Jets</b> .....	253
<i>Tsung-Chan Tsai, David Staack</i>	
<b>Chaos in Atmospheric Pressure Plasma Jets</b> .....	254
<i>James L. Walsh</i>	
<b>Maxwell Demon and Its Instabilities</b> .....	255
<i>Chi-Shung Yip, Noah Hershkowitz</i>	
<b>Real-Time Observation of Runaway-Electron Breakdown of Air in the Laboratory Conditions</b> .....	256
<i>Aleksandr V. Gurevich</i>	
<b>On the Generation Mechanism of Supershort Avalanche Electron Beam During a Nanosecond Discharge in High Pressure Gases</b> .....	257
<i>Victor F. Tarasenko</i>	
<b>Generation of High Frequency O-Wave in Inhomogeneous Plasma in Presence of Drift Wave Turbulence</b> .....	258
<i>Paramananda Deka, Anjan Borgohain</i>	
<b>Experiments on MA Linear Transformer Drivers</b> .....	259
<i>Ronald M. Gilgenbach</i>	
<b>Modeling High-Voltage DC Breakdown for Single- and Multi-Stack Insulators</b> .....	260
<i>Manuel P. Aldan, John P. Verboncoeur</i>	
<b>Physics Investigations of Vacuum Ultraviolet Emission from Pulsed Atmospheric Discharges</b> .....	261
<i>George R. Laity</i>	
<b>Main Factors Influencing the Effect of Suppressing Multipactor by Periodic Surface Profiles and Resonant Magnetic Field</b> .....	262
<i>Chao Chang</i>	
<b>Review of High Voltage Silicon Carbide Device Research at the Army Research Laboratory</b> .....	263
<i>Heather K. O' Brien</i>	
<b>Magnesium Based Photocathode for Back-Lighted Thyatron</b> .....	264
<i>Esin B. Sozer</i>	
<b>Cold Atmospheric Plasma for Clinical Purposes, Promising Results in Patients and Future Applications</b> .....	265
<i>Georg Isbary</i>	
<b>Sterilization Effects of Biofilms by Ar/O<sub>2</sub> Plasma Jet</b> .....	266
<i>Leila Taghizadeh</i>	
<b>Direct and Indirect Treatment of Living Tissue: Dielectric Barrier Discharges vs. Plasma Jets</b> .....	267
<i>Natalia Yu. Babaeva, Mark J. Kushner</i>	
<b>On the Mechanism of Plasma Inducing Cell Apoptosis</b> .....	268
<i>Xinpei Lu, Fei Zou</i>	
<b>Robust Hydrogen Peroxide Enhanced Plasma Effluent for the Clinical Setting</b> .....	269
<i>Mark Golkowski</i>	
<b>Application of a Bifilar Helix Discharge in Endoscope Biopsy Channels for Plasma Decontamination and Biomedical Aspects</b> .....	270
<i>Jorn Winter</i>	
<b>Treatment of Water and E. coli Suspensions by Dielectric Barrier Discharge in Argon/Oxygen Atmospheres</b> .....	271
<i>Katrin Oehmigen</i>	

<b>Methicillin Resistant Staphylococcus Pseudintermedius Do Not Develop Resistance to Atmospheric Pressure Cold Plasma Discharges .....</b>	<b>272</b>
<i>Igor Alexeff</i>	
<b>Short Pulse ECR Ion Sources of Multicharged Ions .....</b>	<b>273</b>
<i>Ivan V. Izotov</i>	
<b>Runaway Electron Preionized Diffuse Discharges in Atmospheric Pressure Air with Point-to-Plane and Point-to-Point Gaps in Repetitive Pulsed Mode.....</b>	<b>274</b>
<i>Victor F. Tarasenko</i>	
<b>Advanced Dispenser Cathodes.....</b>	<b>275</b>
<i>Robert L. Ives</i>	
<b>Frequency Probe Measurements in Processing Plasmas.....</b>	<b>276</b>
<i>David R. Boris</i>	
<b>Studies of Electronegative Ar/O<sub>2</sub> Discharge in a Constricted Hollow Anode Plasma Source using Dual Probe Technique.....</b>	<b>277</b>
<i>Mubarak A Mujawar</i>	
<b>Investigation of the Current Density Properties of an Ion Beam Extracted from a Low Pressure Wire Discharge.....</b>	<b>278</b>
<i>Renaud Gueroult</i>	
<b>Plasma Cloud Generation with Intense Electric Fields Inside a Porous Spherical Cavity Resonator Excited by an External Plane Wave .....</b>	<b>279</b>
<i>Paul A. Bernhardt</i>	
<b>Engineering an RF Antenna for Use in Transparent Conducting Oxide Deposition.....</b>	<b>280</b>
<i>Eithan Ritz</i>	
<b>Experimental Investigations on the Magnetized Inductively Coupled Plasma for 450mm Semiconductor Wafer Processing.....</b>	<b>281</b>
<i>Yun-Gi Kim, Ho-Jun Lee</i>	
<b>Particle-In-Cell Simulations of Microdischarges with Extremely Small Characteristic Sizes .....</b>	<b>282</b>
<i>Yingjie Li, David B. Go</i>	
<b>Development of a Parallelized Two-Dimensional Axisymmetric Capacitively Coupled Plasma Simulator Using Graphics Processing Units.....</b>	<b>283</b>
<i>In Cheol Song</i>	
<b>Numerical Study of the Electron Dynamics in Radio-Frequency Plasmas at Atmospheric Pressure.....</b>	<b>284</b>
<i>Torben Hemke</i>	
<b>The Effect of Electron Cyclotron Resonance Heating on Breakdown for Start-up of a Tokamak.....</b>	<b>285</b>
<i>Seung Bo Shim</i>	
<b>Dynamics of Micro Cavity Plasma Arrays: Simulation of Ionization Wave Propagation.....</b>	<b>286</b>
<i>Alexander Wollny</i>	
<b>Some Results of Particle in Cell Simulations of Initial Argon Dielectric Barrier Discharges .....</b>	<b>287</b>
<i>Manuel A. Huerta, Lars D. Ludeking</i>	
<b>Amplification and Self-Compression of Ultrashort Electromagnetic Pulse Propagating along Quasi-Stationary Electron Beam .....</b>	<b>288</b>
<i>Michael I. Yalandin</i>	
<b>Progress on a 94 GHz Omnidirectional Traveling-Wave Tube Gain Experiment.....</b>	<b>289</b>
<i>Dmitry Y. Shchegolkov</i>	
<b>Some Unusual Properties of the Cylindrical Brillouin Flow .....</b>	<b>290</b>
<i>David H. Simon</i>	
<b>Recirculating Planar Magnetron Modeling and Experiments.....</b>	<b>291</b>
<i>Matthew A. Franzi</i>	
<b>Oscillation Thresholds in Coupled-Cavity TWTs.....</b>	<b>292</b>
<i>George Stantchev</i>	
<b>Effects of Random Circuit Fabrication Errors on Small Signal Gain in a Traveling Wave Tube.....</b>	<b>293</b>
<i>Ian M. Rittersdorf</i>	
<b>Thermal Axisymmetric Waves in Vortex-Free Beams from Diodes and Tetrodes .....</b>	<b>294</b>
<i>Al Theiss</i>	
<b>THz Sheet Beam Traveling Wave Tube Amplifier for Microwave Power Module (MPM) Application: MEMS-Fabrications and Characteristic Analysis .....</b>	<b>295</b>
<i>Robert Barchfeld</i>	
<b>ePLAS Modeling of Plasma Jets.....</b>	<b>296</b>
<i>Rodney J. Mason</i>	
<b>Ion Kinetic Effects in Hybrid-PIC Simulations of Merging Plasma Jets in the Plasma Liner Experiment.....</b>	<b>297</b>
<i>Carsten H. Thoma</i>	

<b>Kansas State University Dense Plasma Focus (KSU-DPF) Initial Neutron Results</b> .....	298
<i>Mohamed I. Ismail</i>	
<b>Short Circuit Test - Complete Analysis for the Dense Plasma Focus</b> .....	299
<i>Amgad E. Mohamed</i>	
<b>Dynamics of a Microscale Dense Plasma Focus</b> .....	300
<i>William Pollard</i>	
<b>A Computational Investigation of Synchrotron Radiation Generation in Laser-Wake</b> .....	301
<i>Paul G. Cummings, Alec G. R. Thomas</i>	
<b>Acceleration Experiments</b> .....	301
<b>Observation of Energetic Deuteron Ions Accelerated from the Rear Surface of Laser-Irradiated Flat-Foil Targets</b> .....	302
<i>Edward W. McCary</i>	
<b>Analysis of New Mid-Atomic Number Precursor Wire Array Experiments on the 1-MA Pulsed Power Generator at UNR</b> .....	303
<i>Austin Stafford</i>	
<b>Enhanced X-ray Bremsstrahlung Emission from Xenon Plasmas Irradiated by an Intense KrF Laser</b> .....	304
<i>Jack Davis</i>	
<b>Diagnosing Copper Wire Array Implosions on Refurbished Z with Detailed Radiation-Hydrodynamic Models</b> .....	305
<i>Robert W. Clark</i>	
<b>Application of Triboluminescence Caused by Peeling Tapes to Roentgen Diagnosis</b> .....	306
<i>Seizo Furuya</i>	
<b>Thruster Evaluation of the MadHex Helicon Source</b> .....	307
<i>John E. Scharer</i>	
<b>Miniaturized Electric Propulsion in Low Temperature Co-Fired Ceramic</b> .....	308
<i>Sonya Shawver</i>	
<b>Plasma Characteristics of the Ferroelectric Plasma Thruster</b> .....	309
<i>Brian T. Hutsel</i>	
<b>Addressing Issues in Probing the Magnetic Cusp Region</b> .....	310
<i>Aimee A. Hubble, John E. Foster</i>	
<b>Cross-Field Electron Transport Through a Rotating Spoke in the Cylindrical Hall Thruster</b> .....	311
<i>Charles Leland Ellison</i>	
<b>Ion Energy Distribution Measurements of a Radiofrequency Plasma Source Immersed in Vacuum</b> .....	312
<i>Adam Shabshelowitz, Alec D. Gallimore</i>	
<b>Atmospheric-Pressure Air Plasma Jet and Its Application to Photoresist Material Etching</b> .....	313
<i>Lijun Wang</i>	
<b>A Two Dimensional Capillary Discharge Model Considering the Ablation-Deposition Process</b> .....	314
<i>Xingwen Li</i>	
<b>Amorphous Silicon &amp; Silicon Nitride Etching with NF<sub>3</sub> DBD Plasma</b> .....	315
<i>Dong Chan Seok</i>	
<b>Integrated Approach in Predicting Damage to Components in ITER-like Fusion Devices during Plasma Instabilities</b> .....	316
<i>Valeryi Sizyuk, Ahmed Hassanein</i>	
<b>Surface Resistivity Modification of Polyimide Film by Plasma Source Ion Implantation*</b> .....	317
<i>Byungjae Park</i>	
<b>Study of Plasma in Bias Pulse Duty Ratio at ICP Etch Chamber</b> .....	318
<i>Tae-Hoon Jo</i>	
<b>Aerodynamically Enhanced Atmospheric Pressure Plasma Jet for Polymer Treatment</b> .....	319
<i>Kapil Umesh Sawlani, John Edison Foster</i>	
<b>Field Emission Characteristics of Cone-Shaped Carbon Nanotube Bundle by Plasma Treatments</b> .....	320
<i>Sun Taek Lim, Gon Ho Kim</i>	
<b>Plasma Diffusion in the Atmospheric Pressure Plasma Jets</b> .....	321
<i>Yunjung Kim</i>	
<b>Downstream Characterization of an Oxygen Atmospheric Pressure Plasma Jet</b> .....	322
<i>Yao Jhen Yang</i>	
<b>Optical and Electrical Diagnostics on Extended Dielectric Barrier Discharge Source</b> .....	323
<i>Jungmi Hong</i>	
<b>Modification of Hydrophobicity of Metallic Surfaces with an Atmospheric Plasma Jet</b> .....	324
<i>Ruben Palma</i>	
<b>Effect of Atmospheric Plasma Treatment on Edible Grains</b> .....	325
<i>Martin Nieto-Perez</i>	

<b>Comparison of Hydrophilization Effect by Various Gas Atmospheric Plasma</b> .....	326
<i>Ryota Sasaki</i>	
<b>Angular Dependences of Si<sub>3</sub>N<sub>4</sub> Etch Rates and SiO<sub>2</sub>-to-Si<sub>3</sub>N<sub>4</sub> Etch Selectivity in C<sub>4</sub>F<sub>6</sub>/Ar/O<sub>2</sub>/CH<sub>2</sub>F<sub>2</sub> Plasmas</b> .....	327
<i>Sung-Woon Cho, Chang-Koo Kim</i>	
<b>Microwave Plasma Jet System Development at Atmospheric Pressure using 2.45 GHz GaN HEMT Devices</b> .....	328
<i>Jae Duk Kim</i>	
<b>Synthesis of Sulfonated Copolymers of Acrylamide by Plasma-Initiated Copolymerization Using Microwave Plasma</b> .....	329
<i>Fatemeh Ghomashi</i>	
<b>RF Atmospheric Plasma Based Air Filtration Using Porous Metals</b> .....	330
<i>Daniel D. Wooten</i>	
<b>Power Studies of an Underwater DBD Plasma Jet</b> .....	331
<i>Sarah M. Nowak, John E. Foster</i>	
<b>Microchannel Plasma Reactor for Gaseous Remediation and Destruction</b> .....	332
<i>Benjamin C. Masters</i>	
<b>Study on the Discharge under Water and Micro Bubble Generation</b> .....	333
<i>Taihyeop Lho</i>	
<b>Influence of Pulsed Electric Field (PEF) Treatment on the Extraction of Lipids from the Microalgae Auxenochlorella Protothecoides</b> .....	334
<i>Martina Goettel</i>	
<b>Plasma Engineering of Gases in Micro Ion Atomic Clocks</b> .....	335
<i>Tony K. Statom</i>	
<b>Atmospheric Argon Plasma Effects on Microbial Load of Wet-Blue Leathers</b> .....	336
<i>Taner Aktan</i>	
<b>Plasma Water Treatment by Electrical Discharge Methods</b> .....	337
<i>Kadir Ozaltin</i>	
<b>Hydrodynamic and Magnetically Driven Jets on the MAGPIE Generator</b> .....	338
<i>Francisco Suzuki-Vidal</i>	
<b>Plasma Focus Generated by Radial Foils on COBRA</b> .....	339
<i>Jason M. Milhone</i>	
<b>Interactions Between Two Plasma Bubbles Using Radial Foil Configurations</b> .....	340
<i>Alexander Y. Gorenstein, Jo E. Kim</i>	
<b>Computational Aspects of Simulating Megagauss-Magnetic-Field-Induced Plasma Formation on Thick-Wire Metallic Surfaces</b> .....	341
<i>Irvin R. Lindemuth</i>	
<b>High Resolution Imaging of K-Alpha X-Rays Using an Elliptically Bent Crystal</b> .....	342
<i>Patrick X. Belancourt</i>	
<b>Laser Interferometric Measurement for Astrophysics Diagnostics on Sphinx</b> .....	343
<i>Damien Plouhinec</i>	
<b>Development of an All Fiber Velocity Interferometer Dedicated to Measurement of Thermal Stress Waves on Samples Irradiated by Sphinx Z-Pinch Source</b> .....	344
<i>Frederic Zucchini</i>	
<b>Absolute Calibration Method for Nanosecond-Resolved, Time-Streaked, Fiber Optic Light Collection, Spectroscopy Systems</b> .....	345
<i>Mark D. Johnston</i>	
<b>Optical Emission Spectroscopy Measurements of Electron Beam-Generated Plasma in Argon</b> .....	346
<i>Evgeniya H. Lock</i>	
<b>Influence of Ne-Xe Gas Mixture Ratio on the Extreme Ultraviolet (EUV) Emission and Electron Temperature from the Coaxially Focused Plasma</b> .....	347
<i>Sung Hee Lee</i>	
<b>High-Sensitivity Interferometric Measurements of Gas Density Distributions from a PRS Nozzle Synchronized with a Heterodyne Interferometer</b> .....	348
<i>David G. Phipps</i>	
<b>Continued Development of Triple Plasma Gas Puff Nozzles for Z</b> .....	349
<i>Robert E. Madden</i>	
<b>Measurement of Neutral Hydrogen Density in a Helicon Plasma</b> .....	350
<i>Matthew E. Galante</i>	
<b>Calculation of RF Field Characteristics using Non-perturbative Optical Diagnostics with a Generalized Dynamic Stark Effect Model</b> .....	351
<i>Elijah H. Martin</i>	

<b>Etch Rate Monitoring with Optical Emission Spectra in Dry Etching Process</b> .....	352
<i>Sang Wuk Park</i>	
<b>Study of Resonant Properties of Hairpin Probe for High-Density Operation</b> .....	353
<i>Gurusharan Singh Gogna</i>	
<b>A High Wavenumber Poloidal Scattering System for the NSTX Tokamak</b> .....	354
<i>Calvin W. Domier</i>	
<b>Measurement of D-T Branching Ratio Based on Cross-Calibration to D-3He</b> .....	355
<i>Yongho Kim</i>	
<b>Proton Probing of Magnetic Fields in Exploding Wire Experiments</b> .....	356
<i>Derek A. Mariscal</i>	
<b>Alignment Commissioning of the Neutron Imager for the National Ignition Facility</b> .....	357
<i>Owen B. Drury</i>	
<b>Coded Aperture Imaging Technique for Investigation of Fusion Source Spatial Distribution in Plasma Focus Device</b> .....	358
<i>Alireza Talebitahter</i>	
<b>In-Situ Preparation of Radioactive Tracers in NIF Capsules</b> .....	359
<i>Mark A. Stoyer</i>	
<b>Scaling of Bright Spots in X Pinches from 1 MA to 6 MA</b> .....	360
<i>Daniel B. Sinars</i>	
<b>Experimental Investigations of Single-Layer and Nested X-Pinches at 1-MA</b> .....	361
<i>Jian Wu</i>	
<b>Optimization of Dense Plasma Focus for Higher Neutron Yield</b> .....	362
<i>Syed M Hassan</i>	
<b>High Performance Repetitive Low Energy Miniature Plasma Focus Neutron Source: Record Yield, Scaling Laws and Yield Stability</b> .....	363
<i>Rishi Verma</i>	
<b>Laser-Produced Directed Neutron Beams</b> .....	364
<i>George M Petrov</i>	
<b>Experiments to Characterize a &gt;100 keV, High Resolution X-Ray Backlighter for Cylindrical Imploding Liners at the Z Machine</b> .....	365
<i>Timothy J. Webb</i>	
<b>Observations of Strong Areal Mass Oscillations in a Rippled Target Hit by a Short Pulse on the Nike Laser</b> .....	366
<i>Y. Agliitskiy</i>	
<b>Wideband Fast Wave Amplifiers</b> .....	367
<i>Colin G. Whyte</i>	
<b>Recent Tests on a Multi-Megawatt 95 GHz Gyrotron</b> .....	368
<i>Stephen Cauffman</i>	
<b>Experimental Results of the Start-up Scenario for a 1.5 MW, 110 GHz Pulsed Gyrotron</b> .....	369
<i>David S. Tax</i>	
<b>Ultimate Choice of Operating Modes in High-Power Gyrotrons</b> .....	370
<i>Oleksandr V. Sinityn</i>	
<b>Second Harmonic Gyrotron Based on a 12 T Superconducting Magnet</b> .....	371
<i>Arne W. Fliflet, Steven H. Gold</i>	
<b>Fundamental and Harmonic Mode Competition in Gyrotron Oscillator</b> .....	372
<i>Shih-Hsiang Kao</i>	
<b>Destabilization of Backward Waves by Space Charge in Gyrotron Beams</b> .....	373
<i>Jiao Yu</i>	
<b>Reformulation of Gas Discharge Theory Using Data from ICPs and Helicons</b> .....	374
<i>Francis F. Chen, Davide Curreli</i>	
<b>Verification of Collisionless Model of Capacitive Rf Discharges by Particle-in-Cell Simulations</b> .....	375
<i>Ying Wang</i>	
<b>Probe Diagnostics of RF Plasmas for Material Processing</b> .....	376
<i>Valery Godyak</i>	
<b>Analysis of the Interaction of Free and Bound Microplasmas</b> .....	377
<i>Y. H. Kim</i>	
<b>Communication Through a Plasma Sheath Around a Fast Moving Vehicle</b> .....	378
<i>Vladimir Sotnikov</i>	
<b>Controlled Study of Acoustic Gravity Waves (AGW) Generated by Anomalous Heat Sources</b> .....	379
<i>Rezy Pradipta</i>	

<b>Room Scattering Effects on the Measured Spatial Distribution of Delayed Photofission Neutrons from Depleted Uranium</b> .....	380
<i>John P. Apruzese</i>	
<b>New Reflex Triode Configuration for Improved Moderate-Energy X-Ray Production</b> .....	381
<i>Bruce V. Weber</i>	
<b>Load Impedance Dynamics in the RITS-6 Self-Magnetic-Pinch Diode</b> .....	382
<i>Timothy J. Renk</i>	
<b>3-D Green's Function Modeling for Moderately Relativistic Charged-Particle Beams in Cylindrical Geometry</b> .....	383
<i>Kostyantyn Ilyenko, Tetyana Yu Yatsenko</i>	
<b>Study on Behaviors of Laser Produced Plumes for Fusion Material Ablation</b> .....	384
<i>Kazuo A. Tanaka</i>	
<b>Measurement of Spatial Distribution of Fusion Reactions in an Inertial Electrostatic Confinement Fusion Device Driven by a Ring-Shaped Magnetron Ion Source</b> .....	385
<i>Taiju Kajiwara</i>	
<b>Modeling and Simulation of the Erosion Damage in Tokamak Devices During Plasma Instabilities</b> .....	386
<i>Filippo Genco, Ahmed Hassanein</i>	
<b>Probing the Ionosphere with Rockets and Radio Waves: A Study of Plasma Waves and Instabilities in the Upper Atmosphere</b> .....	387
<i>Paul A. Bernhardt</i>	
<b>The Study of Ablation and Implosion Dynamics in Closely Coupled Nested Cylindrical and Star Wire Array Z Pinches</b> .....	388
<i>Daniel Papp</i>	
<b>End-on Laser Probing of the Ablation Phase of Wire Array Z-Pinch Implosions on the MAGPIE Generator</b> .....	389
<i>George F. Swadling</i>	
<b>Atomic Model and Synthetic Diagnostics for Large Scale Parallel Simulations of Wire Array Z-Pinches</b> .....	390
<i>Nicolas P. Niasse, Jeremy P. Chittenden</i>	
<b>Modeling of Gas Puff Z-Pinch Experiments at the ZR Facility</b> .....	391
<i>Christopher S Kueny</i>	
<b>Plasma Instability Measurements on Planar Al Foil Loads Driven Using the MAIZE 1-MA LTD Facility</b> .....	392
<i>Jacob C. Zier</i>	
<b>Ablation Dynamics, Precursor Formation, and Instability Studies on Thin Foil Copper Liners</b> .....	393
<i>Isaac C. Blesener</i>	
<b>Time Evolution of Z-Pinch Dynamics and Radiative Characteristics of Wire Arrays on Zebra at UNR</b> .....	394
<i>A. S. Safronova</i>	
<b>X-Ray Pulse Shaping from Tungsten-Based Multi-Planar Wire Arrays</b> .....	395
<i>Glenn Osborne</i>	
<b>X-Ray Yield from Pinch Target Implosions</b> .....	396
<i>David A. Martinez</i>	
<b>Progress in Field Ionization Source Development for Compact Neutron Generators</b> .....	397
<i>Arun Persaud</i>	
<b>The Klein Tunneling Modified Field-Emission Model for a Vertical-Aligned Single-Layer Graphene Sheet</b> .....	398
<i>Song Sun, Lay Kee Ang</i>	
<b>An Exact Formulation of Thin Film Contact Resistance with Dissimilar Materials</b> .....	399
<i>Peng Zhang</i>	
<b>Field Emission from Nanocrystalline Graphite/Carbon Nanotube Emitter from Room Temperature to 1000 C</b> .....	400
<i>Heinz H. Busta</i>	
<b>A Plasma Source for High Power Microwave Interaction Studies</b> .....	401
<i>V. P. Anitha</i>	
<b>Statistical Modeling of High Power Microwave Surface Flashover Delay Times</b> .....	402
<i>Jonathan Foster</i>	
<b>Distributed Microwave Breakdown for Shielding of Sensitive Electronics Against Frontdoor Overloads</b> .....	403
<i>Florent Christophe</i>	
<b>Preliminary Design of the ITER ECH Upper Launcher</b> .....	404
<i>Dirk C. Strauss</i>	



<b>Characterizations on a 2.45 GHz Microwave Induced Atmospheric Pressure Plasma Torch</b> .....	405
<i>Zihao Ouyang</i>	
<b>Towards the Purification of Liquid Water by Direct Plasma Injection: Technical Challenges and Ongoing Efforts at the University of Michigan Plasma Science and Technology Laboratory</b> .....	406
<i>John E. Foster</i>	
<b>An Investigation of Micron Diameter Exposed-Electrode Single Barrier Dielectric Barrier Discharges</b> .....	407
<i>Mohammed U. Siddiqui</i>	
<b>Al/Al<sub>2</sub>O<sub>3</sub>Micro Channel Plasma Chemical Reactor for Ozone Synthesis</b> .....	408
<i>J. H. Cho</i>	
<b>Resonant Oscillations of Air Bubbles Driven by a Time Varying Electric Field</b> .....	409
<i>Bradley S. Sommers, John E. Foster</i>	
<b>Adsorption and Decomposition of Perfluorooctane Sulfonic Acid on Plasma-water Interface</b> .....	410
<i>Nozomi Takeuchi</i>	
<b>Decontamination of Salmonella on Sliced Fruits and Vegetables Surfaces using a Direct-Current, Atmospheric-Pressure Cold Plasma</b> .....	411
<i>Weifeng Nian</i>	
<b>Investigation of SiO<sub>2</sub> Etch Properties Using Pulse Power in Capacitively Coupled Plasmas</b> .....	412
<i>Sang-Heon Song, Mark J. Kushner</i>	
<b>Anomalous Voltage Trends in Electronegative Capacitively Coupled Plasmas</b> .....	413
<i>Ankur Agarwal</i>	
<b>Temporal Temperature Evolution of Atmospheric Pressure Streamer Discharge in Air</b> .....	414
<i>Scott J. Pendleton</i>	
<b>Efficacy of Air Plasma Microjet for Wound Sterilization</b> .....	415
<i>Amber M. Mattson</i>	
<b>An Atmospheric Pressure Non-Thermal Plasma Needle for Endodontic Biofilm Disinfection</b> .....	416
<i>Chunqi Jiang</i>	
<b>Simulation of Atmospheric Pressure Ionization Waves Propagating Through Flexible Capillary Tubes and Impinging onto a Target</b> .....	417
<i>Ziongmin Xiong, Mark J. Kushner</i>	
<b>Author Index</b>	