Curriculum Vitae updated 6/11/25

Name: **Peng Zhang**
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https://plasmabay.engin.umich.edu/
Google Scholar: https://scholar.google.com/citations?user=aOzaYToAAAAJ

Research Areas

Nanoscale Interfacial Transport: nanoelectronics and photonics, quantum plasmonics junction, electrical contact resistance, thermal transport, electron emission, electron tunneling, classical, ballistic and quantum diodes, surface roughness.

Ultrafast Phenomena: ultrafast laser induced photoemission, ultrashort pulse transport, ultrafast laser-nanostructure interaction, attosecond nanophysics, laser-QED plasma interaction, plasma discharge and instabilities.

Electromagnetic Fields and Waves: novel source and applications of high frequency radiation (radio frequency - microwave - millimeter wave - terahertz - X-ray), electromagnetic wave absorption and heating, Smith-Purcell THz radiation, plasmonics, metamaterials, vacuum electronics, free electron laser, multipactor, and high-order harmonic generation.

Education

University of Michigan - Ann Arbor
Ph.D. in Nuclear Engineering and Radiological Sciences, 2008 - 2012
Graduate Certificate in Plasma Science and Engineering, 2009 - 2012
M. S. in Nuclear Engineering and Radiological Sciences, 2008 - 2010

Nanyang Technological University (Singapore)
M. Eng. in Microelectronics, 2007 - 2008
B. Eng. in Electrical and Electronic Engineering (First class), with Minor in Computing, 2002 - 2006

Experiences

University of Michigan – Ann Arbor
Associate Professor 01/2025 - Present

Michigan State University

Adjunct Associate Professor	01/2025-Present
Associate Professor	07/2021 – 12/2024
Assistant Professor	08/2016 - 06/2021
University of Michigan – Ann Arbor	
Assistant Research Scientist	08/2013 - 08/2016
Postdoctoral Research Fellow	09/2012 - 08/2013
Graduate Student Research Assistant	09/2008 - 09/2012
Nanyang Technological University (Singapore)	
Project Officer	07/2006 - 07/2008
Undergraduate Research Experience on Campus	09/2004 - 07/2005

Awards and Honors

- IEEE Nuclear & Plasma Sciences Society (NPSS) Early Achievement Award (2020)
- Young Investigator Program (YIP) Award, Office of Naval Research (2020)
- Young Investigator Program (YIP) Award, Air Force Office of Scientific Research (2018)
- Academy for Global Engagement Fellow, Michigan State University (2018)
- Guest of Honor, European Advanced Energy Materials Congress, Stockholm, Sweden (3/2018)
- Outstanding Reviewer Award for New Journal of Physics for 2016 (03/2017)
- University of Michigan Research Faculty Recognition Award [declined] (05/2016)
- IEEE Nuclear and Plasma Sciences Graduate Scholarship Award (04/2012)
- University of Michigan Rackham Predoctoral Fellowship (02/2012)
- University of Michigan College of Engineering Richard and Eleanor Towner Prize for Outstanding Ph.D. Research (11/2011)
- University of Michigan Rackham Presidential Fellowship Award (10/2011)
- Best Presentation Award - 2011 Michigan Institute for Plasma Science and Engineering Graduate Student Symposium (09/2011)
- Michigan Institute for Plasma Science and Engineering Fellowship (2010 – 2011)
- Admission to PhD Study in EECS at MIT [declined] (02/2008)
- Rosie Heng-Ko Poh Choo Gold Medal by NTU, Singapore (06/2006)
- Dean's List (All academic years during B. Eng, 2002 – 2006)
- NTU President Research Scholarship (2005)
- Bronze II award for College of Engineering Technology Week competition in NTU (2005)
- Alpha Nu Sigma Honor Society (Since 03/2012)
- Phi Kappa Phi Honor Society (Since 02/2010)

- Senior Member, IEEE (Since 03/2018, Member Since 01/2007)
- Member, APS (Since 07/2009)
- Gold Member, AVS (Since 03/2022)
- Member, ASEE (Since 03/2017)

Advisees' Awards

- Lan Jin, PhD student, Michigan Institute for Plasma Science and Engineering (MIPSE) Fellowship (2024 – 2025)
- Yves Heri, PhD student, Michigan Institute for Plasma Science and Engineering (MIPSE) Graduate Student Symposium Best Presentation Award (2023)
- Yang Zhou, PhD student, Best Poster Award, third prize, American Vacuum Society (AVS) Michigan Chapter 2023 Spring Symposium (2023)
- ECE Capstone project team, First Place Honor for Electrical and Computer Engineering Capstone Project on Design Day (2022)
- Yang Zhou, PhD student, IEEE Nuclear and Plasma Sciences Society (NPSS) Graduate Scholarship Award (2022)
- Yang Zhou, PhD student, MSU Electrical Engineering Outstanding Graduate Student Award, 2nd place (2022)
- Asif Iqbal, PhD student, Michigan Institute for Plasma Science and Engineering (MIPSE) Graduate Student Symposium Best Presentation Award (2021)
- Yi Luo, PhD student, Michigan Institute for Plasma Science and Engineering (MIPSE) Fellowship (2021 – 2022) [declined]
- Sneha Banerjee, PhD student, IEEE Nuclear and Plasma Sciences Society (NPSS) Graduate Scholarship Award (2021)
- Sneha Banerjee, PhD student, MSU Electrical Engineering Outstanding Graduate Student Award (2020 – 2021)
- Sneha Banerjee, PhD student, second place in Michigan State University Three Minute Thesis (3MT) competition (2021)
- Sneha Banerjee, PhD student, Michigan Institute for Plasma Science and Engineering (MIPSE) Graduate Student Symposium Best Presentation Award (2020)
- Sneha Banerjee, PhD student, MSU Graduate School Writing Fellow (2020-2021)
- Asif Iqbal, PhD student, MSU Electrical Engineering Outstanding Graduate Student Award (2019 – 2020)
- Sneha Banerjee, PhD student, Michigan Institute for Plasma Science and Engineering (MIPSE) Fellowship (2020 – 2021)
- Asif Iqbal, PhD student, Michigan Institute for Plasma Science and Engineering (MIPSE) Graduate Student Symposium Best Presentation Award (2019)

- Asif Iqbal, PhD student, Michigan Institute for Plasma Science and Engineering (MIPSE) Fellowship (2019 – 2020)
- Yi Luo, PhD student, Michigan Institute for Plasma Science and Engineering (MIPSE) Graduate Student Symposium Best Presentation Award (2018)

Teaching Experience

As instructor

Winter 2025, NERS 201, Survey of Nuclear Engineering and Radiological Sciences
Spring 2024, ECE 489, Independent Senior Design
Spring 2024, Spring 2023, Spring 2022, Spring 2021, Fall 2019, Spring 2018, ECE 850. Electrodynamics of Plasmas
Fall 2023, ECE 305 Electromagnetic Fields and Waves I
Spring 2023, Fall 2022, Spring 2022, Spring 2021, ECE 480 Project Facilitator
Spring 2023, ECE 280. Electrical Engineering Analysis
Fall 2020, ECE 377. Principles of Electronic Devices
Fall 2020, ECE 801. Independent Study
Fall 2019, Fall 2018, Spring 2017, Fall 2016, ECE 201. Electric Circuits & Systems I
Spring 2019, ECE 989. Advanced Topics in Plasmas
Fall 2017, ECE 490. Independent Study
Spring 2017, ECE 499. Undergraduate Research
Spring 2017, ECE 480. Alternate Projects
Fall 2015, NERS 499. Undergraduate Research (UM)

As guest lecturer

Winter 2020, NERS 673. Electrons and Coherent Radiation (UM)
Spring 2018, CMSE 890. Particle Methods of Simulations

As substitute instructor

Fall 2015, NERS 571. Intermediate Plasma Physics I (UM)
Spring 2014, NERS 572. (Appl Phys 672) Intermediate Plasma Physics II (UM)

Students Supervised

Current Postdocs: Asif Iqbal
Current PhD students: Md Arifuzzaman Faisal, Lan Jin, Md Wahidur Rahman, Yves Kimbele Heri, Bingqing Wang, Md Mashrafi
Current undergraduate students: Corey Gui, Sandhiya Suresh, Aryan Verma
Former members:

Ayush Paudel (MSU, Master 2023, first position: RF Engineer at Taikan Company INC)
Yang Zhou (MSU, PhD 2022, first position: Postdoc at Argonne National Lab)

Lan Jin (Summer Intern, first position: PhD at MSU)
Patrick Wong (MSU, Postdoc 2022, first position: Scientist, Verus Research)
Yi Luo (MSU, PhD 2021, first position: Postdoc at University of Notre Dame)
Sneha Banerjee (MSU, PhD 2021, first position: Summer Intern at Los Alamos National Lab; Postdoctoral Researcher, Sandia National Labs; current: Senior Member of Technical Staff, Sandia National Labs)
Asif Iqbal (MSU, PhD 2021, first position: Postdoc at MSU)
Ayush Paudel (Summer Intern, first position: PhD at MSU)
Michael Dittman (Senior at MSU)
James Kelly (Teacher at J. W. Sexton High School)
Penglu Yang (Junior-Senior at MSU, first position: M.S. student at Boston University)
Zizhuo Huang (Senior at MSU, first position: M. S. student at MSU)
Deol, Gurveer Singh (Sophomore at MSU)
Derek Hung (UM, Sophomore-Senior, first position: PhD student at Princeton)
Eric Welch (UM, M. S. student, first position: PhD student at UCLA)
Patrick Wong (UM, M. S. student, first position: Postdoc at MSU)
Foivos Antoulinakis (UM, M. S. student, first position: PhD student in NERS)
Jinpu Lin (UM, Junior-Senior, first position: PhD student in NERS)

Research Grants

Title: “ECLIPSE: Ultrafast photoemission induced non-equilibrium plasmas”
Peng Zhang (PI)
Sponsor: National Science Foundation
Award Period: 01/01/2025 – 08/31/2027
Funding: $500,000.00

Title: “Deterministic to Statistical Modeling of Electrical Contact and Electron Transport in Anisotropic Materials”
Peng Zhang (PI)
Sponsor: Air Force Office of Scientific Research
Award Period: 09/30/2022 – 09/29/2025
Funding: $484,579.42

Title: “Photoemission induced plasma breakdown”
Peng Zhang (PI)
Sponsor: Sandia National Labs Plasma Research Facility (PRF)
Award Period: 05/01/2021-10/01/2022
Funding: $0
Support: 0 mm per year

Title: “Multipactor and breakdown susceptibility and mitigation in space-based RF systems” (MURI, with University of Michigan, University of Wisconsin, University of New Mexico, and Texas Tech University)
Peng Zhang (Co-PI)
Sponsor: Air Force Office of Scientific Research
Award Period: 07/01/2021-07/31/2024
Funding: $3,230,846
Support: 1 mm per year

Title: “Studies of key mechanisms and control strategies for plasmas in micro/sub-micro scales”
Peng Zhang (Co-PI)
Sponsor: National Science Foundation, Department of Energy (NSF-DOE Partnership)
Award Period: 09/01/2021 – 8/31/2024
Funding: $462,000
Support: 1 mm per year

Title: “Beam-wave Interaction Structures for THz GaN High Power Amplifiers” (Traveling-Wave Energy Enhancement Devices [TWEED], with University at Buffalo, Arizona State University, Tech-X Corporation, Teledyne Scientific Company)
Peng Zhang (Co-PI)
Sponsor: Defense Advanced Research Projects Agency (DARPA)
Award Period: 02/19/2021 – 08/18/2022
Funding: $275,000
Support: 1 mm per year

Title: “Multi-frequency High Power Microwave Generation and Amplification via Optically Gated Electron Beams”
Peng Zhang (PI)
Sponsor: Young Investigator Research Program, Office of Naval Research
Award Period: 05/18/2020 – 05/17/2023
Funding: $510,000
Support: 1 mm per year

Title: “Exploration of Fundamental Limits to High Power Electromagnetic (HPEM) Amplification” (MURI, University of New Mexico, University of Michigan, University of California, Irvine, Michigan State University, University of Maryland)

Peng Zhang (Co-PI)
Sponsor: Air Force Office of Scientific Research, through University of New Mexico
Award Period: 05/02/2020-04/30/2025
Funding: $1,270,763
Support: 1 mm per year

Title: “Understanding Ultrafast and Nanoscale Electron Emission and Transport”
Peng Zhang (PI)
Sponsor: Young Investigator Research Program, Air Force Office of Scientific Research
Award Period: 12/01/2017 – 11/30/2020
Funding: $450,000
Support: 1 mm per year

Title: “Multipactor and breakdown susceptibility and mitigation in space-based RF systems” (MURI, with University of Michigan, University of Wisconsin, University of New Mexico, and Texas Tech University)
Peng Zhang (Co-PI)
Sponsor: Air Force Office of Scientific Research
Award Period: 12/15/2017 - 12/14/2020
Funding: $4,318,440
Support: 1 mm per year

Title: “Innovative study of electrical contact and electron transport”
Peng Zhang (PI)
Sponsor: Air Force Office of Scientific Research, subcontract through the University of Michigan
Award Period: 9/1/2016-8/31/2017
Funding: $86,253
Support: 2.5 mm per year

(UM) Title: “Innovative Study of Electrical Contact and Electron Transport”
Y. Y. Lau (PI), and **Peng Zhang** (Co-PI)
Sponsor: Air Force Office of Scientific Research
Award Period: 9/15/2014-9/14/2017
Funding: $1.2M total, for 3 years
Support: 12 mm per year

(UM) Title: “High Power Recirculating Planar Amplifiers”
Ronald M. Gilgenbach (PI), Y. Y. Lau (Co-PI), Nicholas Jordan (Co-PI), and

Peng Zhang (Co-PI)
Sponsor: Air Force Office of Scientific Research
Award Period: 3/1/2015 to 2/28/2018
Funding: $929K total, for 3 years
Support: 0 mm per year

Professional Activities

Editorships and Editorial Boards

Editorial Board Member, *Scientific Reports*, a journal by Nature, 2017 - present.

Editorial Board Founding Member, *Plasma Research Express (PREX)*, a journal by IOP Publishing, 2018 - 2022.

Guest Editor, the *IEEE Transactions on Plasma Science* Special Issue on Plenary, Invited, and Selected Minicourse Papers from the 51th ICOPS 2024, 2024 – 2025.

Guest Editor, the *IEEE Transactions on Plasma Science* Special Issue on Plenary, Invited, and Selected Minicourse Papers from the 50th ICOPS 2023, 2023 – 2024.

Guest Editor, the Nineteenth Special Issue of *IEEE Transactions on Plasma Science* on High-Power Microwave and Millimeter Wave Generation, 2022-2023.

Guest Editor, the Eighteenth Special Issue of *IEEE Transactions on Plasma Science* on High-Power Microwave and Millimeter Wave Generation, 2020.

Advisory, Organizing and Executive Committee Memberships

IEEE Plasma Science and Application (PSAC) Executive Committee (2025-2027)

Steering Committee, American Section of the International Vacuum Electron Sources Conference (IVeSC), (2024 – present).

Treasurer, 2026 IEEE International Conference on Plasma Science (ICOPS), June 21-25, 2026, Lake Tahoe, Nevada, United States.

Technical Committee, the 38th International Vacuum Nanoelectronics

Conference (IVNC 2025), July 8-11, 2025, Reykjavík University, Iceland.

Minicourse Organizing Co-chair, The 51th IEEE International Conference on Plasma Science (ICOPS), June 21-24, 2024, Beijing, China.

Session Organizer, The 51th IEEE International Conference on Plasma Science (ICOPS), June 21-24, 2024, Beijing, China.

Technical Committee, International Power Modulator and High Voltage Conference (IPMHVC), May 28 - June 1, 2024, Indianapolis, IN.

IVEC Committee, The 2024 International Vacuum Electronics Conference (IVEC), April 22-25, 2024, Monterey, CA.

Local Organizing Committee Member, The 76th Annual Gaseous Electronics Conference, October 9-13, 2023, Ann Arbor, MI.

Technical Program Committee, The 2023 Asia-Pacific Conference on Plasma and Terahertz Science (APCOPTS), August 25-28, 2023, Busan, South Korea.

Technical Area Chair, The 50th IEEE International Conference on Plasma Science (ICOPS), May 21-25, 2023, Santa Fe, NM.

Program Committee, 64th Annual Meeting of the APS Division of Plasma Physics (APS DPP), October 17-21, 2022, Spokane, WA.

Technical Committee, International Power Modulator and High Voltage Conference (IPMHVC), Jun 19 - 23, 2022, Knoxville, TN.

IEEE Plasma Science and Application (PSAC) Executive Committee (2019-2021)

Michigan Engineering Advisory Board (MEAB), The University of Michigan, Ann Arbor, Class of 2018 (2019-2024).

Faculty Advisor for The IEEE Nuclear and Plasma Sciences Society (NPSS) Student Branch Chapter at MSU

Other Organizing and Program Committees

Chair, Selection Committee, University of Michigan Prize for Excellence in

Plasma Science and Engineering (UM-PEPSE) (2025).

Session Chair, International Vacuum Electronics Conference (IVEC), Rotterdam, The Netherlands, April 14 – 17, 2025.

Chair (2024), Vice-Chair (2023) of the committee, APS Marshall N. Rosenbluth Outstanding Doctoral Thesis Award (2023-2024).

Selection Committee, University of Michigan Prize for Excellence in Plasma Science and Engineering (UM-PEPSE) (2022-2024).

Panel Judge for Best Student Paper, 51st IEEE International Conference on Plasma Science (ICOPS), Beijing, China, June 16 - 20, 2024.

Panel Judge for Best Student Paper, International Vacuum Electronics Conference (IVEC), Monterey, California, USA, April 22 – 25, 2024.

Session Chair, The 76th Annual Gaseous Electronics Conference, October 9-13, 2023, Ann Arbor, MI.

Session Chair, The 2023 Asia-Pacific Conference on Plasma and Terahertz Science (APCOPTS), August 25-28, 2023, Busan, South Korea.

Oral Session Chair, 64th Annual Meeting of the APS Division of Plasma Physics (APS DPP), Spokane, WA, October 17-21, 2022.

Oral Session Chair, International Vacuum Electronics Conference (IVEC), Monterey, California, USA, April 25 – 29, 2022.

Panel Judge for Best Student Paper, International Vacuum Electronics Conference (IVEC), Monterey, California, USA, April 25 – 29, 2022.

Judge for Best Poster Award, 2020 IEEE International Conference on Plasma Sciences (ICOPS), December 6-10, 2020, Singapore.

Session Organizer, 2020 IEEE International Conference on Plasma Sciences (ICOPS), December 6-10, 2020, Singapore.

Oral Session Chair, 2020 IEEE International Conference on Plasma Sciences (ICOPS), December 6-10, 2020, Singapore.

Oral Session Chair, The First Joint Meeting of the International Vacuum Nanoelectronics (IVNC) and International Vacuum Electron Sources (IVESC) Conferences, July 22-26, 2019, Cincinnati, Ohio, USA.

Session Organizer, 2019 IEEE Pulsed Power and Plasma Science Conference (PPPS 2019), June 23-28, 2019, Orlando, FL, USA.

Oral Sessions Chair, 2019 IEEE Pulsed Power and Plasma Science Conference (PPPS 2019), June 23-28, 2019, Orlando, FL, USA.

Judge for best poster competition, 2019 MSU Engineering Graduate Research Symposium, March 21, 2019, East Lansing, MI, USA.

Oral Session Chair, The 2018 Asia-Pacific Conference on Plasma and Terahertz Science (APCOPTS), August 15-18, 2018, Xi'an, China.

Oral Session Chair, the 45th IEEE International Conference on Plasma Science (ICOPS 2018), Denver, CO, USA, June 24-28, 2018.

Poster Session Chair, the 45th IEEE International Conference on Plasma Science (ICOPS 2018), Denver, CO, USA, June 24-28, 2018.

Panel Judge for Best Student Paper, International Vacuum Electronics Conference (IVEC), Monterey, California, USA, April 24 – 26, 2018.

Committee Member, European Advanced Energy Materials Congress 2018, Sweden, 2017 - 2018.

Session Chair, European Advanced Energy Materials Congress (AEMC 2018), Stockholm, Sweden, 2018.

Steering Committee Member, the Emerging Information and Technology Association (EITA) - New Materials Ventures, 2017 - present.

Technical Committee, IEEE International Power Modulator and High Voltage Conference (2016 IPMHVC), 2016.

Poster Session Chair, IEEE International Power Modulator and High Voltage Conference (2016 IPMHVC), 2016.

Judge for Best-paper Competition, MIPSE Graduate Symposium, the University

of Michigan, 2015.

Referee Services

Reviewer of Journals:
- *Nature*
- *Nature Materials*
- *Nature Communications*
- *Physical Review Letters*
- *Nano Letters*
- *Advanced Optical Materials*
- *Laser & Photonics Reviews*
- *Physical Review Applied*
- *Scientific Reports*
- *Physical Review B*
- *Physical Review E*
- *Physical Review Accelerators and Beams*
- *New Journal of Physics*
- *Applied Physics Letters*
- *ACS Photonics*
- *ACS Applied Engineering Materials*
- *Plasma Sources Science and Technology*
- *Physics of Plasmas*
- *Nanoscale*
- *Optics Express*
- *Journal of Applied Physics*
- *Journal of Physics D: Applied Physics*
- *Journal of Physics B: Atomic, Molecular and Optical Physics*
- *Review of Scientific Instruments*
- *Plasma Research Express*
- *IEEE Electron Device Letter*
- *IEEE Transaction on Electron Devices*
- *IEEE Transactions on Microwave Theory and Techniques*
- *IEEE Transactions on Plasma Sciences*
- *IEEE Journal of the Electron Devices Society*
- *Energies*
- *Sensors*
- *Entropy*
- *AIP Advances*
- *Journal of Vacuum Science and Technology B*
- *Applied Sciences*

- *The European Physical Journal D*
- *The European Physical Journal Plus*
- *Results in Physics*
- *Vacuum*
- *Micron*
- *Computational Materials Science*
- *Physics Letters A*
- *Optics Communications*
- *Materials Chemistry and Physics*
- *Journal of Renewable and Sustainable Energy*
- *Nanoscience and Nanotechnology Letters*
- *Physica B: Condensed Matter*
- *Physica Status Solidi A*

Reviewer, Research Proposals:

- National Science Foundation (NSF), Plasma Physics Program, 2022, 2025.
- Review Panel, ECosystem for Leading Innovation in Plasma Science and Engineering, National Science Foundation (NSF), 2025.
- National Science Foundation (NSF), NSF/DOE Partnership in Basic Plasma Science and Engineering, 2017.
- DOE Office of Science 2022-23 ASCR Leadership Computing Challenge (ALCC)
- Review Panel, Office of Fusion Energy Sciences (FES) within the Department of Energy (DOE), 2022, 2023, 2024.
- Office of Fusion Energy Sciences (FES) within the Department of Energy (DOE), 2019, 2020, 2021, 2023, 2024.
- Office of Basic Energy Sciences (BES) within the Department of Energy (DOE), 2016, 2017, 2018, 2020, 2022.
- Air Force Office of Scientific Research (AFOSR), 2016, 2018, 2021.
- Office of High Energy Physics (HEP) within the Department of Energy (DOE) Office of Science, 2013, 2014, 2015, 2016, 2021, 2022.
- Technology Foundation STW, the Netherlands Organization for Scientific Research (NWO) and the Dutch Ministry of Economic Affairs, Agriculture and Innovation, 2015.
- National Fund for Scientific and Technological Development, FONDECYT 2015 Initiation into Research, Chilean National Science and Technology Commission (CONICYT - Chile), 2015.

University and Other Services

Chair of ECE Graduate Studies Committee (GSC), Michigan State University,

2022 - 2024.

ECE Assessment Committee, Michigan State University, 2020 - 2024.

ECE Graduate Studies Committee (GSC), Michigan State University, 2016 - 2024.

Faculty host for NSF Research Experiences for Teachers (RET), 2018.

ECE GSC Liaison for Ph.D. Qualifying Examination, Area of Circuit Fundamentals, Michigan State University, 2016-2017, 2017-2018, 2018-2019, 2019-2020.

Search Committee for Faculty Position in Experimental Accelerator Technology. Michigan State University, 2016-2017.

PhD Thesis Committee Member for Jiashu Han, Applied and Interdisciplinary Mathematics, University of Michigan.

PhD Thesis Committee Member for M. Cole Stewart, CMSE; Stephen White, CMSE; Jared Dechant, Physics; Sheng Lee, Physics; Ryo Shinohara, Physics and ECE; Taha Yasin Posos, ECE; Ben Sims, Physics and ECE; Matt Hodek, ECE; Lucas Stanek, CMSE; Janez Krek, ECE/CMSE, Michigan State University.

PhD Thesis Committee Member for Md Ziaur Rahman, Department of Electrical and Computer Engineering, Old Dominion University.

PhD Thesis Committee Member for Stephen Langellotti, Nuclear Engineering and Radiological Sciences, University of Michigan.

PhD Dissertation Defense Committee Member for Andy Yue, Department of Electrical and Computer Engineering, Boise State University.

PhD Qualifier Exam Committee for Matt Hodek, ECE, Michigan State University, 2017.

NERS Faculty Representative, PhD prospectus exam, the University of Michigan, June 2015, October 2015, April 2016.

Issued and Pending Patents

1. **Peng Zhang**, S. Banerjee, J. Luginsland, "Tunneling Electrical Contacts", US Patent Provisional Number 62/688,515; converted to nonprovisional United States application 16/448,160 on 6/21/2019; Pub. No.: US 2019/0393087 A1, Pub. Date: Dec. 26, 2019; Patent No.: US 10,755,975 B2, Date of Patent: Aug. 25, 2020.

2. Y. Fu, **Peng Zhang**, J. Verboncoeur, "Microscale gas breakdown device and process", US Patent provisional number 62/711,109; converted to nonprovisional United States application 16/523,255 on 7/26/2019; Pub. No.: US 2020/0033293 A1, Pub. Date: Jan. 30, 2020; Patent No.: US 11,371,960 B2, Date of Patent: Jun. 28, 2022.

3. **Peng Zhang**, L. Wu, X. Xiong, and Y. Zhou, "Dielectric Coated Plasmonic Photoemitter", US Patent Provisional number 63/190,886 filed on 5/20/2021; converted to nonprovisional United States application on 5/20/2022; Patent No.: US 12,183,535 B2, Date of Patent: Dec. 31, 2024.

4. **Peng Zhang**, L. Jin, and Y. Zhou, "Optically gated field emission cathodes", US Patent Provisional filed on 8/14/2023; converted to nonprovisional United States application on 8/9/2024.

Books

1. James Benford, Edl Schamiloglu, Jacob Coty Stephens, John A. Swegle, **Peng Zhang**, High Power Microwaves, 4th Edition (CRC Press, Abingdon, Oxon; Boca Raton, FL, 2025).

Journal Articles

*as corresponding author

1. Y. Heri, and **Peng Zhang***, "Space Charge Effects on Short-Pulse Electron Beam Dynamics in a Classical Vacuum Diode", *IEEE Trans. Electron Devices* 72, 2591 (2025).
2. C. Zhang, **Peng Zhang**, and Y. Li, "Guest Editorial IEEE Transactions on Plasma Science Special Issue on Plenary, Invited, and Minicourse Papers From ICOPS/APCOPTS 2024", *IEEE Trans. Plasma Sci*., 53, 477 (2025).
3. M. W. Rahman, and **Peng Zhang***, "Parametric analysis of electron beam–wave interaction in linear beam devices: A tutorial on gap coupling factor and scaling to high frequency", *AIP Advances* 15, 035128 (2025).
4. B. Wang, S. Banerjee, and **Peng Zhang***, "Statistical analysis of intertube tunneling contacts in the macroscopic electrical conductivity of carbon nanotube fibers", *ACS Appl. Electron. Mater.*, 7, 1192−1201 (2025). **[Selected as Supplementary Cover]**

5. J. Stephens, and **Peng Zhang**, “Guest Editorial - Special Issue on Plenary, Invited, and Selected Minicourse Papers From ICOPS 2023”, *IEEE Trans. Plasma Sci*., 52, 1081 (2024).
6. D. Wen, J. Krek, J. Gudmundsson, E. Kawamura, M. Lieberman, **Peng Zhang**, and J. Verboncoeur, "Field reversal in low pressure, unmagnetized radio frequency capacitively coupled argon plasma discharges", *Appl. Phys. Lett*. 123, 264102 (2023).
7. A. Iqbal, D. Wen, J. Verboncoeur, and **Peng Zhang***, "Recent advances in multipactor physics and mitigation", *High Voltage* 8, 1095 (2023). **[Invited Article]**
8. Y. Zhou, and **Peng Zhang***, "Tuning quantum pathway interference in two-color laser photoemission using DC bias", *New J. Phys*. 25, 113027 (2023).
9. A. Iqbal, D. Wen, J. Verboncoeur, and **Peng Zhang***, “Two surface multipactor with non-sinusoidal RF fields”, *J. Appl. Phys*. 134, 153304 (2023).
10. A. Iqbal, B. Bentz, Y. Zhou, K. Youngman and **Peng Zhang***, “Pulsed photoemission induced plasma Breakdown”, *J. Phys. D: Appl. Phys*. 56, 505204 (2023).
11. S. Lin, H. Zhong, C. Chen, M. Cao, Y. Li, Y. Zhai, P. Wong, **Peng Zhang**, and J. Verboncoeur, “Effect analysis of spatial discrepancy of secondary emission yield on multipactor formation”, *Phys. Plasmas* 30, 103102 (2023).
12. J. Browning, N. Jordan, J. Stephens, and **Peng Zhang**, "Guest Editorial The Nineteenth Special Issue on High-Power Microwave and Millimeter-Wave Generation", *IEEE Trans. Plasma Sci*., 51, 1839 (2023).
13. L. Jin, Y. Zhou, and **Peng Zhang***, "Direct density modulation of photo-assisted field emission from an RF cold cathode", *J. Appl. Phys*. 134, 074904 (2023).
14. C. Lin, J. Chen, A. Iqbal, **Peng Zhang**, and Y. Fu, “Dimensional analysis on microscale gas breakdown with electric field nonuniformity and positive space charge effects”, *J. Appl. Phys*. 134, 053301 (2023) **[Editor's Pick]**
15. Y. Zhou, R. Ahsan, H. Chae, R. Kapadia, and **Peng Zhang***, “Theoretical Analysis of Resonant Tunneling Enhanced Field Emission”, ***Phys. Rev. Applied*** 20, 014043 (2023).
16. D. Wen, J. Krek, J. Gudmundsson, E. Kawamura, M. A. Lieberman, **Peng Zhang**, and J. Verboncoeur, “On the importance of excited state species in low pressure capacitively coupled plasma argon discharges”, *Plasma Sources Sci. Technol*. 32, 064001 (2023). **[Most Read]**
17. M. A. Faisal, and **Peng Zhang***, “Grating Optimization for Smith–Purcell Radiation: Direct Correlation Between Spatial Growth Rate and Starting Current”, *IEEE Trans. Electron Devices* 70, 2860 (2023).
18. S. Lin, H. Qu, N. Xia, P. Wong, **Peng Zhang**, J. Verboncoeur, M. Cao, Y. Zhai, Y. Li, and H. Wang, “Quantitative analysis of multipactor threshold sensitivity to secondary emission yield of microwave devices”, *Phys. Plasmas* 30, 033104 (2023).
19. A. Iqbal, D. Wozniak, M. Rahman, S. Banerjee1, J. Verboncoeur, **Peng Zhang***, and C. Jiang*, “Influence of discharge polarity on streamer breakdown criterion of ambient air in a non-uniform electric field*”, J. Phys. D: Appl. Phys*. 56, 035204 (2022).
20. D. Wen, A. Iqbal, **Peng Zhang**, and J. Verboncoeur, “Susceptibility of multipactor discharges near a dielectric driven by a Gaussian-type transverse rf electric field”, *Appl. Phys. Lett*. 121,

164103 (2022).

21. S. Lin, H. Qu, P. Wong, **Peng Zhang**, J. Verboncoeur, H. Zhong, Y. Zhai, M. Cao, H. Wang, and Y. Li, "Effect analysis of angular momentum on coaxial multipactor with 1D3V statistical modeling", *Phys. Plasmas* 29, 103105 (2022).
22. D. Wen, **Peng Zhang**, J. Krek, Y. Fu and J. Verboncoeur, "Parametric studies of stream instability-induced higher harmonics in plasma ionization breakdown near an emissive dielectric surface", *Plasma Sources Sci. Technol*. 31, 095004 (2022).
23. M. Mirmozafari, A. Iqbal, **Peng Zhang**, N. Behdad, J. Booske, and J. Verboncoeur, "Secondary electron yield characterization of high porosity surfaces for multipactor-free microwave components", *Phys. Plasmas* 29, 082109 (2022).
24. S. Banerjee, and **Peng Zhang***, "Scaling of Time-Dependent Tunneling Current in Terahertz Scanning Tunneling Microscopes", ***Phys. Rev. Applied*** 18, 024011 (2022).
25. Y. Zhou and **Peng Zhang***, "Unraveling quantum pathways interference in two-color coherent control of photoemission with bias voltages", *Phys. Rev. B* 106, 085402 (2022).
26. D. Wen, **Peng Zhang**, J. Krek, Y. Fu, and J. Verboncoeur, "Higher Harmonics in Multipactor Induced Plasma Ionization Breakdown near a Dielectric Surface", ***Phys. Rev. Lett.***, 129, 045001 (2022).
27. J. Browning, N. M. Jordan, J. Stephens, and **Peng Zhang**, "ANNOUNCEMENT The Nineteenth Special Issue on High-Power Microwave and Millimeter-Wave Generation", *IEEE Trans. Plasma Sci*., 50, 1378 (2022).
28. S. Banerjee and **Peng Zhang***, "Review of recent studies on nanoscale electrical junctions and contacts: Quantum tunneling, current crowding, and interface engineering", *J. Vac. Sci. Technol. A* 40, 030802 (2022). **[Invited Paper][Featured Article]**
29. **Peng Zhang***, P. Wong, Y. Zhou, J. D. Albrecht, M. Hodek, and D. Smithe, "Space charge waves in a two-dimensional electron gas", *J. Appl. Phys*. 131, 144302 (2022).
30. Y. Luo and **Peng Zhang***, "Optical-field-induced Electron Emission in a dc-Biased Nanogap", ***Phys. Rev. Applied*** 17, 044008 (2022).
31. Y. Zhou and **Peng Zhang***, "Theory of laser-induced photoemission from a metal surface with nanoscale dielectric coating", *J. Appl. Phys*. 131, 064903 (2022).
32. A. Iqbal, J. Verboncoeur and **Peng Zhang***, "Two surface multipactor discharge with two-frequency rf fields and space-charge effects", *Phys. Plasmas* 29, 012102 (2022).
33. D. Wen, **Peng Zhang**, J. Krek, Y. Fu, and J. P. Verboncoeur, "Observation of multilayer-structured discharge in plasma ionization breakdown", *Appl. Phys. Lett*. 119, 264102 (2021).
34. A. Iqbal, P. Wong, D. Wen, J. Verboncoeur, and **Peng Zhang***, "A Review of Recent Studies on Two-Frequency RF Field-Induced Single-Surface Multipactor Discharge", *IEEE Trans. Plasma Sci*., 49, 3284 (2021).**[Invited Paper]**
35. Y. Luo and **Peng Zhang***, "Ultrafast optical-field-induced photoelectron emission in a vacuum nanoscale gap: An exact analytical formulation", *Appl. Phys. Lett*. 119, 194101 (2021).**[Featured Article]**
36. Y. Fu, H. Wang, B. Zheng, **Peng Zhang**, Q. Fan, X. Wang, and J. Verboncoeur, "Generalizing

Similarity Laws for Radio-Frequency Discharge Plasmas across Nonlinear Transition Regimes", ***Phys. Rev. Applied*** 16, 054016 (2021).

37. Y. Zhou and **Peng Zhang***, "Quantum efficiency of photoemission from biased metal surfaces with laser wavelengths from UV to NIR", *J. Appl. Phys*. 130, 064902 (2021). **[Featured Article][Scilight][News Reports at MSUToday, Phys.org]**
38. S. Banerjee, J. Luginsland, and **Peng Zhang***, "Interface Engineering of Electrical Contacts", ***Phys. Rev. Applied*** 15, 064048 (2021). **[MSUDaily Update][News Reports at MSUToday]**
39. Y. Fu, H. Wang, B. Zheng, **Peng Zhang**, Q. Fan, X. Wang, and J. Verboncoeur, "Direct current microplasma formation around microstructure arrays", *Appl. Phys. Lett*. 118, 174101 (2021).
40. **Peng Zhang***, Y. S. Ang, A. L. Garner, A. Valfells, J. W. Luginsland, and L. K. Ang, "Space–charge limited current in nanodiodes: Ballistic, collisional, and dynamical effects", *J. Appl. Phys*. 129, 100902 (2021). **[Invited Perspective Article] [Featured Article]**[Listed in 2022 as Highly Cited, Highly Read Perspectives in JAP]
41. Y. Luo, Y. Zhou, and **Peng Zhang***, "Few-cycle optical-field-induced photoemission from biased surfaces: An exact quantum theory", *Phys. Rev. B* 103, 085410 (2021).
42. Y. Fu, B. Zheng, **Peng Zhang**, Q. Fan, and J. P. Verboncoeur, "Transition characteristics and electron kinetics in microhollow cathode discharges", *J. Appl. Phys*. 129, 023302 (2021).
43. Y. Zhou and **Peng Zhang***, "Theory of field emission from dielectric coated surfaces", *Phys. Rev. Research* 2, 043439 (2020).
44. S. Sun, X. Sun, D. Bartles, E. Wozniak, J. Williams, **Peng Zhang**, and C.-Y. Ruan, "Direct imaging of plasma waves using ultrafast electron microscopy", *Struct. Dyn*. 7, 064301 (2020).
45. Y. Fu, B. Zheng, D. Wen, **Peng Zhang**, Q. Fan, and J. Verboncoeur, "Similarity law and frequency scaling in low-pressure capacitive radio frequency plasmas", *Appl. Phys. Lett*. 117, 204101 (2020).
46. Y. Fu, B. Zheng, **Peng Zhang**, Q. Fan, J. P. Verboncoeur, and X. Wang, "Similarity of capacitive radio-frequency discharges in nonlocal regimes", *Phys. Plasmas* 27, 113501 (2020).
47. Y. Fu, B. Zheng, D. Wen, **Peng Zhang**, Q. Fan, and J. Verboncoeur, "High-energy ballistic electrons in low-pressure radio-frequency plasmas", *Plasma Sources Sci. Technol*. 29, 09LT01 (2020).
48. A. Iqbal, P. Y. Wong, D. Wen, S. Lin, J. Verboncoeur, and **Peng Zhang***, "Time-dependent physics of single-surface multipactor discharge with two carrier frequencies", *Phys. Rev. E* 102, 043201 (2020).
49. P. Yang, S. Banerjee, W. Kuang, Y. Ding, Q. Ma, and **Peng Zhang***, "Current crowding and spreading resistance of electrical contacts with irregular contact edges", *J. Phys. D: Appl. Phys.*, 53, 485303 (2020).
50. X. Xiong (equal contribution), Y. Zhou (equal contribution), Y. Luo, X. Li, M. Bosman, L. K. Ang, **Peng Zhang***, and L. Wu, "Plasmon-Enhanced Resonant Photoemission Using Atomically Thick Dielectric Coatings", ***ACS Nano***, 14, 8806 − 8815 (2020).

51. J. Ludwick, A. Iqbal, D. Gortat, J. D. Cook, M. Cahay, **Peng Zhang**, T. C. Back, S. Fairchild, M. Sparkes, and W. O'Neill, "Angular dependence of secondary electron yield from microporous gold surfaces", *J. Vac. Sci. Technol. B* 38, 054001 (2020).
52. Y. Luo, J. Luginsland, and **Peng Zhang***, "Interference modulation of photoemission from biased metal cathodes driven by two lasers of the same frequency", *AIP Advances* 10, 075301 (2020).
53. S. Banerjee, P. Y. Wong and **Peng Zhang***, "Contact resistance and current crowding in tunneling type circular nano-contacts", *J. Phys. D: Appl. Phys*. 53, 355301 (2020).
54. B. Hoff, W. Tang, R. Seviour, and **Peng Zhang**, "Guest Editorial - The Eighteenth Special Issue on High-Power Microwave and Millimeter-Wave Generation", *IEEE Trans. Plasma Sci*., 48, 1858 (2020).
55. P. Y. Wong, **Peng Zhang**, and J. P. Verboncoeur, "Harmonic Generation in Multipactor Discharges", *IEEE Trans. Plasma Sci*., 48, 1959 (2020).
56. A. Iqbal, P. Y. Wong, J. P. Verboncoeur, and **Peng Zhang***, "Frequency-Domain Analysis of Single-Surface Multipactor Discharge With Single- and Dual-Tone RF Electric Fields", *IEEE Trans. Plasma Sci*., 48, 1950 (2020).
57. S. Banerjee, L. Cao, Y. S. Ang, L. K. Ang, and **Peng Zhang***, "Reducing Contact Resistance in Two-Dimensional-Material-Based Electrical Contacts by Roughness Engineering", ***Phys. Rev. Applied*** 13, 064021 (2020).
58. P. Wong, **Peng Zhang**, J. Luginsland, "Recent theory of traveling-wave tubes: a tutorial-review", *Plasma Res. Express* 2, 023001 (2020). **[Invited Tutorial Paper]**
59. **Peng Zhang***, S. S. Bulanov, D. Seipt, A. V. Arefiev, and A. G. R. Thomas, "Relativistic plasma physics in supercritical fields", *Phys. Plasmas* 27, 050601 (2020). **[Invited Perspective Article] [Featured Article][Most Read][News Reports at Phys.org, Scitech Daily, Newswise, EurekAlert AAAS, Azooptics, Science Daily, AIP Publishing News, and Space Daily]**
60. Y. Zhou, and **Peng Zhang***, "A quantum model for photoemission from metal surfaces and its comparison with the three-step model and Fowler–DuBridge model", *J. Appl. Phys.* 127, 164903 (2020). **[Editor's Pick]**
61. Y. Fu, **Peng Zhang**, J. P. Verboncoeur, and X. Wang, "Electrical breakdown from macro to micro/nano scales: a tutorial and a review of the state of the art", *Plasma Res. Express* 2, 013001 (2020). **[Invited Tutorial Paper]**
62. A. Iqbal, J. Ludwick, S. Fairchild, M. Cahay, D. Gortat, M. Sparkes, W. O'Neill, T. C. Back, and **Peng Zhang***, "Empirical modeling and Monte Carlo simulation of secondary electron yield reduction of laser drilled microporous gold surfaces", *J. Vac. Sci. Technol. B* 38, 013801 (2020).
63. P. Wong, Y. Y. Lau, **Peng Zhang**, N. M. Jordan, R. Gilgenbach, J. P. Verboncoeur, "The Effects of Multipactor on the Quality of a Complex Signal Propagating in a Transmission Line", *Phys. Plasmas*, 26, 112114 (2019).
64. D. Wen, **Peng Zhang**, Y. Fu, J. Krek, and J. P. Verboncoeur, "Temporal single-surface multipactor dynamics under obliquely incident linearly polarized electric field", *Phys.*

Plasmas, 26, 123509 (2019).

65. Y. Luo and **Peng Zhang***, "Analysis of two-color laser-induced electron emission from a biased metal surface using an exact quantum mechanical solution", ***Phys. Rev. Applied*** 12, 044056 (2019).
66. S. Banerjee, J. Luginsland, **Peng Zhang***, "A Two Dimensional Tunneling Resistance Transmission Line Model for Nanoscale Parallel Electrical Contacts", ***Sci. Rep.*** 9, 14484 (2019).
67. Y. Fu, J. Krek, D. Wen, **Peng Zhang**, and J. P. Verboncoeur, "Transition of low-temperature plasma similarity laws from low to high ionization degree regimes", *Plasma Sources Sci. Technol*. 28, 095012 (2019).
68. D. Wen, A. Iqbal, **Peng Zhang**, and J. P. Verboncoeur, "Suppression of single-surface multipactor discharges due to non-sinusoidal transverse electric field", *Phys. Plasmas* 26, 093503 (2019).
69. S. Banerjee and **Peng Zhang***, "A generalized self-consistent model for quantum tunneling current in dissimilar metal-insulator-metal junction", *AIP Advances* 9, 085302 (2019); Erratum, *AIP Advances* 9, 119902 (2019).
70. S. B. Fairchild, **Peng Zhang**, J. Park, T. C. Back, D. Marincel, Z. Huang, and M. Pasquali, "Carbon nanotube fiber field emission array cathodes", *IEEE Trans. Plasma Sci*., 47, 2032 (2019). **[Invited Paper]**
71. Y. Fu, J. Krek, **Peng Zhang**, J. P. Verboncoeur, "Gas breakdown in microgaps with a surface protrusion on the electrode", *IEEE Trans. Plasma Sci*., 47, 2011 (2019). **[Invited Paper]**
72. A. Iqbal, J. P. Verboncoeur, and **Peng Zhang***, "Temporal multiparticle Monte Carlo simulation of dual frequency single surface multipactor", *Phys. Plasmas*, 26, 024503 (2019).
73. Y. Fu, **Peng Zhang**, J. Krek, J. P. Verboncoeur, "Gas breakdown and its scaling law in microgaps with multiple concentric cathode protrusions", *Appl. Phys. Lett*., 114, 014102 (2019).
74. Yi Luo and **Peng Zhang***, "Ultrafast strong-field photoelectron emission due to two-color laser fields", *Phys. Rev. B*, 98, 165442 (2018).
75. Y. Fu, J. Krek, **Peng Zhang**, J. P. Verboncoeur, "Evaluating microgap breakdown mode transition with electric field non-uniformity", *Plasma Sources Sci. Technol*, 27, 095014 (2018).
76. Y. Fu, **Peng Zhang**, J. P. Verboncoeur, "Paschen's curve in microgaps with an electrode surface protrusion", *Appl. Phys. Lett*., 113, 054102 (2018).
77. **Peng Zhang***, J. Park, S. B. Fairchild, N. P. Lockwood, Y. Y. Lau, J. Ferguson, and T. Back, "Temperature comparison of looped and vertical carbon nanotube fibers during field emission", *Appl. Sci.*, 8, 1175 (2018). **[Feature Paper]**
78. Y. Fu, **Peng Zhang**, J. P. Verboncoeur, "Gas breakdown in atmospheric pressure microgaps with a surface protrusion on the cathode", *Appl. Phys. Lett*., 112, 254102 (2018). **[Featured Article]**
79. A. Iqbal, J. P. Verboncoeur, **Peng Zhang***, "Multipactor susceptibility on a dielectric with two carrier frequencies", *Phys. Plasmas*, 25, 043501 (2018).

80. D. A. Yager-Elorriaga, Y. Y. Lau, **Peng Zhang**, P. C. Campbell, A. M. Steiner, N. M. Jordan, R. D. McBride, and R. M. Gilgenbach, "Evolution of sausage and helical modes in magnetized thin-foil plasma experiments", *Phys. Plasmas,* 25, 056307 (2018). **[Invited Paper]**
81. Y. Fu, **Peng Zhang**, J. P. Verboncoeur, A. J. Christlieb, and X. Wang, "Effect of surface protrusion on plasma sheath properties in atmospheric microdischarges", *Phys. Plasmas*, 25, 013530 (2018).
82. **Peng Zhang***, S. Fairchild, T. Back, Y. Luo, "Field emission from carbon nanotube fibers in varying anode-cathode gap with the consideration of contact resistance", *AIP Advances*, 7, 125203 (2017).
83. **Peng Zhang***, and Tony Pan, "Exact analytical theory for inverse tunneling of free vacuum electrons into a solid", *AIP Advances* 7, 065307 (2017).
84. J. Lin, P. Wong, P. Yang, Y. Y. Lau, W. Tang, and **Peng Zhang***, "Electric field distribution and current emission in a miniaturized geometrical diode", *J. Appl. Phys.* 121, 244301 (2017).
85. **Peng Zhang**, Agust Valfells, L. K. Ang, J. W. Luginsland, Y. Y. Lau, "100 years of the physics of diodes", ***Appl. Phys. Rev.***, 4, 011304 (2017). **[Editor's Picks][Most Read]**
86. D. H. Simon, P. Wong, D. Chernin, Y. Y. Lau, B. Hoff, **Peng Zhang**, C. F. Dong, and R. M. Gilgenbach, "On the evaluation of Pierce parameters C and Q in a traveling wave tube", *Phys. Plasmas*, 24, 033114 (2017).
87. D. A. Yager-Elorriaga, **Peng Zhang**, A. M. Steiner, N. M. Jordan, P. C. Campbell, Y. Y. Lau, and R. M. Gilgenbach, "Discrete helical modes in imploding and exploding cylindrical, magnetized liners", *Phys. Plasmas*, 23, 124502 (2016).
88. **Peng Zhang***, and Y. Y. Lau, "Ultrafast and nanoscale diodes", *J. Plasma Phys.*, 82, 595820505 (2016).
89. D. A. Yager-Elorriaga, **Peng Zhang**, A. M. Steiner, N. M. Jordan, Y. Y. Lau, and R. M. Gilgenbach, "Seeded and unseeded helical modes in magnetized, non-imploding cylindrical liner-plasmas", *Phys. Plasmas*, 23, 101205 (2016).
90. F. Antoulinakis, D. Chernin, **Peng Zhang***, and Y. Y. Lau, "Effects of temperature dependence of electrical and thermal conductivities on the Joule heating of a one dimensional conductor", *J. Appl. Phys*. 120, 135105 (2016).
91. A. D. Greenwood, J. F. Hammond, **Peng Zhang** and Y. Y. Lau, "On relativistic space charge limited current in planar, cylindrical, and spherical diodes", *Phys. Plasmas,* 23, 072101 (2016).
92. **Peng Zhang***, Q. Gu, Y. Y. Lau, and Y. Fainman, "Constriction Resistance and Current Crowding in Electrically-pumped Semiconductor Nanolasers with the Presence of Undercut and Sidewall Tilt", *IEEE J. Quantum Electronics*, 52, 2000207 (2016).
93. **Peng Zhang*** and Y. Y. Lau, "Ultrafast strong-field photoelectron emission from biased metal surfaces: exact solution to time-dependent Schrödinger Equation", ***Sci. Rep.***, 6, 19894 (2016).
94. **Peng Zhang***, "Scaling for quantum tunneling current in nano- and subnano-scale plasmonic

junctions", ***Sci. Rep.*** 5, 9826 (2015).

95. **Peng Zhang***, L. K. Ang, and A. Gover, "Enhancement of coherent Smith-Purcell radiation at terahertz frequency by optimized grating, prebunched beams, and open cavity", *Phys. Rev. ST Accel. Beams*, 18, 020702 (2015).
96. **Peng Zhang***, Y. Y. Lau, R. M. Gilgenbach, "Analysis of current crowding in thin film contacts from exact field solution", *J. Phys. D: Appl. Phys.*, 48, 475501 (2015).
97. Y. L. Liu, **Peng Zhang**, S. H. Chen, and L. K. Ang, "Maximal charge injection of a uniform separated electron pulse train in a drift space", *Phys. Rev. ST Accel. Beams*, 18, 123402 (2015).
98. C. F. Dong, **Peng Zhang**, D. Chernin, Y. Y. Lau, B. Hoff, D. H. Simon, P. Wong, G. Greening, R. M. Gilgenbach, "Harmonic content in the beam current in a traveling wave tube", *IEEE Trans. Electron Devices*, 62, 4285 (2015).
99. D. Hung, I. M. Rittersdorf, **Peng Zhang**, D. Chernin, Y. Y. Lau, T. M. Antonsen, Jr., J.W. Luginsland, D. H. Simon, and R. M. Gilgenbach, "Absolute Instability near the Band Edge of Traveling-Wave Amplifiers", ***Phys. Rev. Lett.***, 115, 124801 (2015).
100. Y. L. Liu, **Peng Zhang**, S. H. Chen, and L. K. Ang, "Maximal charge injection of consecutive electron pulses with uniform temporal pulse separation", *Phys. Plasmas*, 22, 084504 (2015).
101. **Peng Zhang**, C. P. Ridgers and A. G. R. Thomas, "The effect of nonlinear quantum electrodynamics on relativistic transparency and laser absorption in ultra-relativistic plasmas", *New J. Phys.* 17, 043051 (2015). **[selected for IOPselect]**
102. **Peng Zhang***, and A. G. R. Thomas, "Enhancement of high-order harmonic generation in intense laser interactions with solid density plasma by multiple reflections and harmonic amplification", *Appl. Phys. Lett*. 106, 131102 (2015).
103. E. C. Welch, **Peng Zhang**, F. Dollar, Z.-H. He, K. Krushelnick, and A. G. R. Thomas, "Time dependent Doppler shifts in high-order harmonic generation in intense laser interactions with solid density plasma and frequency chirped pulses", *Phys. Plasmas*, 22, 053104 (2015).
104. M. R. Weis, **Peng Zhang**, Y. Y. Lau, P. F. Schmit, K. J. Peterson, M. Hess, and R. M. Gilgenbach, "Coupling of Sausage, Kink, and Magneto-Rayleigh-Taylor Instabilities in a Cylindrical Liner", *Phys. Plasmas*, 22, 032706 (2015).
105. M. R. Weis, **Peng Zhang**, Y. Y. Lau, I. M. Rittersdorf, J. C. Zier, R. M. Gilgenbach, M. H. Hess, and K. J. Peterson, "Temporal evolution of surface ripples on a finite plasma slab subject to the magneto-Rayleigh-Taylor instability", *Phys. Plasmas*, 21, 122708 (2014).
106. C. Perez-Arancibia, **Peng Zhang**, O. P. Bruno, Y. Y. Lau, "Electromagnetic power absorption due to bumps and trenches on flat surfaces", *J. Appl. Phys.*, 116, 124904 (2014).
107. **Peng Zhang***, and D. Hung, "An analytical model for ballistic diode based on asymmetric geometry", *J. Appl. Phys.*, 115, 204908 (2014).
108. **Peng Zhang***, and Y. Y. Lau, "An exact field solution of contact resistance and comparison with the transmission line model", *Appl. Phys. Lett.*, 104, 204102 (2014).
109. **Peng Zhang***, and Y. Y. Lau, "Constriction resistance and current crowding in vertical

thin film contact", *IEEE J. Electron Devices Soc.*, 1, 83 (2013).

110. Y. B. Zhu, **Peng Zhang**, A. Valfells, L. K. Ang, and Y. Y. Lau, "Novel scaling laws for the Langmuir-Blodgett solutions in cylindrical and spherical diodes", ***Phys. Rev. Lett.*** 110, 265007 (2013).

111. M. Franzi, R. Gilgenbach, Y. Y. Lau, B. Hoff, G. Greening, and **Peng Zhang**, "Passive mode control in the recirculating planar magnetron", *Phys. Plasmas*, 20, 033108 (2013)

112. **Peng Zhang**, D. Hung, and Y. Y. Lau, "Current Flow in a 3-terminal Thin Film Contact with Dissimilar Materials and General Geometric Aspect Ratios", *J. Phys. D: Appl. Phys.*, 46 065502 (2013); Corrigendum, *ibid*, 46, 209501 (2013).

113. **Peng Zhang**, B. Hoff, Y. Y. Lau, D. M. French, and J. W. Luginsland, "Excitation of a slow wave structure", *Phys. Plasmas*, 19, 123104 (2012).

114. **Peng Zhang**, Y. Y. Lau, and R. S. Timsit, "On the Spreading Resistance of Thin-Film Contacts", *IEEE Trans. Electron Devices*, 59, 1936 (2012).

115. **Peng Zhang**, Y. Y. Lau, I. M. Rittersdorf, M. R. Weis, R. M. Gilgenbach, D. Chalenski, and S. A. Slutz, "Effects of magnetic shear on magneto- Rayleigh-Taylor instability", *Phys. Plasmas*, 19, 022703 (2012).

116. J. Zier, R. M. Gilgenbach, Y. Y. Lau, D. Chalenski, D. French, M. Gomez, S. Patel, I. Rittersdorf, A. Steiner, M. Weiss, **Peng Zhang**, M. Mazarakis, M. E. Cuneo, and M. Lopez, "Magneto-Rayleigh-Taylor Experiments on a MegaAmpere Linear Transformer Driver", *Phys. Plasmas*, 19, 032701 (2012).

117. **Peng Zhang**, Y. Y. Lau, and R. M. Gilgenbach, "Thin film contact resistance with dissimilar materials", *J. Appl. Phys.* 109, 124910 (2011).

118. **Peng Zhang**, Y. Y. Lau, M. Franzi and R. M. Gilgenbach, "Multipactor susceptibility on a dielectric with a bias dc electric field and a background gas", *Phys. Plasmas*, 18, 053508 (2011).

119. **Peng Zhang,** Y. Y. Lau, and R. M. Gilgenbach, "Minimization of thin film contact resistance", *Appl. Phys. Lett.* 97, 204103 (2010).

120. **Peng Zhang**, and Y. Y. Lau, "Scaling Laws for Electrical Contact Resistance with Dissimilar Materials", *J. Appl. Phys.* 108, 044914 (2010).

121. M. R. Gomez, D. M. French, W. Tang, **Peng Zhang**, Y. Y. Lau, and R. M. Gilgenbach, "Experimental validation of a higher dimensional theory of electrical contact resistance", *Appl. Phys. Lett.* 95, 072103 (2009).

122. **Peng Zhang**, Y. Y. Lau, and R. M. Gilgenbach, "Analysis of RF absorption and electric and magnetic field enhancements due to surface roughness", *J. Appl. Phys.* 105, 114908 (2009).

123. **Peng Zhang**, W. S. Koh, L. K. Ang, and S. H. Chen, "Short-pulse space-charge-limited flows in a drift space", *Phys. Plasmas*, 15, 063105 (2008).

124. L. K. Ang, and **Peng Zhang**, "Ultrashort-pulse Child-Langmuir law in the quantum and relativistic regimes", ***Phys. Rev. Lett.*** 98, 164802 (2007). [Listed in 2009 as "one of highly cited paper in physics in the past 10 years" by ISI Web of Science]

Peer Reviewed Conference Proceedings

1. Y. Fu, X. Wang, B. Zheng, **Peng Zhang**, Q. Fan and J. Verboncoeur, "On the scaling laws for low-temperature plasmas at macro and micro scales", *J. Phys.: Conf. Ser.* 2064, 012037 (2021). In the *15th International Conference on "Gas dischage plasmas and their applications" (GDP 2021)* 5-10 September 2021, Ekaterinburg, Russia.
2. S. Grover, S. Sahu, **Peng Zhang**, and S. K Kurinec, "Standardization of Specific Contact Resistivity Measurements using Transmission Line Method (TLM)", *Proc. of International Conference On Microelectronic Test Structures* (Edinburgh, United Kingdom, April 6-9, 2020).
3. **Peng Zhang**, Y. Y. Lau, and R. S. Timsit, "Spreading Resistance of a Contact Spot on a Thin Film", *Proc. of the 59th IEEE Holm Conf. on Electrical Contacts* (Newport, RI, 2013).
4. Y. Y. Lau, D. Chernin, **Peng Zhang**, and R. M. Gilgenbach, "A Voltage Scale for Electro-Thermal Runaway", *Proc. of IEEE Pulsed Power and Plasma Science* (San Francisco, California, 2013).
5. **Peng Zhang,** Y. Y. Lau, W. Tang, M. R. Gomez, D. M. French, J. C. Zier, and R. M. Gilgenbach, "Contact Resistance with Dissimilar Materials: Bulk Contacts and Thin Film Contacts", Young Investigator Award Paper, *Proc. of the 57th IEEE Holm Conf. on Electrical Contacts*, pp. 31 – 36, 2011.
6. Y. Y. Lau, R. M. Gilgenbach, J. C. Zier, D. Chalenski, D. M. French, M. R. Gomez, S. G. Patel, I. M. Rittersdorf, A. Steiner, M. R. Weis, **Peng Zhang**, M. Mazarakis, M. E. Cuneo, and M. Lopez, "Magneto-Rayleigh-Taylor Instability: A General Model and Preliminary Experiments", *AIP Proc. Dense Z-Pinch* (Biarritz, France, 2011).

Seminar Presentations

1. **Peng Zhang**, "Surface Electron Emission and Plasma Interaction in Intense Fields", Department of Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI, 02/12/2024.
2. **Peng Zhang,** "Review and Recent Advances in Multipactor Discharge Physics and Mitigation", International Online Plasma Seminar (IOPS), APS-GEC, 09/14/2023.
3. **Peng Zhang**, "Quantum mechanical modeling of electron emission and charge transport", ECE Faculty Research Lunch Seminar, Department of Electrical and Computer Engineering, Michigan State University, East Lansing, MI, 03/30/2023.
4. **Peng Zhang**, "Electron Emission and Plasma Interaction with Intense Fields", Department of Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI, 01/22/2020.
5. **Peng Zhang**, "Recent advances on the modeling of electron transport at ultrashort spatiotemporal scales", IEEE Nuclear & Plasma Sciences Society Singapore Chapter Seminar, Singapore, 5/7/2019.
6. **Peng Zhang**, "Ultrafast and Nanoscale Electron Emission and Transport", Center for Ultrafast Optical Science (CUOS) Seminar, the University of Michigan, Ann Arbor, MI,

02/02/2018.

7. **Peng Zhang**, "Ultrafast and Nanoscale Electron Emission and Transport", Air Force Research Laboratory, Kirtland, NM, 09/26/2017.
8. **Peng Zhang**, "Ultrafast and Nanoscale Electron Emission and Transport", Department of Electronics Seminar, Peking University, Beijing, China, 7/19/2017.
9. **Peng Zhang**, "Modeling of Ultrafast and Nanoscale Interfacial Charge Transport", IEEE Nuclear & Plasma Sciences Society Singapore Chapter Seminar, Singapore, 10/27/2016.
10. **Peng Zhang**, "Ultrafast and nanoscale interfacial charge transport and its interaction with electromagnetic waves", EECS Radiation Laboratory Seminar, Department of Electrical Engineering and Computer Science, University of Michigan, Ann Arbor, MI, 03/23/2016.
11. **Peng Zhang**, "Electrical contact and electron transport at interfaces", NERS Seminar, Department of Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI, 02/22/2016.
12. **Peng Zhang**, "Ultrafast and Nanoscale Interfacial Charge Transport and Its Interaction with Electromagnetic Waves", EE-EP Seminar, Ming Hsieh Department of Electrical Engineering, University of Southern California, Los Angeles, CA, 02/08/2016.
13. **Peng Zhang**, "Electrical contact resistance and interfacial tunneling current", Air Force Research Laboratory, Wright-Patterson, OH, 08/13/2015.
14. **Peng Zhang**, "Surface and interface: current crowding, contact resistance and electromagnetic power absorption", ECE Seminar, University of California San Diego, La Jolla, CA, 03/05/2015.
15. **Peng Zhang**, "Effects of non-linear quantum electrodynamics on ultra-relativistic laser-plasma interaction", EPD Research Seminar, Singapore University of Technology and Design, Singapore, 10/08/2014.
16. **Peng Zhang**, "Surface and interface: current crowding, contact resistance and electromagnetic power absorption", IEEE Nuclear & Plasma Sciences Society Technical Seminar, Singapore University of Technology and Design, Singapore, 09/24/2014.
17. **Peng Zhang**, "Contact resistance and current crowding in bulk and thin film contacts with dissimilar materials", Electrical and Computer Engineering Seminar Series, Michigan State University, East Lansing, MI, 01/30/2014.
18. **Peng Zhang**, "Current Crowding and Constriction Resistance in Bulk and Thin Film Contacts", Microwave Technology Branch Seminar, Naval Research Laboratory, Washington, DC, 04/10/2013.
19. **Peng Zhang**, "Current Crowding and Constriction Resistance in Bulk and Thin Film Contacts", Special Seminar, University of Maryland, College Park, MD, 04/11/2013.
20. **Peng Zhang**, "Effects of Surface Roughness on Electrical Contact, RF Heating and Field Enhancement", Center for Energy Research, University of California San Diego, La Jolla, CA, 01/2012.

Conference Presentations and Abstracts

1. **[*Invited Tutorial*] Peng Zhang**, "Basics and recent advances in multipactor physics and

mitigation", 77th Annual Gaseous Electronics Conference (GEC) (September 30 - October 4, 2024, San Diego, CA, USA).

2. **[*Invited Tutorial*] Peng Zhang**, "Fundamental Physics of Electron Emission, Modulated Electron Beams, and Space Charge Waves", 2024 IVEC+ IVESC Mini-Courses, Combined 25th Annual IEEE International Vacuum Electronics Conference + 15th Annual International Vacuum Electron Sources Conference (April 22-25, 2024, Monterey, CA, USA).
3. **[*Invited Talk*] Peng Zhang**, B. Bentz, A. Iqbal, Y. Zhou, K. Youngman, "EM1.00009: Pulsed laser induced photoemission and its effects in plasma discharge", 76th Annual Gaseous Electronics Conference (GEC) (October 9-13, 2023, Ann Arbor, MI, USA).
4. **[*Invited Talk*] Peng Zhang**, "GF2.00003: Modeling of surface electron emission with plasma interaction and space charge waves", 76th Annual Gaseous Electronics Conference (GEC) (October 9-13, 2023, Ann Arbor, MI, USA).
5. **[*Invited Talk*]** J. P. Verboncoeur, D. Wen, A. Iqbal, Y. Fu, and **Peng Zhang,** "HT1.00003: Transition from multipactor discharge to ionization breakdown in microwave systems", 76th Annual Gaseous Electronics Conference (GEC) (October 9-13, 2023, Ann Arbor, MI, USA).
6. **[*Invited Talk*]** A. Iqbal, D. Wozniak, M. Rahman, S. Banerjee, J. Verboncoeur, **Peng Zhang**, and C. Jiang, "Influence of discharge polarity on streamer breakdown criterion of ambient air in a non-uniform electric field", International Online Plasma Seminar (IOPS), APS-GEC, 05/18/2023.
7. **[*Invited Talk*] Peng Zhang**, "Electron Emission Physics at Ultrafast and Ultra-Small Scale", 4th International Symposium on Plasma and Energy Conversion (iSPEC2022) (November 25-27, 2022, Foshan, Guangdong, China). [via Zoom]
8. **[*Invited Talk*]** D. Wen, **Peng Zhang**, J. Krek, Y. Fu, J. Verboncoeur, "Temporal physics of multipactor-induced plasma ionization breakdown", 4th International Symposium on Plasma and Energy Conversion (iSPEC2022) (November 25-27, 2022, Foshan, Guangdong, China). [via Zoom]
9. **[*Plenary Talk*]** J. Verboncoeur, D. Wen, A. Iqbal, Y. Fu, P. Wong, and **Peng Zhang**, "From Multipactor to Ionization Breakdown: Review and Recent Advances", the 2022 IEEE International Power Modulator and High Voltage Conference (IPMHVC), June 19-23, 2022, Knoxville, TN, USA.
10. **[*Invited Talk*]** D. Wen, **Peng Zhang**, J. Verboncoeur, "Microscale microwave argon discharges: global model and particle-in-cell simulations", 11TH International Workshop on Microplasmas (IWM11), June 7 – 10, 2022, Raleigh, NC, Virtual.
11. **[*Invited Tutorial*] Peng Zhang**, "Electron Emission Physics at Ultrafast and Ultra-Small Scale", 2022 IVEC Mini-Courses, Twenty-Third IEEE International Vacuum Electronics Conference (April 25-28, 2022, Monterey, CA, USA).
12. **[*Invited Talk*] Peng Zhang**, "Exact Quantum Solution for Photoemission at Ultrafast and Ultra small Scales", Photocathode Physics for Photoinjectors Workshop (P3 2021), Nov 10-12, 2021, SLAC, Virtual, USA.
13. **[*Invited Talk*] Peng Zhang**, Y. Luo, Y. Zhou, "Exact Analytical Solution for Pulsed Laser Induced Photoemission from Biased Surfaces", The 48th IEEE International Conference on

Plasma Science (ICOPS), Sep 12-16, 2021, Virtual, USA.

14. **[*Invited Talk*]** Y. Fu, H. Wang, B. Zheng, **Peng Zhang**, Q. Fan, X. Wang, J. P. Verboncoeur, "Microplasma formation around a microstructured Surface", The 48th IEEE International Conference on Plasma Science (ICOPS), Sep 12-16, 2021, Virtual, USA.
15. **[*Invited Talk*]** Y. Fu, X. Wang, B. Zheng, **Peng Zhang**, Q. Fan, J. Verboncoeur, "On the scaling laws for low-temperature plasmas at macro and micro scales", 15th International Conference Gas Discharge Plasmas and Their Applications, Ekaterinburg, Russia, 5-10 September 2021.
16. **[*Keynote Talk*] Peng Zhang**, "Modeling of Nanoscale Electrical Junctions and Electrical Contacts", 2nd Edition Nanotechnology and Nanomaterials Virtual (V-Nano2021), 16-17 July 2021.
17. **[*Invited Talk*] Peng Zhang**, Y. Luo, and Y. Zhou, "A general quantum model for thermionic-field-photoelectron emission", PIC-NIC Virtual Workshop, October 20 - 21, 2020, Sandia National Laboratories, Albuquerque, NM, USA.
18. **[*Invited Tutorial*] Peng Zhang**, "Multipactor and breakdown susceptibility and mitigation in space-based RF systems", Mini-Course on Vacuum Electronics Technology, 21st International Vacuum Electronics Conference (IVEC), October 19-22, 2020, Virtual, USA.
19. **[*Invited Talk*] Peng Zhang**, "Modeling of ultrafast and nanoscale electron emission", AFRL Cathode Conspiracy Convocation, December 17-18, 2019, Kirtland AFB, New Mexico, USA.
20. **[*Invited Talk*] Peng Zhang**, "Recent development on the modeling of laser induced electron emission", Photocathode Physics for Photoinjectors (P3) Workshop, October 15-17, 2018, Santa Fe, New Mexico, USA.
21. **[*Invited Talk*]** Y. Fu, J. Krek, **Peng Zhang**, and John P. Verboncoeur, "Gas Breakdown in Microgaps with Electrode Surface Protrusions: Paschen's curve, Nonuniformity of Electric Field, and Breakdown Mode Transitions", 8th International Conference on Plasma Nanoscience (iPlasmaNano-IX), August 26-29, 2018, New Buffalo, MI, USA.
22. **[*Invited Talk*] Peng Zhang**, "Recent Development on the Modeling of Laser Induced Electron Emission", The 2018 Asia-Pacific Conference on Plasma and Terahertz Science (APCOPTS), August 15-18, Xi'an, China.
23. **[*Invited Talk*]** Y. Fu, **Peng Zhang**, and J. P. Verboncoeur, "Gas breakdown in atmospheric microgaps with surface protrusion on the cathode", The 45th IEEE International Conference on Plasma Science (ICOPS 2018), June 24-28, 2018, Denver, CO, USA.
24. **[*Invited Talk*]** J. P. Verboncoeur, N. Behdad, J. H. Booske, J. C. Dickens, R. M. Gilgenbach, M. Gilmore, N. M. Jordan, R. P. Joshi, Y. Y. Lau, J. Mankowski, D. Morgan, A. A. Neuber, S. Portillo, E. Schamiloglu, and **Peng Zhang**, "Multipactor and breakdown susceptibility and mitigation in space-based RF systems", The 45th IEEE International Conference on Plasma Science (ICOPS 2018), June 24-28, 2018, Denver, CO, USA.
25. **[*Invited Talk*] Peng Zhang**, "Modeling of Ultrafast and Nanoscale Interfacial Charge Transport", European Advanced Energy Materials Congress 2018, March 25 – 28, 2018, Stockholm, Sweden.

26. **[*Invited Talk*] Peng Zhang**, "Theory of Ultrafast Electron Emission", EMN Ultrafast Meeting 2017, October 2 - 6, 2017, Orlando, Florida, USA.
27. **[*Invited Talk*] Peng Zhang**, "Theory and modeling of ultrafast and nanoscale diodes", 9th Joint Meeting of Chinese Physics Worldwide - OCPA9 Conference, July 17 - 20, 2017, Tsinghua University, Beijing, China.
28. **[*Invited Talk*] Peng Zhang**, "Ultrafast and Nanoscale Interfacial Charge Transport", The 2017 EITA Conference on New Materials, Nanotechnology and New Energy (EITA-New Materials 2017), July 1, 2017, Ann Arbor, Michigan, USA.
29. **[*Invited Tutorial Talk*] Peng Zhang**, "Theory and Modeling of Ultrafast and Nanoscale Interfacial Electron Transport", Mini-Course on Charged Particle Beams and High Powered Pulsed Sources, 44th IEEE International Conference on Plasma Science (ICOPS), May 25 - 26, 2017, Atlantic City, New Jersey, USA.
30. **[*Invited Talk*] Peng Zhang**, "Modeling of ultrafast and nanoscale interfacial charge transport", The 6th Annual World Congress of Nano Science and Technology - 2016 (Nano S&T-2016), Session 110, October 26, 2016, Singapore.
31. **[*Invited Talk*] Peng Zhang**, "Modeling of ultrafast and nanoscale interfacial electron transport", S5.1, 11th International Vacuum Electron Sources Conference, October 19, 2016, Seoul, Korea.
32. **[*Invited Talk*]** Y. Y. Lau and **Peng Zhang**, "Ultrafast and Nanoscale Diodes", Solved and Unsolved Problems in Plasma Physics, A Symposium in Honor of Nathaniel J. Fisch, March 29, 2016, Princeton, New Jersey, USA.
33. **[*Invited Talk*] Peng Zhang**, "Ultrafast and nanoscale interfacial charge transport and its interaction with electromagnetic waves", Town Hall Meeting, Frontiers of Plasma Science Workshops, DoE Office of Fusion Energy Science (OFES), Sec. 9, paper No. 9, July 1, 2015, Bethesda, Maryland, USA.
34. **[*Invited Talk*] Peng Zhang**, "Modeling of current crowding and contact resistance at interfaces between dissimilar materials", The 2015 EMN East Meeting (Energy Material Nanotechnology) (April 2015, Beijing, China).
35. **[*Invited Talk*] Peng Zhang**, and Y. Y. Lau, "Recent development on the modeling of electrical contact", IEEE Pulsed Power & Plasma Science Conference - PPPS 2013 (June 2013, San Francisco, California, USA).
36. [***Invited Talk***] **Peng Zhang**, Y. Y. Lau, and R. M. Gilgenbach, "Bulk and Thin Film Contact Resistance with Dissimilar Materials", The Semiconductor Manufacturing Advanced Process Control (APC) Conference XXIV 2012 (September 2012, Ann Arbor, MI, USA).
37. [***Invited Talk***] L. K. Ang, W. S. Koh, L. Wu and **Peng Zhang**, "Space charge limited electron field emission in quantum and ultrafast regimes", 2008 the Seventh International Vacuum Electron Sources Conference (IVESC2008), (2008).
38. Y. Zhao, D. Wen, A. Iqbal, **Peng Zhang**, J. Verboncoeur, G. Fei, Y. Wang, "Multipactor discharges and plasma breakdown in a two parallel plate microwave system", 26th International Vacuum Electronics Conference (IVEC 2025) (April 15-17, 2025, Rotterdam, The Netherlands). [Oral]

39. M. Mashrafi, A. Iqbal, J. Verboncoeur, **Peng Zhang**, “Two-frequency rf fields induced multipactor in coaxial transmission lines”, 26th International Vacuum Electronics Conference (IVEC 2025) (April 15-17, 2025, Rotterdam, The Netherlands). [Oral]
40. B. Wang, S. Banerjee, **Peng Zhang**, “Effects of a Series Resistor on Quantum Tunneling Current in a Dissimilar MetalInsulator-Metal Nanogap”, 15th Annual MIPSE Graduate Student Symposium (November 20, 2024, Ann Arbor, MI, USA). [Poster]
41. M. W. Rahman, **Peng Zhang**, “Parametric Analysis of the Beam Kinetic Energy in Linear Beam Devices”, 15th Annual MIPSE Graduate Student Symposium (November 20, 2024, Ann Arbor, MI, USA). [Poster]
42. L. Jin, **Peng Zhang**, “Influence of Temporal Shapes of Femtosecond Laser Pulses on Photoemission from a Metal Surface”, 15th Annual MIPSE Graduate Student Symposium (November 20, 2024, Ann Arbor, MI, USA). [Poster]
43. M. Mashrafi, A. Iqbal, J. Verboncoeur, **Peng Zhang**, “Two-Frequency RF Fields Induced Multipactor in Coaxial Transmission Line”, 15th Annual MIPSE Graduate Student Symposium (November 20, 2024, Ann Arbor, MI, USA). [Poster]
44. Y. Heri, **Peng Zhang**, “Space-Charge Induced Distortion of Short-Pulse Beams in a Vacuum Drift Space”, 15th Annual MIPSE Graduate Student Symposium (November 20, 2024, Ann Arbor, MI, USA). [Poster]
45. M. A. Faisal, **Peng Zhang**, “Enhanced Spatial Growth and Interaction Impedance in Smith-Purcell Radiation with Flattened Dispersion Curves”, 15th Annual MIPSE Graduate Student Symposium (November 20, 2024, Ann Arbor, MI, USA). [Poster]
46. S. Lin, C. Chen, Y. Li, H. Wang, P. Wong, A. Iqbal, and **Peng Zhang**, “Efficient Algorithm for Charting Multipactor Susceptibility Curves of Microwave Devices”, The 51st IEEE International Conference on Plasma Science (ICOPS) and the 4th Asia-Pacific Conference on Plasma and Terahertz Science (APCOPTS) (June 16-20, 2024, Beijing, China). [Oral]
47. S. Lin, H. Zhong, C. Chen, Y. Li, M. Cao, P. Wong, **Peng Zhang**, and J. Verboncoeur, “Electron Migration via Transversal Electrostatic Field for Suppressing Local-Regional Multipactor Breakdown”, The 51st IEEE International Conference on Plasma Science (ICOPS) and the 4th Asia-Pacific Conference on Plasma and Terahertz Science (APCOPTS) (June 16-20, 2024, Beijing, China). [Oral]
48. A. Iqbal, D. Wen, M. Mashrafi, P. Wong, S. Lin, J. Verboncoeur, **Peng Zhang**, “Multipactor Discharge with Engineered RF Fields”, The IEEE International Power Modulator and High Voltage Conference (IPMHVC) (May 28-June 1, 2024, Indianapolis, IN, USA. [Oral]
49. A. Slovak, L. Jin, Y. Heri, J. Mankowski, J. Dickens, A. Neuber, Peng Zhang, J. Stephens, “An Apparatus for measuring Laser assisted Field Emission in a Vacuum Diode”, The IEEE International Power Modulator and High Voltage Conference (IPMHVC) (May 28-June 1, 2024, Indianapolis, IN, USA. [Poster]
50. D. Wen, C. VanScoter, **Peng Zhang**, J. Verboncoeur, “Similarity Law of Radio-frequency Argon Microplasmas”, The IEEE International Power Modulator and High Voltage Conference (IPMHVC) (May 28-June 1, 2024, Indianapolis, IN, USA. [Oral]
51. Y. Heri, and **Peng Zhang**, “Space Charge Limited Current Scaling for Short-Pulse Beam in a

Vacuum Diode with Different Pulse Shapes", Combined 25th Annual IEEE International Vacuum Electronics Conference + 15th Annual International Vacuum Electron Sources Conference (April 22-25, 2024, Monterey, CA, USA). [Poster]

52. B. Wang, and **Peng Zhang**, "Effects of a Series Resistor on Quantum Tunneling Current in Dissimilar Metal-Insulator-Metal Nanogap", Combined 25th Annual IEEE International Vacuum Electronics Conference + 15th Annual International Vacuum Electron Sources Conference (April 22-25, 2024, Monterey, CA, USA). [Poster]
53. S. Lin, H. Zhong, Y. Li, L. Huang, P. Wong, and **Peng Zhang**, "Multipactor Analysis of Dielectric-Loaded Parallel Plates with Local-Regional Increment of Secondary Emission Yield", Combined 25th Annual IEEE International Vacuum Electronics Conference + 15th Annual International Vacuum Electron Sources Conference (April 22-25, 2024, Monterey, CA, USA). [Oral]
54. L. Jin, and **Peng Zhang**, "Effects of Laser Pulse Length on Photoemission Spectra from a Biased Metal Surface", Combined 25th Annual IEEE International Vacuum Electronics Conference + 15th Annual International Vacuum Electron Sources Conference (April 22-25, 2024, Monterey, CA, USA). [Oral]
55. M. Rahman, and **Peng Zhang**, "The Effect of Space Charge on the Performance of Linear Beam Devices", Combined 25th Annual IEEE International Vacuum Electronics Conference + 15th Annual International Vacuum Electron Sources Conference (April 22-25, 2024, Monterey, CA, USA). [Poster]
56. A. Iqbal, D. Wen, S. Suresh, J. Verboncoeur, **Peng Zhang**, P. Wong, and S. Lin, "Multipactor in a Coaxial Geometry with Non-Sinusoidal RF Fields", Combined 25th Annual IEEE International Vacuum Electronics Conference + 15th Annual International Vacuum Electron Sources Conference (April 22-25, 2024, Monterey, CA, USA). [Poster]
57. M. Faisal, and **Peng Zhang**, "Analysis of THz Smith-Purcell Radiation in Single- and Two-Layer Gratings Utilizing Hot-Tube Dispersion Relation", Combined 25th Annual IEEE International Vacuum Electronics Conference + 15th Annual International Vacuum Electron Sources Conference (April 22-25, 2024, Monterey, CA, USA). [Oral]
58. M. Faisal, and **Peng Zhang**, "Analyzing Spatial Growth Rate and Starting Current in Smith-Purcell Radiation using Single- and Two-Layer Grating Structures", 14th Annual MIPSE Graduate Student Symposium (November 15, 2023, Ann Arbor, MI, USA). [Poster]
59. L. Jin, Y. Zhou, and **Peng Zhang**, "Beam Density Modulation During Emission Using RF and Laser Fields", 14th Annual MIPSE Graduate Student Symposium (November 15, 2023, Ann Arbor, MI, USA). [Poster]
60. B. Wang, and **Peng Zhang**, "Statistic Analysis of Nanoscale Tunneling Electrical Contacts Based on Transmission Line Model", 14th Annual MIPSE Graduate Student Symposium (November 15, 2023, Ann Arbor, MI, USA). [Poster]
61. M. Rahman, and **Peng Zhang**, "The Effect of Space Charge on the Performance of Linear Beam Device for High Frequency Radio Waves", 14th Annual MIPSE Graduate Student Symposium (November 15, 2023, Ann Arbor, MI, USA). [Poster]
62. Y. Heri, and **Peng Zhang**, "Space Charge Effects on Short-Pulse Beam Dynamics in Vacuum

Diodes", 14th Annual MIPSE Graduate Student Symposium (November 15, 2023, Ann Arbor, MI, USA). [Poster]

63. B. Wang, **Peng Zhang**, "NS-TuP-15 Statistic Analysis of Nanoscale Tunneling Electrical Contacts Based on Transmission Line Model", the AVS 69th International Symposium and Exhibition (AVS 69) (November 5-10, 2023, Portland, OR, USA). [poster]
64. A. Iqbal, D. Wen, J. Verboncoeur, **Peng Zhang**, "PS-TuP-40 Effects of a Non-Sinusoidal Rf Field on Multipactor Discharge in a Parallel Plate Geometry", the AVS 69th International Symposium and Exhibition (AVS 69) (November 5-10, 2023, Portland, OR, USA). [poster]
65. D. Wen, J. Krek, J. Gudmundsson, E. Kawamura, M. Lieberman, **Peng Zhang**, J. Verboncoeur, "PS-TuP-41 Field Reversals in High Voltage-Driven Low Pressure Capacitively Coupled Plasmas", the AVS 69th International Symposium and Exhibition (AVS 69) (November 5-10, 2023, Portland, OR, USA). [poster]
66. Y. Zhou and **Peng Zhang**, "Effects of DC Bias on Quantum Pathways Interference in Two-color Laser Induced Photoemission", Postdoctoral Research and Career Symposium, Argonne (November 9, 2023, Argonne National Laboratory, Lemont, IL, USA). [poster]
67. D. Wen, J. Krek, J. T. Gudmundsson, E. Kawamura, M. A. Lieberman, **Peng Zhang**, and J. P. Verboncoeur, "DT1.00005: Particle-in-Cell simulations of high voltage-driven low pressure capacitively coupled plasmas", 76th Annual Gaseous Electronics Conference (GEC) (October 9-13, 2023, Ann Arbor, MI, USA). [Oral]
68. Y. Heri, and **Peng Zhang**, "IT4.00008: Space Charge Effects on Short-Pulse Beam Dynamics in Vacuum Diodes", 76th Annual Gaseous Electronics Conference (GEC) (October 9-13, 2023, Ann Arbor, MI, USA). [Poster]
69. M. Rahman, and **Peng Zhang**, "IT4.00010: Space Charge Effects on Beam-Wave Interaction at the Output Gap of Vacuum Electron Tube", 76th Annual Gaseous Electronics Conference (GEC) (October 9-13, 2023, Ann Arbor, MI, USA). [Poster]
70. B. Wang, and **Peng Zhang**, "IT4.00011: Statistic Analysis of Nanoscale Tunneling Electrical Contacts Based on Transmission Line Model", 76th Annual Gaseous Electronics Conference (GEC) (October 9-13, 2023, Ann Arbor, MI, USA). [Poster]
71. M. Faisal, and **Peng Zhang**, "IW5.00008: Reducing Starting Current of Smith-Purcell Radiation with a Two-Layer Grating Structure", 76th Annual Gaseous Electronics Conference (GEC) (October 9-13, 2023, Ann Arbor, MI, USA). [Poster]
72. L. Jin, Y. Zhou, and **Peng Zhang**, "IW5.00009: Beam density modulation during emission under RF and laser fields", 76th Annual Gaseous Electronics Conference (GEC) (October 9-13, 2023, Ann Arbor, MI, USA). [Poster]
73. A. Iqbal, D. Wen, J. P. Verboncoeur, and **Peng Zhang**, "DR2.00004: Characterization of Two-Surface Multipactor with Non-Sinusoidal RF Fields", 76th Annual Gaseous Electronics Conference (GEC) (October 9-13, 2023, Ann Arbor, MI, USA). [Oral]
74. Y. Zhou, and **Peng Zhang**, "Effects of dc bias on quantum pathways interference in two-color laser induced photoemission", 36th IEEE International Vacuum Nanoelectronics Conference (IVNC) (July 10 - 13, 2023, Cambridge, MA, USA). [Oral]
75. L. Jin, Y. Zhou, and **Peng Zhang**, "Modulated electron beam emission under rf and laser

fields", 36th IEEE International Vacuum Nanoelectronics Conference (IVNC) (July 10 - 13, 2023, Cambridge, MA, USA). [Poster]

76. **Peng Zhang**, Y. Luo, Y. Zhou, and L. Jin, "Exact Analytical Quantum Theory for Strong-field Pulsed Photoelectron Emission from Biased Surfaces and Nanogaps", PhotonIcs and Electromagnetics Research Symposium (PIERS) (July 3 - 6, 2023, Prague, Czech Republic). [Oral]
77. B. Wang, and **Peng Zhang**, "Transmission line modeling and statistical analysis of nanoscale tunneling electrical contacts", the American Vacuum Society (AVS) Michigan Chapter 2023 Spring Symposium (June 7th, 2023, Ann Arbor, MI, USA). [Poster]
78. Y. Zhou, R. Ahsan, H. Chae, R. Kapadia, and **Peng Zhang**, "Enhanced Field Emission by Resonant Tunneling Through a Quantum Well", the American Vacuum Society (AVS) Michigan Chapter 2023 Spring Symposium (June 7th, 2023, Ann Arbor, MI, USA). [Poster]
79. Y. Heri, and **Peng Zhang**, "Space Charge Effects on the Evolution of Gaussian Short-Pulse Beam Profiles", the American Vacuum Society (AVS) Michigan Chapter 2023 Spring Symposium (June 7th, 2023, Ann Arbor, MI, USA). [Poster]
80. L. Jin, Y. Zhou, and **Peng Zhang**, "Density modulation of electron beam emission using laser and rf fields", the American Vacuum Society (AVS) Michigan Chapter 2023 Spring Symposium (June 7th, 2023, Ann Arbor, MI, USA). [Poster]
81. M. W. Rahman and **Peng Zhang**, "Large Signal Analysis for Space Charge Effect on Electron Beam-Cavity Interaction", the American Vacuum Society (AVS) Michigan Chapter 2023 Spring Symposium (June 7th, 2023, Ann Arbor, MI, USA). [Poster]
82. D. Wen, J. Krek, J. Gudmundsson, E. Kawamura, M. A. Lieberman, **Peng Zhang**, J. Verboncoeur, "Validation of particle-based simulation against experiments in low pressure capacitively coupled plasmas", the American Vacuum Society (AVS) Michigan Chapter 2023 Spring Symposium (June 7th, 2023, Ann Arbor, MI, USA). [Poster]
83. D.-Q. Wen, **P. Zhang**, Y.-N. Wang, J. Verboncoeur, "Analysis of microscale high pressure argon discharges: a global model approach", 2023 IEEE International Conference on Plasma Science (ICOPS) (May 21-25, 2023, Santa Fe, NM, USA). [Oral]
84. Y. Zhou, R. Ahsan, H. U. Chae, R. Kapadia, **P. Zhang**, "Effects of resonant tunneling in field emission", 2023 IEEE International Conference on Plasma Science (ICOPS) (May 21-25, 2023, Santa Fe, NM, USA). [Oral]
85. A. Iqbal, M. Mirmozafari, **P. Zhang**, N. Behdad, J. H. Booske, J. Verboncoeur, "Secondary Electron Yield Reduction in High Porosity Surfaces and Its Application for Multipactor Suppression", 2023 IEEE International Conference on Plasma Science (ICOPS) (May 21-25, 2023, Santa Fe, NM, USA). [Oral]
86. M.A. Faisal, **P. Zhang**, "Minimizing starting current of smith-purcell radiation by grating optimization using dispersion relation", 2023 IEEE International Conference on Plasma Science (ICOPS) (May 21-25, 2023, Santa Fe, NM, USA). [Oral]
87. L. Jin, Y. Zhou, **P. Zhang**, "Density Modulated Electron Emission Using RF and Laser Fields", "Characterization of Plasma Breakdown Induced by Pulsed Photoemission", 2023 IEEE International Conference on Plasma Science (ICOPS) (May 21-25, 2023, Santa Fe, NM,

USA). [Oral]

88. M.W. Rahman, **P. Zhang**, "Parametric Analysis of Electron Beam-Cavity Interaction", 2023 IEEE International Conference on Plasma Science (ICOPS) (May 21-25, 2023, Santa Fe, NM, USA). [Poster]
89. B. Wang, S. Banerjee, **P. Zhang**, "Transmission Line Modeling and Statistic Analysis of Nanoscale Tunneling Electrical Contacts", 2023 IEEE International Conference on Plasma Science (ICOPS) (May 21-25, 2023, Santa Fe, NM, USA). [Poster]
90. A. Iqbal, B. Bentz, Y. Zhou, K. Youngman, **P. Zhang**, "Characterization of Plasma Breakdown Induced by Pulsed Photoemission", 2023 IEEE International Conference on Plasma Science (ICOPS) (May 21-25, 2023, Santa Fe, NM, USA). [Oral]
91. Y. K. Heri, **P. Zhang**, "Space charge effects on the short pulse beam profile", 2023 IEEE International Conference on Plasma Science (ICOPS) (May 21-25, 2023, Santa Fe, NM, USA). [Poster]
92. **Peng Zhang**, "Multi-frequency High Power Microwave Generation and Amplification via Optically Gated Electron Beams", 2023 ONR Directed Energy (DE-HPM) Annual Program Virtual Review (May 10 - 11, 2023). [Oral]
93. S. Lin, H. Qu, M. Weng, Y. Li, P. Wong, and **Peng Zhang**, "Multipactor dynamic modeling with variable secondary emission property caused by damage accumulation", 2023 24th International Vacuum Electronics Conference (IVEC) (April 25-28, 2023, Chengdu, Sichuan, China). [Oral]
94. M. A. Faisal, **Peng Zhang**, "Smith-Purcell Radiation by a Two Layer Grating Structure", 2023 24th International Vacuum Electronics Conference (IVEC) (April 25-28, 2023, Chengdu, Sichuan, China). [Oral]
95. A. Iqbal, D. Wen, J. Verboncoeur, **Peng Zhang**, "Two Surface Multipactor with Non-Sinusoidal RF Fields and Space Charge Effects", 2023 24th International Vacuum Electronics Conference (IVEC) (April 25-28, 2023, Chengdu, Sichuan, China). [Oral]
96. Y. Zhou, and **Peng Zhang**, "Quantum Pathways Interference in Photoemission from Biased Metal Surfaces Induced by Two-color Lasers", 13th Annual MIPSE Graduate Student Symposium (November 16, 2022, Ann Arbor, MI, USA). [Poster]
97. A. Paudel, **Peng Zhang**, P. Wong, J. Luginsland, and M. Franzi, "A Discrete Cavity Analysis of Coupled-cavity Travelling Wave Tubes", 13th Annual MIPSE Graduate Student Symposium (November 16, 2022, Ann Arbor, MI, USA). [Poster]
98. M. Faisal, and **Peng Zhang**, "Grating Optimization for Smith-Purcell Radiation: Direct Correlation between Spatial Growth Rate and Starting Current", 13th Annual MIPSE Graduate Student Symposium (November 16, 2022, Ann Arbor, MI, USA). [Poster]
99. B. Z. Bentz, K. Youngman, A. Iqbal, Y. Zhou, and **Peng Zhang**, "Photoemission induced plasma breakdown", DOE Center for Low Temperature Plasma Interactions with Complex Interfaces and User Facilities Annual Meeting (October 28-29, 2022, Arlington, VA, USA). [Oral]
100. **Peng Zhang**, B. Bentz, A. Iqbal, Y. Zhou, K. Youngman, "YO08.00010: Effects of pulsed photoemission in plasma breakdown", 64th Annual Meeting of the APS Division of

Plasma Physics (October 17–21, 2022, Spokane, Washington, USA). [Oral]

101. Y. Zhou, and **Peng Zhang**, "PO08.00011: Quantum pathways interference in photoemission from metals induced by two-color lasers with a dc bias", 64th Annual Meeting of the APS Division of Plasma Physics (October 17–21, 2022, Spokane, Washington, USA). [Oral]
102. D. Wen, **Peng Zhang**, J. Krek, Y. Fu, J. Verboncoeur, "CO08.00011: Transient physics of multipactor induced plasmabreakdown near a dielectric surface", 64th Annual Meeting of the APS Division of Plasma Physics (October 17–21, 2022, Spokane, Washington, USA). [Oral]
103. B. Bentz, K. Youngman, A. Iqbal, Y. Zhou, **Peng Zhang**, "DT1.00001: Photoemission induced plasma breakdown", 75th Annual Gaseous Electronics Conference (October 3-7, 2022, Sendai, Japan). [Oral]
104. D. Wen, J. Krek, J. Gudmundsson, E. Kawamura, M. Lieberman, **Peng Zhang**, and J. Verboncoeur, "DR1.00003: Important role of excited state atoms in low pressure capacitive rf argon discharges", 75th Annual Gaseous Electronics Conference (October 3-7, 2022, Sendai, Japan). [Oral]
105. D. Wen, **Peng Zhang**, Y. Wang, J. Verboncoeur, "FW1.00005: Plasma species and reaction dynamic-oriented global model studies for microscale argon discharges", 75th Annual Gaseous Electronics Conference (October 3-7, 2022, Sendai, Japan). [Oral]
106. S. Banerjee, **Peng Zhang**, and X. Gao, "Modeling of Quantum Tunneling in Terahertz Scanning Tunneling Microscopes", 10th International Workshop on the Mechanisms of Vacuum Arcs (MeVArc 2022) (September 18-22, 2022, Chania, Crete, Greece). [Oral]
107. Y. Fu, H. Wang, B. Zheng, D. Yang, X. Wang, **Peng Zhang**, Q. H. Fan, J. Verboncoeur, "Similarity And Scaling Laws For Radio Frequency Discharge Plasmas Across Nonlinear Transition Regimes", 49th IEEE International Conference on Plasma Science (22 - 26 May, 2022, Seattle, WA, USA). [Oral]
108. D. Wen, A. Iqbal, C. Scutt, **Peng Zhang**, and J. P. Verboncoeur, "Multipactor mitigation via Gaussian-shape transverse RF electric field near a dielectric surface", 49th IEEE International Conference on Plasma Science (22 - 26 May, 2022, Seattle, WA, USA). [Oral]
109. M. Faisal, A. Iqbal, **Peng Zhang**, "Smith-Purcell Radiation with Different Grating Parameters and Beam Bunching Frequencies", 49th IEEE International Conference on Plasma Science (22 - 26 May, 2022, Seattle, WA, USA). [poster]
110. Y. Zhou and **Peng Zhang**, "Interference of quantum pathways in two-color laser induced photoemission with a dc bias", 49th IEEE International Conference on Plasma Science (22 - 26 May, 2022, Seattle, WA, USA). [Oral]
111. A. Paudel, P. Wong, **Peng Zhang**, J. Luginsland, and M. Franzi, "A Discrete Cavity Analysis for Coupled-Cavity Travelling Wave Tubes", 49th IEEE International Conference on Plasma Science (22 - 26 May, 2022, Seattle, WA, USA). [poster]
112. A. Iqbal, J. Verboncoeur, and **Peng Zhang**, "Non-sinusoidal rf field induced two-surface multipactor discharge", 49th IEEE International Conference on Plasma Science (22 - 26 May, 2022, Seattle, WA, USA). [Oral]

113. D. Wen, **Peng Zhang**, Y. Wang, and J. P. Verboncoeur, "Microscale radio-frequency argon discharges via particle-in-cell simulation incorporating self-consistent fluid excited state species", 49th IEEE International Conference on Plasma Science (22 - 26 May, 2022, Seattle, WA, USA). [Oral]
114. **Peng Zhang**, "Multi-frequency High Power Microwave Generation and Amplification via Optically Gated Electron Beams", 2022 ONR Directed Energy/Counter Directed Energy Weapons (DE/CDEW) Annual Program Virtual Review (May 9- 19, 2022). [Oral via Zoom]
115. A. Iqbal, J. Verboncoeur, and **Peng Zhang**, "Investigation of Two-Surface Multipactor with Two-Frequency RF Fields and Space-Charge Effects", Twenty-Third IEEE International Vacuum Electronics Conference (April 25-28, 2022, Monterey, CA, USA). [Oral]
116. D. Wen, A. Iqbal, C. Scutt, **Peng Zhang**, and J. P. Verboncoeur, "Susceptibility of Single-Surface Multipactor Driven by Non-sinusoidal Transverse RF Electric Field", Twenty-Third IEEE International Vacuum Electronics Conference (April 25-28, 2022, Monterey, CA, USA). [Oral]
117. A. Paudel, P. Wong, **Peng Zhang**, J. Luginsland, and M. Franzi, "A Discrete Cavity Analysis for Coupled-Cavity Traveling Wave Tubes", Twenty-Third IEEE International Vacuum Electronics Conference (April 25-28, 2022, Monterey, CA, USA). [Poster]
118. P. Y. Wong, **Peng Zhang**, and Abhijit Jassem, "An Exact Linear Theory of Backward Wave Oscillations in a Traveling-Wave Tube Including Space-Charge Effects", Twenty-Third IEEE International Vacuum Electronics Conference (April 25-28, 2022, Monterey, CA, USA). [Poster]
119. M. Faisal, A. Iqbal, and **Peng Zhang**, "Smith-Purcell Radiation with Different Grating Parameters and Beam Bunching Frequencies", Twenty-Third IEEE International Vacuum Electronics Conference (April 25-28, 2022, Monterey, CA, USA). [Poster]
120. Y. Zhou, **Peng Zhang**, "Quantum Efficiency of Photoemission from Biased Metal Surfaces with Lasers from UV to NIR", Twenty-Third IEEE International Vacuum Electronics Conference (April 25-28, 2022, Monterey, CA, USA). [Oral]
121. M. A. Faisal, A. Iqbal, **Peng Zhang**, "Smith-Purcell Radiation With Different Grating Parameters and Beam Bunching Frequencies", 2022 Michigan State University 2022 Engineering Graduate Research Symposium (April 14, 2022, East Lansing, MI, USA). [Poster]
122. **Peng Zhang**, and S. Banerjee, "Interface Engineering of Electrical Contacts", 2022 Materials for Advanced Metallization Conference (MAM 2022), (March 28-30, 2022, Leuven, Belgium). [Oral, Virtual]
123. **Peng Zhang**, Y. Luo, Y. Zhou, "An Exact Theory for few-Cycle Optical-Field-Induced Photoelectron Emission From Biased Surfaces", JTh4A.16, High-Brightness Sources and Light-Driven Interactions Congress (HILAS), OPTICA (March 22-25, 2022, Budapest, Hungary). [Poster, Virtual]
124. M. A. Faisal, A. Iqbal, **Peng Zhang**, "Smith-Purcell Radiation With Different Grating Parameters and Beam Bunching Frequencies", 2022 Michigan State University Council of Graduate Students (COGS 2022) Graduate Academic Conference (February 19, 2022, East

Lansing, MI, USA). [Poster]

125. A. Paudel, **Peng Zhang**, P. Wong, J. Luginsland, M. Franzi, "A discrete cavity analysis of coupled-cavity travelling wave tubes", 2022 Michigan State University Council of Graduate Students (COGS 2022) Graduate Academic Conference (February 19, 2022, East Lansing, MI, USA). [Poster]
126. Y. Zhou, and **Peng Zhang**, "Theory of Laser-induced Photoemission from Dielectric-coated Metal Surfaces", 12th Annual MIPSE Graduate Student Symposium (November 17, 2021, Ann Arbor, MI, USA). [Poster]
127. A. Iqbal, J. Verboncoeur, and **Peng Zhang**, "Multipactor Discharge in the Parallel-Plate Geometry with Two-Frequency RF Fields and Space-Charge Effects", 12th Annual MIPSE Graduate Student Symposium (November 17, 2021, Ann Arbor, MI, USA). [Poster]
128. Y. Zhou, and **Peng Zhang**, "Theory of Photoelectron Emission from Metal Surfaces Coated with a Nanoscale Dielectric", Photocathode Physics for Photoinjectors Workshop (P3 2021), Nov 10-12, 2021, SLAC, Virtual, USA. [Poster]
129. S. Banerjee, A. Piryatinski, T. Kwan, **Peng Zhang**, and C. Huang, "Transverse properties of the electron beam emitted from a diamond nanotip", Photocathode Physics for Photoinjectors Workshop (P3 2021), Nov 10-12, 2021, SLAC, Virtual, USA. [Poster]
130. Y. Fu, B. Zheng, H. Wang, **Peng Zhang**, Q. H. Fan, X. Wang, J. P. Verboncoeur, "DT21.00003 : On the Similarity and Scaling Laws in Low-Pressure Capacitive Radio Frequency Discharges", 74th Annual Gaseous Electronics Conference (October 4–8, 2021; Virtual, USA) [Oral]
131. D. Wozniak, M. Rahman, S. Banerjee, A. Iqbal, J. Verboncoeur, **Peng Zhang**, and C. Jiang, "Meeks' Criteria for Breakdown Examined in Air Using a Need-To-Plate Configuration", The 48th IEEE International Conference on Plasma Science (ICOPS), Sep 12-16, 2021, Virtual, USA. [Oral]
132. S. Banerjee, J. Luginsland, **Peng Zhang**, "Engineered electrical contacts", The 48th IEEE International Conference on Plasma Science (ICOPS), Sep 12-16, 2021, Virtual, USA. [Oral]
133. **Peng Zhang**, P. Wong, J. Albrecht, M. Hodek, D. Smithe, "Space charge waves in a 2DEG", The 48th IEEE International Conference on Plasma Science (ICOPS), Sep 12-16, 2021, Virtual, USA. [Oral]
134. P. Wong, S. Lin, **Peng Zhang**, and J. Verboncoeur, "Angular Momentum Effects in Coaxial Multipactor", The 48th IEEE International Conference on Plasma Science (ICOPS), Sep 12-16, 2021, Virtual, USA. [Poster]
135. A. Iqbal, P. Wong, J. P. Verboncoeur, and **Peng Zhang**, "Study of two-frequency rf field induced two-surface multipactor", The 48th IEEE International Conference on Plasma Science (ICOPS), Sep 12-16, 2021, Virtual, USA. [Oral]
136. D. Wen, **Peng Zhang**, J. Krek, Y. Fu, and J. Verboncoeur, "Multilayer-Structured Discharged in Plasma Ionization Breakdown near a Dielectric Surface", The 48th IEEE International Conference on Plasma Science (ICOPS), Sep 12-16, 2021, Virtual, USA. [Oral]
137. Y. Zhou, and **Peng Zhang**, "An exact quantum theory for photoemission from dielectric

coated metal surfaces under a dc bias", The 48th IEEE International Conference on Plasma Science (ICOPS), Sep 12-16, 2021, Virtual, USA. [Oral]

138. S. B. Fairchild, T. A. de Assis, J. H. Park, M. Cahay, J. Bulmer, D. E. Tsentalovich, Y. S. Ang, L. K. Ang, J. Ludwick, P.T. Murray, Y. Zhou, **P. Zhang**, "Strongly anisotropic field emission from highly aligned carbon nanotube films", 34th International Vacuum Nanoelectronics Conference (IVNC 2021), (July 5-9, 2021, Virtual) [Oral]
139. **Peng Zhang**, "Multi-frequency High Power Microwave Generation and Amplification via Optically Gated Electron Beams", 2021 ONR Directed Energy/Counter Directed Energy Weapons (DE/CDEW) Annual Program Virtual Review (May 17- 28, 2021). [Oral via Teams]
140. A. Iqbal, P. Wong, D. Wen, S. Lin, J. Verboncoeur, and **Peng Zhang**, "Multipactor Dynamics Near a Dielectric Due to Two-Frequency RF Fields", 22nd International Vacuum Electronic Conference (IVEC 2021), (April 28-30, 2021, Virtual) [Oral]
141. P. Y. Wong, **Peng Zhang**, J. Verboncoeur, and S. Lin, "The Effects of Angular Momentum on Multipactor in Coaxial Lines", 22nd International Vacuum Electronic Conference (IVEC 2021), (April 28-30, 2021, Virtual) [Oral]
142. S. Banerjee and **Peng Zhang**, "Modeling and Interface Engineering of Electrical Contacts", 22nd International Vacuum Electronic Conference (IVEC 2021), (April 28-30, 2021, Virtual) [Oral]
143. Y. Zhou and **Peng Zhang**, "Field emission from dielectric coated metallic cathode surfaces: a theoretical study", 22nd International Vacuum Electronic Conference (IVEC 2021), (April 28-30, 2021, Virtual) [Oral]
144. Y. Zhou, X. Xiong, Y. Luo, L. K. Ang, L. Wu, and **Peng Zhang**, "Plasmon-Enhanced Resonant Photoemission from Metal Surfaces Coated with Ultrathin Dielectric", 22nd International Vacuum Electronic Conference (IVEC 2021), (April 28-30, 2021, Virtual) [Poster]
145. Y. Luo and **Peng Zhang**, "Exact Analytical Theory for Pulsed Laser Induced Photoelectron Emission from Biased Surfaces", 22nd International Vacuum Electronic Conference (IVEC 2021), (April 28-30, 2021, Virtual) [Oral]
146. **Peng Zhang**, Y. Zhou, and Y. Luo, "Theoretical study of field emission from dielectric coated surfaces", 9th International Workshop on Mechanisms of Vacuum Arcs (MeVArc 2021), (7-12 March 2021, Virtual) [Oral]
147. S. Banerjee, L. Cao, Y. S. Ang, L. K. Ang, and **Peng Zhang**, "Roughness Engineering of 2D-Material-Based Electrical Contacts", The 13th Annual Graduate Academic Conference, Council of Graduate Students, Michigan State University (February 20, 2021, Virtual, East Lansing) [Oral]
148. Y. Zhou and **Peng Zhang**, "Theoretical Study of Field Emission from Dielectric Coated Surfaces", The Joint Conference on the 8th International Conference on Microelectronics and Plasma Technology (ICMAP) and the 9th International Symposium on Functional Materials (ISFM), (January 17-20, 2021, Virtual, Korea) [Oral]
149. Y. Luo and **Peng Zhang**, "Analytical Solution for Pulsed Laser Induced Photoemission

from Biased Surfaces", The Joint Conference on the 8th International Conference on Microelectronics and Plasma Technology (ICMAP) and the 9th International Symposium on Functional Materials (ISFM), (January 17-20, 2021, Virtual, Korea) [Oral]

150. Y. Fu, B. Zheng, **Peng Zhang**, Q. Fan, and J. P. Verboncoeur, "Similarity Laws for Low-Temperature Plasmas from Continuum to Kinetic Regimes", The Joint Conference on the 8th International Conference on Microelectronics and Plasma Technology (ICMAP) and the 9th International Symposium on Functional Materials (ISFM), (January 17-20, 2021, Virtual, Korea) [Oral]
151. S. Banerjee, L. Cao, Y. S. Ang, L. K. Ang, and **Peng Zhang**, "Roughness Engineering of 2D-Material-Based Electrical Contacts", The Joint Conference on the 8th International Conference on Microelectronics and Plasma Technology (ICMAP) and the 9th International Symposium on Functional Materials (ISFM), (January 17-20, 2021, Virtual, Korea) [Oral]
152. X. Xiong, Y. Zhou, Y. Luo, L. K. Ang, **Peng Zhang**, and L. Wu, "Boosting resonant optical field emission by atomic-thick dielectric coating", 2020 IEEE International Conference on Plasma Sciences (ICOPS 2020) (December 6 - 10, 2020, Virtual, Singapore). [Oral]
153. Y. Luo, Y. Zhou, and **Peng Zhang**, "Time-resolved photoelectron Spectroscopy by two-color lasers with a DC bias", 2020 IEEE International Conference on Plasma Sciences (ICOPS 2020) (December 6 - 10, 2020, Virtual, Singapore). [Oral]
154. L. Cao, L. K. Ang, Y. S. Ang, **Peng Zhang**, and S. Banerjee, "Improving electron injection efficiency in two-dimensional semiconductor by interface roughness", 2020 IEEE International Conference on Plasma Sciences (ICOPS 2020) (December 6 - 10, 2020, Virtual, Singapore). [Oral]
155. D. Wen, **Peng Zhang**, J. Krek, Y. Fu, and J. Verboncoeur, "Higher harmonics in multipacting gas ionization breakdown near a microwave window", 2020 IEEE International Conference on Plasma Sciences (ICOPS 2020) (December 6 - 10, 2020, Virtual, Singapore). [Oral]
156. P. Wong, Y. Y. Lau, **Peng Zhang**, N. Jordan, R. Gilgenbach, J. Verboncoeur, "Multipactor effects on signal quality in transmission lines driven by digitally modulated signals", 2020 IEEE International Conference on Plasma Sciences (ICOPS 2020) (December 6 - 10, 2020, Virtual, Singapore). [Poster]
157. A. Iqbal, P. Wong, J. Verboncoeur, and **Peng Zhang**, "Study of single and dual frequency RF Driven multipactor on a dielectric in the Frequency domain", 2020 IEEE International Conference on Plasma Sciences (ICOPS 2020) (December 6 - 10, 2020, Virtual, Singapore). [Oral]
158. Y. Fu, B. Zheng, **Peng Zhang**, John Verboncoeur, "Similarity of low-pressure radio-frequency discharges", 2020 IEEE International Conference on Plasma Sciences (ICOPS 2020) (December 6 - 10, 2020, Virtual, Singapore). [Oral]
159. **Peng Zhang**, "A general quantum model for thermionic-field-photoelectron emission", Defense TechConnect Virtual Innovation Summit (November 17-19, 2020, Virtual, USA) [Poster]

160. Y. Luo, and **Peng Zhang**, “Exact theory for pulsed laser induced photoemission from biased surface”, 11th Annual MIPSE Graduate Student Symposium (November 17-18, 2020, Virtual, USA). [Poster]
161. Y. Zhou, X. Xiong, Y. Luo, L. K. Ang, L. Wu, and **Peng Zhang**, “Plasmon-Enhanced Resonant Photoemission Using Atomically Thick Dielectric Coatings”, 11th Annual MIPSE Graduate Student Symposium (November 17-18, 2020, Virtual, USA). [Poster]
162. S. Banerjee, L. Cao, Y. S. Ang, L. K. Ang, and **Peng Zhang**, “Contact Engineering in 2D-Material-Based Electrical Contacts”, 11th Annual MIPSE Graduate Student Symposium (November 17-18, 2020, Virtual, USA). [Poster]
163. A. Iqbal, P. Wong, J. Verboncoeur, and **Peng Zhang**, “Characterization of Single Surface Multipactor Discharge in the Frequency Domain”, 11th Annual MIPSE Graduate Student Symposium (November 17-18, 2020, Virtual, USA). [Poster]
164. P. Wong, Y. Y. Lau, **Peng Zhang**, N. Jordan, R. Gilgenbach, and J. Verboncoeur, “Multipactor Effects on Signal Quality in Transmission Lines with Impedance Mismatches”, 21st International Vacuum Electronics Conference (IVEC), October 19-22, 2020, Virtual, USA.
165. A. Iqbal, P. Wong, J. Verboncoeur, and **Peng Zhang**, “Analysis of Single Surface Multipactor Discharge in the Frequency Domain”, 21st International Vacuum Electronics Conference (IVEC), October 19-22, 2020, Virtual, USA.
166. A. Iqbal, J. Ludwick, S. Fairchild, M. Cahay, D. Gortat, M. Sparkes, W. O’Neill, T. Back, and **Peng Zhang**, “A General Empirical Model of Secondary Electron Yield and Its Application in Monte Carlo Simulation of a Microporous Gold Surface”, 21st International Vacuum Electronics Conference (IVEC), October 19-22, 2020, Virtual, USA.
167. Y. Luo and **Peng Zhang**, “Two-Color Laser Induced Electron Emission from Biased Metal Surface”, 21st International Vacuum Electronics Conference (IVEC), October 19-22, 2020, Virtual, USA.
168. D. Wen, **Peng Zhang**, J. Krek, Y. Fu, and J. Verboncoeur, “Higher harmonics in multipactor-induced gas ionization breakdown near a microwave window”, 21st International Vacuum Electronics Conference (IVEC), October 19-22, 2020, Virtual, USA.
169. S. Banerjee, and **Peng Zhang**, “XF3.00003 : Quantum Tunneling with Space Charge Effects in Thin Insulating Gaps”, 73rd Annual Gaseous Electronics Virtual Conference (October 5–9, 2020, USA). [Oral]
170. D. Wen, **Peng Zhang**, J. Krek, Y. Fu, J. Verboncoeur, “SR3.00007 : Harmonic generation in multipactor-induced plasma ionization breakdown”, 73rd Annual Gaseous Electronics Virtual Conference (October 5–9, 2020, USA). [Oral]
171. Y. Fu, B. Zheng, **Peng Zhang**, Q. H. Fan, J. P. Verboncoeur, X. Wang, “RW2.00006 : Similarity of Radio-Frequency Discharges in Nonlocal Regimes”, 73rd Annual Gaseous Electronics Virtual Conference (October 5–9, 2020, USA). [Poster]
172. Y. Fu, B. Zheng, D. Wen, **Peng Zhang**, Q. H. Fan, J. P. Verboncoeur, “GT2.00008 : High-Energy Ballistic Electrons in Low-Pressure Radio-Frequency Plasmas”, 73rd Annual Gaseous Electronics Virtual Conference (October 5–9, 2020, USA). [Oral]

173. Y. Zhou, Y. Luo, and **Peng Zhang**, "FT2.00006 : Quantum Efficiency of Photoelectron Emission from Metal Surfaces with Laser Wavelengths from UV to NIR", 73rd Annual Gaseous Electronics Virtual Conference (October 5–9, 2020, USA). [Oral]
174. **Peng Zhang**, "Understanding Ultrafast and Nanoscale Electron Emission and Transport", 2020 Plasma & ElectroEnergetic Physics Annual Program Review, AFOSR (June 1, 2020). [Oral via Zoom]
175. S. Grover, S. Sahu, **Peng Zhang**, and S. K Kurinec, "Standardization of Specific Contact Resistivity Measurements using Transmission Line Method (TLM)", International Conference On Microelectronic Test Structures (April 6-9, 2020, Edinburgh, United Kingdom).
176. **Peng Zhang**, Y. Luo, and Y. Zhou, "M06.00004 : Exact Theory for Two-Color Laser-Induced Photoemission from a Biased Metal Surface", APS March Meeting 2020 (March 2–6, 2020, Denver, Colorado, USA). [Oral]
177. A. Iqbal, P. Y. Wong, J. Verboncoeur, and **Peng Zhang**, "Time-Dependent Physics of Single-Surface Multipactor with Dual-Tone RF Carriers", 10th Annual MIPSE Graduate Student Symposium (November 13, 2019, Ann Arbor, MI, USA). [Poster]
178. S. Banerjee, J. Luginsland, and **Peng Zhang**, "Modelling and Engineering of Tunneling Electrical Contacts", 10th Annual MIPSE Graduate Student Symposium (November 13, 2019, Ann Arbor, MI, USA). [Poster]
179. Y. Luo, and **Peng Zhang**, "An analytical model for two-color photoemission from biased metal surface", 10th Annual MIPSE Graduate Student Symposium (November 13, 2019, Ann Arbor, MI, USA). [Poster]
180. Y. Zhou, and **Peng Zhang**, "Comparison of a quantum model for photoemission from metal surfaces with Three-step model and Fowler-Dubridge model", 10th Annual MIPSE Graduate Student Symposium (November 13, 2019, Ann Arbor, MI, USA). [Poster]
181. Z. Huang, and **Peng Zhang**, "Two-surface multipactor susceptibility with two carrier frequencies using Monte Carlo simulation", 10th Annual MIPSE Graduate Student Symposium (November 13, 2019, Ann Arbor, MI, USA). [Poster]
182. Y. Fu, B. Zheng, J. Krek, D. Wen, **Peng Zhang**, J. P. Verboncoeur, "MW1.00055 : On the Similarities of High Pressure Microdischarges", 72nd Annual Gaseous Electronics Conference, October 28 - November 1, 2019, College Station, Texas, USA. [poster]
183. D. Wen, **Peng Zhang**, J. Krek, Y. Fu, J. P. Verboncoeur, "Harmonics in single surface multipactor-induced ionization breakdown", 2019 North American Particle Accelerator Conference (NAPAC2019), September 1-6, 2019, Lansing, MI, USA. [poster]
184. **Peng Zhang**, A. Iqbal, D. Wen, P. Y. Wong, J. Verboncoeur, "Recent development on the modeling of multi-frequency and non-sinusoidal field driven multipactor", 2019 Pacific Symposium on Pulsed Power and Applications, August 6 - 9, 2019, Kauai, Hawaii, USA. [Oral]
185. S. Banerjee, J. Luginsland, and **Peng Zhang**, "Modeling and engineering of nano-scale electrical contacts", The First Joint Meeting of the International Vacuum Nanoelectronics (IVNC) and International Vacuum Electron Sources (IVESC) Conferences, July 22-26, 2019,

Cincinnati, Ohio, USA. [Poster]

186. D. Q. Wen, A. Iqbal, **Peng Zhang**, J. P. Verboncoeur, "Microwave window multipractor suppression by non-sinusoidal transverse RF electric fields", The First Joint Meeting of the International Vacuum Nanoelectronics (IVNC) and International Vacuum Electron Sources (IVESC) Conferences, July 22-26, 2019, Cincinnati, Ohio, USA. [Poster]
187. J. Ludwick, S. Fairchild, M. Cahay, D. Gortat, M. Sparkes, W. O'Neil, T. Back, P. T. Murray, and **Peng Zhang**, "Reliable secondary electron emission measurements from gold covered micro porous stainless steel surfaces", The First Joint Meeting of the International Vacuum Nanoelectronics (IVNC) and International Vacuum Electron Sources (IVESC) Conferences, July 22-26, 2019, Cincinnati, Ohio, USA. [Poster]
188. Z. Huang, and **Peng Zhang**, "Two-surface multipactor susceptibility using Monte Carlo simulation", The First Joint Meeting of the International Vacuum Nanoelectronics (IVNC) and International Vacuum Electron Sources (IVESC) Conferences, July 22-26, 2019, Cincinnati, Ohio, USA. [Poster]
189. P. Y. Wong, **Peng Zhang**, J. Verboncoeur, "Harmonic Generation in Multipactor Discharges", The First Joint Meeting of the International Vacuum Nanoelectronics (IVNC) and International Vacuum Electron Sources (IVESC) Conferences, July 22-26, 2019, Cincinnati, Ohio, USA. [Poster]
190. S. Fairchild, J. Park, T. Back, **Peng Zhang**, T. Y. Posos, S. V. Baryshev, "Field emission properties of vertical and looped carbon nanotube fibers", The First Joint Meeting of the International Vacuum Nanoelectronics (IVNC) and International Vacuum Electron Sources (IVESC) Conferences, July 22-26, 2019, Cincinnati, Ohio, USA. [Oral]
191. Y. Luo, and **Peng Zhang**, "Exact analytical solution for ultrafast electron emission driven by two-color laser fields", The First Joint Meeting of the International Vacuum Nanoelectronics (IVNC) and International Vacuum Electron Sources (IVESC) Conferences, July 22-26, 2019, Cincinnati, Ohio, USA. [Oral]
192. A. Iqbal, J. Ludwick, S. Fairchild, M. Cahay, D. Gortat, M. Sparkes, W. O'Neill, T. C. Back, and **Peng Zhang**, "Empirical modeling and Monte Carlo simulation of secondary electron yield from a microporous surface", The First Joint Meeting of the International Vacuum Nanoelectronics (IVNC) and International Vacuum Electron Sources (IVESC) Conferences, July 22-26, 2019, Cincinnati, Ohio, USA. [Oral]
193. Y. Zhou, and **Peng Zhang**, "Comparison of a quantum model with Fowler-Dubridge model and three-step model for photoemission", The First Joint Meeting of the International Vacuum Nanoelectronics (IVNC) and International Vacuum Electron Sources (IVESC) Conferences, July 22-26, 2019, Cincinnati, Ohio, USA. [Oral]
194. Y. Fu, J. Krek, **Peng Zhang**, S. Baryshev, J. P. Verboncoeur, G. Parsey, and M. J. Kushner, "Atmospheric pressure micro-gap breakdown with interactions between multiple field emitters", The First Joint Meeting of the International Vacuum Nanoelectronics (IVNC) and International Vacuum Electron Sources (IVESC) Conferences, July 22-26, 2019, Cincinnati, Ohio, USA. [Oral]
195. Y. Fu, J. Krek, **Peng Zhang**, J. Verboncoeur, G. Parsey, M. Kushner, "Characterizing

breakdown voltage in micro-gaps with multiple field emitters at atmospheric pressure", IEEE Pulsed Power and Plasma Science Conference (PPPS 2019), June 23-28, 2019, Orlando, FL, USA. [Oral]

196. S. Banerjee, **Peng Zhang**, "Generalized self-consistent model for tunneling current in dissimilar metal-insulator-metal junctions", IEEE Pulsed Power and Plasma Science Conference (PPPS 2019), June 23-28, 2019, Orlando, FL, USA. [Oral]
197. Y. Zhou, **Peng Zhang**, "Comparisons of a Quantum Photoemission Model with Three-step Model and Fowler-Dubridge Model", IEEE Pulsed Power and Plasma Science Conference (PPPS 2019), June 23-28, 2019, Orlando, FL, USA. [Poster]
198. A. Iqbal, J. Ludwick, S. Fairchild, M. Cahay, D. Gortat, M. Sparkes, W. O'Neill, **Peng Zhang**, "Monte carlo simulation of secondary electron yield from a microporous surface", IEEE Pulsed Power and Plasma Science Conference (PPPS 2019), June 23-28, 2019, Orlando, FL, USA. [Poster]
199. S. Fairchild, J. Park, **Peng Zhang**, T. Posos, S. Baryshev, "Field emission properties of vertical and looped carbon nanotube fibers", IEEE Pulsed Power and Plasma Science Conference (PPPS 2019), June 23-28, 2019, Orlando, FL, USA. [Oral]
200. Y. Luo, **Peng Zhang**, "Exact Solution for Two-Color Laser Induced Photoemission from a Biased Metal Surface", IEEE Pulsed Power and Plasma Science Conference (PPPS 2019), June 23-28, 2019, Orlando, FL, USA. [Oral]
201. D. Wen, **Peng Zhang**, Y. Fu, J. Krek, J. P. Verboncoeur, "Multipactor dynamics under obliquely incident rf electric field", IEEE Pulsed Power and Plasma Science Conference (PPPS 2019), June 23-28, 2019, Orlando, FL, USA. [Oral]
202. A. Iqbal, J. Verboncoeur, **Peng Zhang**, "Temporal study of dual frequency multipactor on a dielectric", IEEE Pulsed Power and Plasma Science Conference (PPPS 2019), June 23-28, 2019, Orlando, FL, USA. [Oral]
203. P. Wong, Y. Y. Lau, **Peng Zhang**, N. Jordan, R. Gilgenbach, J. Verboncoeur, "The Effects of Multipactor on the Quality of a Signal in a Transmission Line", IEEE Pulsed Power and Plasma Science Conference (PPPS 2019), June 23-28, 2019, Orlando, FL, USA. [Oral]
204. D. Wen, A. Iqbal, **Peng Zhang**, J. P. Verboncoeur, "Suppressing single-surface multipactor discharges using non-sinusoidal electric field", IEEE Pulsed Power and Plasma Science Conference (PPPS 2019), June 23-28, 2019, Orlando, FL, USA. [Poster]
205. Z. Huang, **Peng Zhang**, "Study of two-surface multipactor susceptibility using Monte Carlo simulation", IEEE Pulsed Power and Plasma Science Conference (PPPS 2019), June 23-28, 2019, Orlando, FL, USA. [Poster]
206. S. Banerjee, J. Luginsland, **Peng Zhang**, "Engineered tunneling electrical contacts", IEEE Pulsed Power and Plasma Science Conference (PPPS 2019), June 23-28, 2019, Orlando, FL, USA. [Oral]
207. Y. Fu, J. Krek, D. Wen, **Peng Zhang**, J. Verboncoeur, "Transition of low-temperature plasma similarity laws from low to high ionization degree regimes", IEEE Pulsed Power and Plasma Science Conference (PPPS 2019), June 23-28, 2019, Orlando, FL, USA. [Oral]

208. Yi Luo and **Peng Zhang**, “Exact Analytical Solution for Ultrafast Electron Emission Due to Two-Color Laser Fields”, the 20th International Vacuum Electronics Conference - IVEC 2019 (April 29 - May 1, 2019, Busan, South Korea). [Oral]
209. A. Iqbal, J. Verboncoeur, P. Wong, and **Peng Zhang**, “Temporal study of dual frequency single surface multipactor by multiparticle Monte Carlo simulations”, the 20th International Vacuum Electronics Conference - IVEC 2019 (April 29 - May 1, 2019, Busan, South Korea). [Poster]
210. P. Y. Wong, Y. Y. Lau, **Peng Zhang**, N. Jordan, R. M. Gilgenbach, and J. Verboncoeur, “The Effect of Multipactor on the Quality of a Signal”, the 20th International Vacuum Electronics Conference - IVEC 2019 (April 29 - May 1, 2019, Busan, South Korea). [Poster]
211. D. Wen, **Peng Zhang**, Y. Fu, J. Krek, and J. P. Verboncoeur, “Effect of Obliquely Incident Linearly Polarized Electric Field on Multipactor Discharges”, MSU Engineering Graduate Research Symposium (March 21, 2019, East Lansing, MI, USA). [Poster]
212. Y. Fu, J. Krek, **Peng Zhang**, and J. P. Verboncoeur, “Engineered Surface Control of Microdischarge Breakdown Voltage”, MSU Engineering Graduate Research Symposium (March 21, 2019, East Lansing, MI, USA). [Poster]
213. A. Iqbal, J. Verboncoeur, **P. Zhang**, “Time Dependent Multiparticle Monte Carlo Simulations of Dual Frequency Single Surface Multipactor”, MSU Engineering Graduate Research Symposium (March 21, 2019, East Lansing, MI, USA). [Poster]
214. Y. Zhou, and **P. Zhang**, “Comparisons of Three-step Model, Fowler-Dubridge Model and a Quantum Mechanical Model for Photoemission from Metal Surfaces”, MSU Engineering Graduate Research Symposium (March 21, 2019, East Lansing, MI, USA). [Poster]
215. Y. Luo, and **P. Zhang**, “An Analytical Model for Ultrafast Electron Emission Due to Two-Color Laser Fields”, MSU Engineering Graduate Research Symposium (March 21, 2019, East Lansing, MI, USA). [Poster]
216. Z. Huang, and **P. Zhang**, “Two-Surface Multipactor Susceptibility Based on Monte Carlo Simulation”, MSU Engineering Graduate Research Symposium (March 21, 2019, East Lansing, MI, USA). [Poster]
217. S. Banerjee, J. Luginsland, **P. Zhang**, “Two Dimensional Tunneling Resistance Transmission Line Model for Parallel Carbon Nanotube Contacts”, MSU Engineering Graduate Research Symposium (March 21, 2019, East Lansing, MI, USA). [Poster]
218. Y. Luo, and **Peng Zhang**, “An analytical model for ultrafast electron emission due to two-color laser fields”, 9th Annual MIPSE Graduate Student Symposium (November 14, 2018, Ann Arbor, MI, USA). [Poster]
219. A. Iqbal, J. Verboncoeur, and **Peng Zhang**, “Time Dependent Physics of Single Surface Multipactor by Multiparticle Monte Carlo Simulations”, 9th Annual MIPSE Graduate Student Symposium (November 14, 2018, Ann Arbor, MI, USA). [Poster]
220. S. Banerjee, J. Luginsland, and **Peng Zhang**, “Two Dimensional Tunneling Resistance Transmission Line Model for Parallel Carbon Nanotube Contacts”, 9th Annual MIPSE Graduate Student Symposium (November 14, 2018, Ann Arbor, MI, USA). [Poster]

221. Y. Fu, J. Krek, D. Wen, **Peng Zhang**, and J. P. Verboncoeur, "HW4.00001: On the deviations of similarity laws in low-temperature discharges", 60th Annual Meeting of the APS Division of Plasma Physics & the 71st Annual Gaseous Electronics Conference (November 5-9, 2018, Portland, OR, USA).
222. D. Wen, Y. Fu, J. Krek, **Peng Zhang**, and J. P. Verboncoeur, "PR4.00009 : Effect of linearly and elliptically polarized electric fields on multipactor discharges", 60th Annual Meeting of the APS Division of Plasma Physics & the 71st Annual Gaseous Electronics Conference (November 5-9, 2018, Portland, OR, USA).
223. P. Wong, Y. Y. Lau, and **Peng Zhang**, "CP11.00001 : Effects of Multipactor on the Quality of a Signal", 60th Annual Meeting of the APS Division of Plasma Physics & the 71st Annual Gaseous Electronics Conference (November 5-9, 2018, Portland, OR, USA).
224. F. Antoulinakis, Y. Y. Lau, D. Packard, and **Peng Zhang**, "CP11.00036 : A Model on AC Contact Impedance", 60th Annual Meeting of the APS Division of Plasma Physics & the 71st Annual Gaseous Electronics Conference (November 5-9, 2018, Portland, OR, USA).
225. J. Luginsland, M. S. Murillo, and **Peng Zhang**, "TP11.00049 : Dynamic Density Functional Theory Approach to Electron Emission Physics", 60th Annual Meeting of the APS Division of Plasma Physics & the 71st Annual Gaseous Electronics Conference (November 5-9, 2018, Portland, OR, USA).
226. A. Iqbal, J. Verboncoeur, and **Peng Zhang**, "Dual frequency multipactor on a dielectric", The 45th IEEE International Conference on Plasma Science (ICOPS 2018), June 24-28, 2018, Denver, CO, USA. [Oral]
227. Y. Luo, and **Peng Zhang**, "Two-color laser induced electron emission", The 45th IEEE International Conference on Plasma Science (ICOPS 2018), June 24-28, 2018, Denver, CO, USA. [Oral]
228. J. Luginsland, M. Murillo, and **Peng Zhang**, "Quantum hydrodynamics approach to electron emission physics", The 45th IEEE International Conference on Plasma Science (ICOPS 2018), June 24-28, 2018, Denver, CO, USA. [Poster]
229. S. Banerjee, J. Luginsland, and **Peng Zhang**, "Contact tunneling resistance in carbon nanotube fibers", The 45th IEEE International Conference on Plasma Science (ICOPS 2018), June 24-28, 2018, Denver, CO, USA. [Oral]
230. Y. Fu, **Peng Zhang**, J. Verboncoeur, "Gas Breakdown in Microgaps with Surface Protrusion on the Cathode", DOE Plasma Science Center (PSC) for Control of Plasma Kinetics: Multi-Phase and Bounded Systems, May 17-18, 2018, Bethesda, MD, USA. [Oral]
231. A. Iqbal, **Peng Zhang**, J. Verboncoeur, "Dual-frequency Multipactor Susceptibility on a Dielectric", 7.2, the Nineteenth International Vacuum Electronics Conference (IVEC 2018), 24 - 26 April 2018, Monterey, California, USA. [Oral]
232. **Peng Zhang**, S. B. Fairchild, T. C. Back, and Y. Luo, "Characterization of Field Emission from Carbon Nanotube Fibers in Varying Cathode-Anode Gaps", 12.5, the Nineteenth International Vacuum Electronics Conference (IVEC 2018), 24 - 26 April 2018, Monterey, California, USA. [Oral]
233. **Peng Zhang**, and Tony Pan, "Inverse Tunneling of Free Vacuum Electrons into a Solid",

P-30, 2017 Workshop on Innovative Nanoscale Devices and Systems (WINDS), November 26 - December 1, 2017, Kohala Coast, Hawaii, USA. [Poster]

234. Y. Fu, **Peng Zhang**, J. Verboncoeur, A. Christlieb, "Effect of surface protrusion on plasma sheath properties in DC microdischarges", NW1.00060, 70th Annual Gaseous Electronics Conference (GEC), November 6 - 10, 2017, Pittsburgh, Pennsylvania, USA. [Poster]

235. J. Lin, P. Y. Wong, P. Yang, Y. Y. Lau, W. Tang, and **Peng Zhang**, "Electric field distribution and current emission in a vacuum nano-diode", 30th International Vacuum Nanoelectronics Conference (IVNC), July 10 - 14, 2017, Regensburg, Germany). [Poster]

236. Y. Y. Lau, and **Peng Zhang**, "Innovative Study of Electrical Contact and Electron Transport", 2017 Plasma & ElectroEnergetic Physics Annual Program Review, AFOSR (June 13, 2017, Arlington, VA, USA). [Oral]

237. P. Y. Wong, D. Chernin, Y. Y. Lau, **Peng Zhang**, D. H. Simon, B. W. Hoff, G. B. Greening, R. M. Gilgenbach, "Harmonic generation in an octave bandwidth traveling-wave tube", TH 1.6-6, 44th IEEE International Conference on Plasma Science (ICOPS), May 25 - 26, 2017, Atlantic City, New Jersey, USA.

238. D. H. Simon, P. Wong, D. Chernin, Y. Y. Lau, B. W. Hoff, **Peng Zhang**, C. Dong, R. M. Gilgenbach, "Evaluation of the pierce parameters C and Q in a traveling wave tube", TH 1.6-7, 44th IEEE International Conference on Plasma Science (ICOPS), May 25 - 26, 2017, Atlantic City, New Jersey, USA.

239. Y. Y. Lau, and **Peng Zhang**, "Innovative Study of Electrical Contact and Electron Transport", 2016 Plasma & ElectroEnergetic Physics Annual Program Review, AFOSR (November 29, 2016, Arlington, VA, USA). [Oral]

240. F. Antoulinakis, **Peng Zhang**, Y. Y. Lau, D. Chernin, "JO7.00014 : Effects of temperature dependence of electrical and thermal conductivities on the heating of a one dimensional conductor", 58th Annual Meeting of the APS Division of Plasma Physics (October 31-November 4 2016, San Jose, California, USA). [Oral]

241. P. Wong, **Peng Zhang**, Y. Y. Lau, G. Greening, R. M. Gilgenbach, D. Chernin, D. Simon, B. Hoff, "GP10.00055: Harmonic Generation in a Traveling-Wave Tube", 58th Annual Meeting of the APS Division of Plasma Physics (October 31-November 4 2016, San Jose, California, USA). [Poster]

242. D. A. Yager-Elorriaga, **Peng Zhang**, A. M. Steiner, N. M. Jordan, P. C. Campbell, Y. Y. Lau, R. M. Gilgenbach, "NP10.00110: Experimental observation of discrete helical modes in imploding cylindrical liners", 58th Annual Meeting of the APS Division of Plasma Physics (October 31-November 4 2016, San Jose, California, USA). [Poster]

243. F. Antoulinakis, D. Chernin, **Peng Zhang**, and Y. Y. Lau, "Effects of Temperature Dependence of electrical and thermal conductivities on the heating of a one dimensional conductor", 7th Annual MIPSE Graduate Student Symposium (October 5, 2016, Ann Arbor, MI, USA). [Poster]

244. **Peng Zhang**, and Y. Y. Lau, "Exact Solution for Ultrafast Electron Emission Due to a DC Bias and a Laser Field", the 2017 Cross Organizational Meeting on Lasers and Field

Emission, AFOSR (August 12, 2016, Arlington, VA, USA). [Oral]

245. **Peng Zhang**, and Y. Y. Lau, "An Exact Formulation for Ultrafast Electron Emission Due to a DC Bias and a Laser Field", 29th International Vacuum Nanoelectronics Conference, July 11-15, 2016, Vancouver, Canada. [Oral]
246. F. Antoulinakis, D. Chernin, **Peng Zhang**, and Y. Y. Lau, "Effects of temperature dependence of electrical and thermal conductivities on the heating of a one dimensional conductor", IEEE International Power Modulator and High Voltage Conference (IPMHVC), 5-9 July 2016, San Francisco, California. [Oral]
247. **Peng Zhang**, and Y. Y. Lau, "An exact theory of ultrafast electron emission on a biased metal surface", 43rd IEEE International Conference on Plasma Science, June 19-23, 2016, Banff, Alberta, Canada. [Oral]
248. F. Antoulinakis, D. Chernin, **Peng Zhang**, and Y. Y. Lau, "Effects of temperature dependence of electrical and thermal conductivities on the heating of a one dimensional conductor", 43rd IEEE International Conference on Plasma Science, June 19-23, 2016, Banff, Alberta, Canada. [Poster]
249. D. A. Yager-Elorriaga, A. M. Steiner, P. C. Campbell, S. G. Patel, N. M. Jordan, **Peng Zhang**, Y. Y. Lau and R. M. Gilgenbach, "Experimental investigation of the effects of an axial magnetic field on the magneto Rayleigh-Taylor, sausage and kink instabilities in imploding liner-plasmas", 43rd IEEE International Conference on Plasma Science, June 19-23, 2016, Banff, Alberta, Canada.
250. **Peng Zhang**, and Y. Y. Lau, "Generation of Sharp Electron Bunches from a Laser Field and a DC Bias Field", Conference on Lasers and Electro-Optics (CLEO), 5-10 June 2016, San Jose, California. [Poster]
251. **Peng Zhang**, Y. Y. Lau, P. Wong, D. H. Simon, R. M. Gilgenbach, D. Hung, D. Chernin, B. Hoff, "Absolute Instability Near TWT Band Edges", 17th International Vacuum Electronics Conference (April 2016, Monterey, California). [Oral]
252. P. Wong, **Peng Zhang**, Y. Y. Lau, D. H. Simon, G. Greening, R. M. Gilgenbach, D. Chernin, C. Dong, B. W. Hoff, "Harmonic Generation Under Small Signal Conditions in a Traveling Wave Tube", 17th International Vacuum Electronics Conference (April 2016, Monterey, California). [Oral]
253. **Peng Zhang**, Y. Y. Lau, L. K. Ang, D. Shiffler, K. L. Jensen, and R. M. Gilgenbach, "An Exact Formulation of Laser Assisted Electron Emission on a Biased Metal Surface", GO8.00001, 57th Annual Meeting of the APS Division of Plasma Physics (November 16–20, 2015, Savannah, Georgia, USA). [Oral]
254. Y. Y. Lau, **Peng Zhang**, and R.M. Gilgenbach, "On the Interfacial Tunneling Current in Nanoscale Plasmonic Junctions", GO8.00002, 57th Annual Meeting of the APS Division of Plasma Physics (November 16–20, 2015, Savannah, Georgia, USA). [Oral]
255. **Peng Zhang**, Y. Y. Lau, J. W. Luginsland, and R.M. Gilgenbach, "Electron Transport and Tunneling Resistance between Carbon Nanotube Fibers", YP12.00026, 57th Annual Meeting of the APS Division of Plasma Physics (November 16–20, 2015, Savannah, Georgia, USA). [Poster]

256. C. F. Dong, **Peng Zhang**, D. Chernin, Y. Y. Lau, D. H. Simon, P. Wong, G. Greening, and R. M. Gilgenbach, "Theory of Harmonic Generation on a Traveling Wave Tube", GO8.00004, 57th Annual Meeting of the APS Division of Plasma Physics (November 16–20, 2015, Savannah, Georgia, USA). [Oral]

257. D. H. Simon, D. Chernin, P. Wong, **Peng Zhang**, Y. Y. Lau, C. F. Dong, B. Hoff, and R. M. Gilgenbach, "How Accurate Is Pierce's Theory of Traveling Wave Tube?", GO8.00003, 57th Annual Meeting of the APS Division of Plasma Physics (November 16–20, 2015, Savannah, Georgia, USA). [Oral]

258. M. Weis, K. Peterson, M. Hess, Y. Y. Lau, **Peng Zhang**, and R.M. Gilgenbach, "Impact of Inner Surface Perturbations on the Stability of Cylindrical Liner Implosion", JO6.00005, 57th Annual Meeting of the APS Division of Plasma Physics (November 16–20, 2015, Savannah, Georgia, USA). [Oral]

259. S. C. Exelby, G. B. Greening, N. M. Jordan, D. Simon, **Peng Zhang**, Y. Y. Lau, and R. M. Gilgenbach, "Harmonic Generation in the Multifrequency Recirculating Planar Magnetron", UP12.00100, 57th Annual Meeting of the APS Division of Plasma Physics (November 16–20, 2015, Savannah, Georgia, USA). [Poster]

260. D. A. Yager-Elorriaga, A. M. Steiner, S. G. Patel, N. M. Jordan, R. M. Gilgenbach, Y. Y. Lau, M. R. Weis, and **Peng Zhang**, "Magneto Rayleigh-Taylor, Sausage, and Kink Instability Experiments on a MegaAmpere Linear Transformer Driver", CP12.00154, 57th Annual Meeting of the APS Division of Plasma Physics (November 16–20, 2015, Savannah, Georgia, USA). [Poster]

261. J. Lin, and **Peng Zhang**, "Field Distribution in a Vacuum-nano Diode", 6th Annual MIPSE Graduate Student Symposium (October 7, 2015, Ann Arbor, MI, USA). [Poster]

262. **Peng Zhang**, C. F. Dong, D. Chernin, Y. Y. Lau, B. Hoff, D. H. Simon, P. Wong, G. Greening, and R. M. Gilgenbach, "Harmonic Generation in the Beam Current in a Traveling Wave Tube", 6th Annual MIPSE Graduate Student Symposium (October 7, 2015, Ann Arbor, MI, USA). [Poster]

263. P. Y. Wong, B. Hoff, D. H. Simon, D. Chernin, **Peng Zhang**, Y. Y. Lau, and R. M. Gilgenbach, "Spatial Amplification in a Disk-on-Rod Traveling-Wave Amplifier", 6th Annual MIPSE Graduate Student Symposium (October 7, 2015, Ann Arbor, MI, USA). [Poster]

264. S. C. Exelby, G. B. Greening, N. M. Jordan, D. Simon, **Peng Zhang**, Y. Y. Lau and R. M. Gilgenbach, "Harmonic Generation on the Multifrequency Recirculating Planar Magnetron Experiment", 6th Annual MIPSE Graduate Student Symposium (October 7, 2015, Ann Arbor, MI, USA). [Poster]

265. D. A. Yager-Elorriaga, A.M. Steiner, S. G. Patel, N. M. Jordan, M. R. Weis, **Peng Zhang**, Y. Y. Lau, and R. M. Gilgenbach, "Ultrathin Liner-Plasma Implosion Experiments on a sub-MA Current Generator", 6th Annual MIPSE Graduate Student Symposium (October 7, 2015, Ann Arbor, MI, USA). [Poster]

266. C. P. Ridgers, J. G. Kirk, T. G. Blackburn, C. S. Brady, **Peng Zhang**, A. Thomas, and A. R. Bell, "Exploring the QED-Plasma Regime Reached in 10 PW Laser-Matter Interactions", 24th Annual International Laser Physics Workshop (LPHYS'15, August 21-25, 2015,

Shanghai, China).

267. M. R. Weis, **Peng Zhang**, Y. Y. Lau, R. M. Gilgenbach, P. F. Schmit, K. J. Peterson, M. H. Hess, "Theoretical and Numerical Study of MHD Instabilities in Planar and Cylindrical Pulsed Power", The Third International Workshop on Radiation from High Energy Density Plasmas (RHEDP2015), June 06-June 12, 2015, South Lake Tahoe, NV, USA. [Oral]
268. D. A. Yager-Elorriaga1, A. M. Steiner, S. G. Patel, N. M. Jordan, R. M. Gilgenbach, Y. Y. Lau, M. R. Weis and **Peng Zhang**, "Sausage, Kink, and Magneto Rayleigh-Taylor Instabilities on Initially-Solid, Imploding and Exploding Cylindrical Liner Plasmas", The Third International Workshop on Radiation from High Energy Density Plasmas (RHEDP2015), June 06-June 12, 2015, South Lake Tahoe, NV, USA. [Oral]
269. **Peng Zhang**, M. R. Weis, Y. Y. Lau, R. M. Gilgenbach, P. F. Schmit, K. J. Peterson, M. H. Hess, "Magneto-Rayleigh-Taylor, Sausage, and Kink Instabilities in Cylindrical Liners", PPC-O-14-6, the 20th IEEE Pulsed Power Conference (PPC) and the 26th IEEE Symposium on Fusion Engineering (SOFE), May 31-June 4, 2015, Austin, Texas, USA. [Oral]
270. M. R. Weis, **Peng Zhang**, Y. Y. Lau, R. M. Gilgenbach, K. J. Peterson, M. H. Hess, "Stability of the Fuel/Liner Interface in Magnetized Liner Implosions", PPC-O-14-5, the 20th IEEE Pulsed Power Conference (PPC) and the 26th IEEE Symposium on Fusion Engineering (SOFE), May 31-June 4, 2015, Austin, Texas, USA. [Oral]
271. S. C. Exelby, G. B. Greening, N. M. Jordan, D. Simon, **Peng Zhang**, Y. Y. Lau, R. M. Gilgenbach, "Innovative Recirculating Planar Magnetron Experiments", PPC-O-7-6, the 20th IEEE Pulsed Power Conference (PPC) and the 26th IEEE Symposium on Fusion Engineering (SOFE), May 31-June 4, 2015, Austin, Texas, USA. [Oral]
272. **Peng Zhang**, L. K. Ang, A. Gover, Y. Y. Lau, and R. M. Gilgenbach, "Enhancement of Coherent Smith-Purcell radiation at THz frequency", 16th International Vacuum Electronics Conference (April 2015, Beijing, China). [Oral]
273. **Peng Zhang**, Y. Y. Lau, and R. M. Gilgenbach, "Comparison of Horizontal and Vertical Thin Film Contact", 16th International Vacuum Electronics Conference (April 2015, Beijing, China). [Oral]
274. D. Hung, I. M. Rittersdorf, Y. Y. Lau, **Peng Zhang**, T. A. Antonsen, Jr., D. Chernin, D. H. Simon, and R. M. Gilgenbach, "Absolute instability in linear beam traveling wave amplifiers", 16th International Vacuum Electronics Conference (April 2015, Beijing, China). [Poster]
275. Y. L. Liu, **Peng Zhang**, S. H. Chen, and L. K. Ang, "Maximal charge injection of consecutive electron pulses with uniform pulse separation", 16th International Vacuum Electronics Conference (April 2015, Beijing, China). [Poster]
276. Y. Y. Lau, **Peng Zhang**, and D. Hung, "Modeling of ballistic diode based on asymmetric geometry", The 2015 EMN East Meeting (Energy Material Nanotechnology) (April 2015, Beijing, China). [Oral]
277. G. Greening, N. Jordan, R. Gilgenbach, S. Exelby, **Peng Zhang**, D. Simon, M. Franzi, "Experiments and Simulations on a Prototype Recirculating Planar Magnetron", 56th Annual Meeting of the APS Division of Plasma Physics, New Orleans, LA, JO6.00010 (October

27-31, 2014) [Oral].

278. D. Hung, I. M. Rittersdorf, **Peng Zhang**, Y. Y. Lau, D. H. Simon, R. M. Gilgenbach, D. Chernin, T. M. Antonsen, Jr., "Absolute Instability in Coupled-Cavity TWTs", 56th Annual Meeting of the APS Division of Plasma Physics, New Orleans, LA, JO6.00008 (October 27-31, 2014) [Oral].
279. P. Wong, D. Simon, **Peng Zhang**, Y. Y. Lau, R. M. Gilgenbach, B. Hoff, "TWT Driven by a Large Diameter Annular Electron Beam in a Disk-on-Rod Slow-Wave Structure", 56th Annual Meeting of the APS Division of Plasma Physics, New Orleans, LA, JO6.00009 (October 27-31, 2014) [Oral].
280. D. Simon, **Peng Zhang**, Y. Y. Lau, G. Greening, R. Gilgenbach, B. Hoff, "A Bi-Frequency Linear Slow Wave Device", 56th Annual Meeting of the APS Division of Plasma Physics, New Orleans, LA, CP8.00086 (October 27-31, 2014) [Poster].
281. Y. Y. Lau, **Peng Zhang**, M. Weis, R. Gilgenbach, M. Hess, K. Peterson, "Magneto-Rayleigh-Taylor, Sausage And Kink Mode In Cylindrical Liners", 56th Annual Meeting of the APS Division of Plasma Physics, New Orleans, LA, GO4.00003 (October 27-31, 2014) [Oral].
282. M. Weis, **Peng Zhang**, Y. Y. Lau, R. Gilgenbach, K. Peterson, Mark Hess, "2D HYDRA Calculations of Magneto-Rayleigh-Taylor Growth and Feedthrough in Cylindrical Liners", 56th Annual Meeting of the APS Division of Plasma Physics, New Orleans, LA, GO4.00004 (October 27-31, 2014) [Oral].
283. D. M. H. Hung, **Peng Zhang**, Y. Y. Lau and R. M. Gilgenbach, "Current Crowding in Thin Film Electrical Contacts", 5th Annual MIPSE Graduate Student Symposium (October 8, 2014, Ann Arbor, MI, USA). [Poster]
284. D. H. Simon, P. Wong, B. Hoff, **Peng Zhang**, Y. Y. Lau, and R.M. Gilgenbach, "Analysis of a Disk-on-Rod Traveling Wave Amplifier", 5th Annual MIPSE Graduate Student Symposium (October 8, 2014, Ann Arbor, MI, USA). [Poster]
285. D. M. H. Hung, I. Rittersdorf, Y. Y. Lau, **Peng Zhang**, D. Chernin, T. M. Antonsen, Jr., and R. M. Gilgenbach, "A General Study of Absolute Instability in Electron Beam-Circuit Interactions", 5th Annual MIPSE Graduate Student Symposium (October 8, 2014, Ann Arbor, MI, USA). [Poster]
286. M. R. Weis, **Peng Zhang**, Y. Y. Lau and Ronald M. Gilgenbach, "Magneto-Rayleigh-Taylor Growth and Feedthrough in Cylindrical Liners", 5th Annual MIPSE Graduate Student Symposium (October 8, 2014, Ann Arbor, MI, USA). [Poster]
287. **Peng Zhang**, Derek M. H. Hung, and Y. Y. Lau, "Recent Models on Classical, Ballistic, and Quantum Diodes", 5th Annual MIPSE Graduate Student Symposium (October 8, 2014, Ann Arbor, MI, USA). [Poster]
288. Y. Y. Lau, **Peng Zhang**, and R. M. Gilgenbach, "Modeling of Electrical Contact with Dissimilar Materials", Progress In Electromagnetics Research Symposium (PIERS 2014), Guangzhou, China, 3A-11 (August 2014) [Oral].
289. **Peng Zhang**, D. Simon, Y. Y. Lau, G. Greening, M. Franzi, R. M. Gilgenbach, B. Hoff, "A dual-frequency slow wave amplifier", 41st IEEE International Conference on Plasma

Science (ICOPS) and the 20th International Conference on High-Power Particle Beams (Beams), Washington DC, USA, 3P-10 (May 2014) [Poster].

290. Y. Y. Lau, M. R. Weis, **Peng Zhang**, R. M. Gilgenbach, M. Hess, K. J. Peterson, "Effects of axial magnetic field on MHD instabilities in cylindrical liners", 41st IEEE International Conference on Plasma Science (ICOPS) and the 20th International Conference on High-Power Particle Beams (Beams), Washington DC, USA, 6C-2 (May 2014) [Oral].

291. **Peng Zhang**, A. G. R. Thomas, C. P. Ridgers, "TO7.00011: Effects of strong radiation reaction and quantum-electrodynamics on relativistic transparency", 55th Annual Meeting of the APS Division of Plasma Physics (November 2013, Denver, Colorado, USA). [Oral]

292. Y. Y. Lau, D. Chernin, **Peng Zhang**, R. M. Gilgenbach, A. Steiner, "TO5.00005: Voltage scale for electro-thermal runaway", 55th Annual Meeting of the APS Division of Plasma Physics (November 2013, Denver, Colorado, USA). [Oral]

293. G. Greening, M. Franzi, **Peng Zhang**, Y.Y. Lau, R.M. Gilgenbach**,** "TO6.00003: Multipactor-Susceptible RF Windows as Power-Tunable Microwave Limiters", 55th Annual Meeting of the APS Division of Plasma Physics (November 2013, Denver, Colorado, USA). [Contributed Oral]

294. **Peng Zhang**, Y. Y. Lau, and R. S. Timsit, "Spreading Resistance of Contact Spot on a Thin Film", 59th IEEE Holm Conference on Electrical Contacts, Newport, RI USA (September 2013). [Oral]

295. **Peng Zhang**, Y. Y. Lau, D. Chernin, and R. M. Gilgenbach, "Electrical contacts: A voltage scale for thermal runaway and issues in measurements of constriction resistance", 4th Annual MIPSE Graduate Student Symposium (September 2013, Ann Arbor, MI, USA). [Poster]

296. G. Greening, M. Franzi, R. M. Gilgenbach, A. Schutt, **P. Zhang**, Y. Y. Lau, and N. M. Jordan, "Multipactor-susceptible RF windows as power-tunable microwave limiters", IEEE Pulsed Power & Plasma Science Conference - PPPS 2013 (June 2013, San Francisco, California, USA).

297. Y. Y. Lau, D. P. Chernin, **P. Zhang**, and R. M. Gilgenbach, "A voltage scale for electro-thermal runaway", IEEE Pulsed Power & Plasma Science Conference - PPPS 2013 (June 2013, San Francisco, California, USA).

298. Y. B. Zhu, **P. Zhang**, A.Valfells, L. K. Ang, and Y. Y. Lau, "Novel scaling laws for the Langmuir-Blodgett Solutions in cylindrical and Spherical diodes", IEEE Pulsed Power & Plasma Science Conference - PPPS 2013 (June 2013, San Francisco, California, USA).

299. **Peng Zhang**, and Y. Y. Lau, "Recent Development on the Modeling of Electrical Contact", 14th International Vacuum Electronics Conference (May 2013, Paris, France). [poster]

300. Y. B. Zhu, **P. Zhang**, A. Valfells, L. K. Ang, and Y. Y. Lau, "Novel scaling laws for the Langmuir-Blodgett solutions in cylindrical and spherical diode", 14th International Vacuum Electronics Conference (May 2013, Paris, France).

301. R. M. Gilgenbach, S. Patel, A. Steiner, D. Yager-Eliorraga, Y. Y. Lau, D. Chalenski, N. Jordan, M. Weis, and **Peng Zhang**, "MA-LTD driven z-pinch and x-pinch experiments and

theory", The 2013 Radiation from High Energy Density Plasmas International Workshop (April, 2013, South Lake Tahoe, NV, USA).

302. **Peng Zhang**, B. Hoff, Y. Y. Lau, D. French, P. Mardahl, J. Luginsland, "Excitation of Slow Wave Structure", The Fifteenth Annual Directed Energy Symposium (November 2012, Albuquerque, NM, USA). [Poster]
303. **Peng Zhang**, Y. Y. Lau, W. Tang and R. M. Gilgenbach, "Electrical Contact Resistance", The Fifteenth Annual Directed Energy Symposium (November 2012, Albuquerque, NM, USA). [Oral]
304. Y. Y. Lau, **Peng Zhang**, D. Simon, B. Hoff, D. French, J. W. Luginsland, "JO7.00015: Slow Wave Structure as a Radiator for Nonlinear Transmission Lines", 54th Annual Meeting of the APS Division of Plasma Physics (November 2012, Providence, Rhode Island, USA).[Oral]
305. **Peng Zhang**, Y. Y. Lau, D. Hung, and R. M. Gilgenbach, "JO7.00011: Spreading Resistance on Thin Film Contacts", 54th Annual Meeting of the APS Division of Plasma Physics (November 2012, Providence, Rhode Island, USA). [Oral]
306. G. Greening, M. Franzi, **Peng Zhang**, Y. Y. Lau, A. Schutt, and R. M. Gilgenbach, "PP8.00151: Theory and Experimental Characterization of Multipactor RF Window Breakdown", 54th Annual Meeting of the APS Division of Plasma Physics (November 2012, Providence, Rhode Island, USA). [Poster]
307. M. Franzi, R. Gilgenbach, B. Hoff, G. Greening, Y. Y. Lau, D. Chalenski, D. Simon, **Peng Zhang,** "JO7.00005: Mode Control Cathode Modeling and Experiments on a Recirculating Planar Magnetron", 54th Annual Meeting of the APS Division of Plasma Physics (November 2012, Providence, Rhode Island, USA). [Oral]
308. D. A. Chalenski, R. M. Gilgenbach, Y. Y. Lau, S. Patel, A. Steiner, D. Yager-Eliorraga, I. Rittersdorf, M. Weiss, M. Franzi, **Peng Zhang**, J. Zier, "Seeded Magneto Rayleigh-Taylor instability driven by a 1-MA Linear Transformer Driver", Magnetic Field Generation and Related Topics (MEGAGUSS), 2012 14th International Conference on Megagauss (14-19 Oct. 2012, Maui, HI).
309. **Peng Zhang**, Y. Y. Lau, and R. M. Gilgenbach, "Spreading Resistance of Thin Film Contacts", 3rd Annual MIPSE Graduate Student Symposium (October 2012, East Lansing, MI, USA). [Poster]
310. R. M. Gilgenbach, D. Chalenski, Y.Y. Lau, S. Patel, A. Steiner, D. Yager-Eliorraga, M. Weis, **Peng Zhang**, I. Rittersdorf and J. Zier, "Magneto Rayleigh-Taylor Instability in Dense Plasmas", XXI Europhysics Conference on Atomic and Molecular Physics of Ionized Gases (ESCAMPIG), P1.10.2 (July 2012, Viana do Castelo, Portugal). [poster]
311. **Peng Zhang**, M. Franzi, Y. Y. Lau, and R. M. Gilgenbach, "P2.13: Microwave Plasma Window Breakdown Theory and Experiments", 13th International Vacuum Electronics Conference and 9th International Vacuum Electron Sources Conference (April 2012, Monterey, California, USA). [poster]
312. C. McKelvey, **Peng Zhang**, M. Franzi, Y. Y. Lau, R. Gilgenbach, "YP9.00010: Microwave Plasma Window Theory and Experiments", 53rd Annual Meeting of the APS

Division of Plasma Physics (November 2011, Salt Lake City, UT, USA). [Poster]

313. M. Weis, I. Rittersdorf, Y. Y. Lau, **Peng Zhang**, R. Gilgenbach, J. Zier, "TP9.00092: Anisotropy and Feedthrough in Magneto-Rayleigh-Taylor Instabilities", 53rd Annual Meeting of the APS Division of Plasma Physics (November 2011, Salt Lake City, UT, USA). [Poster]
314. **Peng Zhang**, Y. Y. Lau, I. M. Rittersdorf, M. R. Weis, R. M. Gilgenbach, S. A. Slutz, D. B. Sinars, M. C. Herrmann, M. E. Cuneo, "TP9.00090: Effect of Magnetic Shear on Magneto-Rayleigh-Taylor Instability", 53rd Annual Meeting of the APS Division of Plasma Physics (November 2011, Salt Lake City, UT, USA). [Poster]
315. Y. Y. Lau, **Peng Zhang**, W. Tang, M. R. Gomez, D. M. French, J. C. Zier, R. M. Gilgenbach, "UP9.00117: Bulk and Thin Film Contact Resistance with Dissimilar Materials", 53rd Annual Meeting of the APS Division of Plasma Physics (November 2011, Salt Lake City, UT, USA). [Poster]
316. **Peng Zhang**, Y. Y. Lau, and R. M. Gilgenbach, "Scaling laws for Bulk and Thin Film Contact Resistance with Dissimilar Materials", The University of Michigan Engineering Graduate Symposium (November 2011, Ann Arbor, MI, USA). [Poster]
317. **Peng Zhang**, Y. Y. Lau, W. Tang, M. R. Gomez, D. M. French, J. C. Zier, and R. M. Gilgenbach, "Analysis of Bulk and Thin Film Contact Resistance between Disimilar Materials", 2nd Annual Michigan Institute for Plasma Science and Engineering (MIPSE) Graduate Student Symposium, Poster Session III (September 2011, Ann Arbor, MI, USA). [Poster]
318. **Peng Zhang**, Y. Y. Lau, and R. M. Gilgenbach, "Thin Film Contact Resistance with Dissimilar Materials – An Exact Formulation", 57th IEEE Holm Conference on Electrical Contacts, Minneapolis, MN USA, No. 56 (September 2011) [Oral in Young Investigator Award Session]
319. **Peng Zhang**, Y. Y. Lau, M. R. Gomez, W. Tang, D. M. French, and R. M. Gilgenbach, "Contact Resistance with Dissimilar Materials – Theory and Experiment", 57th IEEE Holm Conference on Electrical Contacts, Minneapolis, MN USA, No. 55 (September 2011) [Oral in Young Investigator Award Session]
320. **Peng Zhang**, Y. Y. Lau, R. M. Gilgenbach, "An Exact Formulation of Thin Film Contact Resistance with Dissimilar Materials", 38th IEEE International Conference on Plasma Science (ICOPS), Chicago, IL, USA, IO7B-3 (June 2011) [Oral].
321. M. Franzi, **Peng Zhang**, R. M. Gilgenbach, and Y. Y. Lau, "Microwave Plasma Window Theory and Experiments", 38th IEEE International Conference on Plasma Science (ICOPS), Chicago, IL, USA, IP2K-46 (June 2011) [Poster].
322. **Peng Zhang**, Y. Y. Lau, R. M. Gilgenbach, "CM10.00002: Enhanced rf losses and field enhancements due to surface roughness", 52nd Annual Meeting of the APS Division of Plasma Physics (November 2010, Chicago, IL, USA). [Invited oral] [supported by Rackham Conference Travel Grant]
323. **Peng Zhang**, Y. Y. Lau, M. R. Gomez, D. M. French, R. M. Gilgenbach, and W. Tang, "PO5.00003: Electrical contact resistance with dissimilar materials", 52nd Annual Meeting

of the APS Division of Plasma Physics (November 2010, Chicago, IL, USA). [Oral] [supported by Rackham Conference Travel Grant]

324. M. Franzi, **Peng Zhang**, R. M. Gilgenbach, Y. Y. Lau, and A. McKelvey, "UP9.00137: Microwave-plasma window experiments and theory", 52nd Annual Meeting of the APS Division of Plasma Physics (November 2010, Chicago, IL, USA). [Poster]
325. **Peng Zhang**, Y. Y. Lau, and R. M. Gilgenbach, "Evaluation of RF Power Absorption and Electric and Magnetic Field Enhancements due to Surface Roughness", 1st Annual Michigan Institute for Plasma Science and Engineering (MIPSE) Graduate Student Symposium, Poster Session III (September 2010, Ann Arbor, MI, USA). [Poster]
326. **Peng Zhang**, and Y. Y. Lau, "Electrical Contact Resistance with Dissimilar Materials", 1st Annual Michigan Institute for Plasma Science and Engineering (MIPSE) Graduate Student Symposium, Poster Session III (September 2010, Ann Arbor, MI, USA). [Poster]
327. **Peng Zhang**, M. Franzi, Y. Y. Lau, R. M. Gilgenbach, and A. McKelvey, "Multipactor induced surface discharge for counter-HPM applications", Air Force Office of Scientific Research (AFOSR) Conferences - Open House & Kick-Off Meeting: Counter High Power Microwaves (July 2010, Albuquerque, NM, USA). [Poster]
328. M. Franzi, **Peng Zhang**, Y. Y. Lau, R. M. Gilgenbach, and A. McKelvey, "Preliminary Experimental Studies of Counter-HPM Windows", Air Force Office of Scientific Research (AFOSR) Conferences - Open House & Kick-Off Meeting: Counter High Power Microwaves (July 2010, Albuquerque, NM, USA). [Poster]
329. R. M. Gilgenbach, Y. Y. Lau, **Peng Zhang**, M. Franzi, B. Hoff, P. Mardahl, M. Haworth, and D. French, "Fundamental Science of Microwave Window Breakdown for HPM applications", Air Force Office of Scientific Research (AFOSR) Conferences - Open House & Kick-Off Meeting: Counter High Power Microwaves (July 2010, Albuquerque, NM, USA). [Contributed oral]
330. **Peng Zhang**, M. Gomez, D. French, W. Tang, Y. Y. Lau, and R. M. Gilgenbach, "Recent Advances on Electrical Contact Resistance: Theory and Experiment", 37th IEEE International Conference on Plasma Science, Norfolk, VA, USA, 1P-19 (June 2010) [Poster] [supported by IEEE student travel grant].
331. M. A. Franzi, R. M. Gilgenbach, Y. Y. Lau, A. McKelvey, **Peng Zhang**, D. Simon, B. Hoff, "Counter-HPM Window Experiments and Theory", 37th IEEE International Conference on Plasma Science, Norfolk, VA, USA, 2P-37 (June 2010) [Poster].
332. **Peng Zhang**, M. Gomez, D. French, W. Tang, Y. Y. Lau, and R. M. Gilgenbach, "Recent Advances on Electrical Contact Resistance: Theory and Experiment", 11th IEEE International Vacuum Electronics Conference (IVEC), Monterey, CA, USA, Poster IV-17 (May 2010) [Poster].
333. Y. Y. Lau, **Peng Zhang**, and R. M. Gilgenbach, "Evaluation of enhanced RF losses due to surface roughness", Meta-Materials in the Presence of High Power Fields Workshop (April 2010, Boston, MA, USA). [Contributed oral]
334. W. Tang, M. Gomez, D. French, J. Zier, **Peng Zhang**, Y.Y. Lau, and R. Gilgenbach, "NP8.00080: Higher Dimensional Theory of Contact Resistance and Experimental

Validation," The 51st APS-DPP Annual meeting, Vol54, No15, pp206 (November, 2009) [Poster].

335. **Peng Zhang**, Y. Y. Lau, and R. M. Gilgenbach, "NP8.00019: RF power loss and electric and magnetic field enhancements due to surface roughness," The 51st APS-DPP Annual meeting, Vol54, No15, pp195 (November, 2009).[Poster] [supported by Rackham Conference Travel Grant]

336. **Peng Zhang**, Y. Y. Lau, and R. M. Gilgenbach, "RF Power Loss, Local Electric and Magnetic Field Enhancements Due to Surface Roughness", 36th International Conference on Plasma Science, San Diego, California, USA, IO3D-3 (2009) [Oral] [supported by IEEE student travel grant and Rackham Conference Travel Grant]

337. **Peng Zhang**, Y. Y. Lau, and R. M. Gilgenbach, "RF power absorption and electric and magnetic field enhancements due to surface roughness", IVEC2009. [Contributed oral]

338. L. C. Tai, W. S. Koh, L. K. Ang, S. H. Chen, and **Peng Zhang**, "The Effect of the Self-Magnetic Field on the Current Limit in a Laser Wakefield Accelerator (LWFA)", Annual Meeting of the Physical Society of Republic of China, PM-19 (2009) [Poster].

339. L. C. Tai, **Peng Zhang**, W. S. Koh, L. K. Ang, and S. H. Chen, "PP6.00056: The Effect of the Self-Magnetic Field on the Current Limit in a Laser Wakefield Accelerator (LWFA)," The 50th APS-DPP Annual meeting, Vol53, No14, pp218 (November, 2008) [Poster].

340. **Peng Zhang** and L. K. Ang, "Ultrashort electron pulse at space-charge-limited condition", 2007 IEEE Pulsed Power and Plasma Science Conference, Albuquerque, New Mexico, USA, 5E8 (2007) [Oral] [supported by IEEE student travel grant]

341. **Peng Zhang**, W. S. Koh and L. K. Ang, "Space-charge-limited electron flow in a drift space", 2007 IEEE Pulsed Power and Plasma Science Conference, Albuquerque, New Mexico, USA, 3P36 (2007) [Poster] [Supported by IEEE student travel grant]