John P. Verboncoeur
Michigan State University, East Lansing MI

Education

University of Florida	Engineering Science	B.S. 1986
University of California - Berkeley	Nuclear Engineering	M.S. 1987
University of California - Berkeley	Nuclear Engineering	Ph.D. 1992

Professional and Leadership Experience:

2025-	Board of Directors American Society for Engineering Education (ASEE) Engineering Research Council.
2022-2024	VP IEEE Technical Activities (and Board of Directors) (elect and emeritus)
2021-	Senior Associate Dean for Research (and Graduate Studies thru 2024), College of Engineering, Michigan State University
2021-	Science Advisory Board, Momentous Space Inc.
2020	Acting Vice President, IEEE Publications Services and Products Board (and Board of Directors)
2019-2020	IEEE Board of Directors
2018-	American Center for Mobility Board of Directors
2014-	Associate Dean for Research and Graduate Studies (2018), College of Engineering, Michigan State University (Interim 2014-2015)
2011-	Professor, Dept. Electrical and Computer Engineering, Michigan State University
2001-2010	Chairperson, Computational Engineering Science Program, University of California at Berkeley
2003-2008	Air Force IPA, Kirtland Air Force Base, Albuquerque, NM
2001-2010	Professor in Residence, Dept. Nuclear Engineering, University of California-Berkeley (Assoc. 2001-2007)
1996-2001	Associate Research Faculty, Dept. Electrical Engineering and Computer Science, UC-Berkeley
1992-1995	Postdoctoral Researcher, Lawrence Livermore National Laboratory and UC-Berkeley EECS (joint)

Leadership Details

2022-2024	VP IEEE Technical Activities (TA) (VP-elect in 2022) Oversee 47 societies and councils, over 1,000 conferences/yr, 230 top technical publications, about $500M in revenue, with 300+ paid employees and over 100,000 volunteers in over 190 countries, with all the business, cultural and ethics challenges of a modern global organization. Includes a seat on the Board of Directors.
2021-	Strategic Advisory Board for Momentus Space, Inc., developing a plasma-thruster powered space tug for satellite services, with multiple successful space tests .
2020	Acting VP, IEEE Publications Services and Products Board. Led the $270M business unit with 135 paid employees and over 1,000 volunteer editors, with oversight of strategy, operations, policy, ethics, and compliance for over 230 archival journals and publications from over 2000 conferences. Includes a seat on the Board of Directors. Responsible for publication ethics and compliance organization-wide.
2019-2021	Member of the IEEE TAB-PSPB Products and Services Committee charged with managing the $500M products and services portfolio, as well as innovating for new revenue sources. Recent products include IEEE DataPort, IEEE Technology Roadmaps, IEEE Discovery-Point: Communications (first in a series across technology areas), revenue-generating third-

party products to make the IEEE e-marketplace comprehensive in the field, and data analytics to personalize and make the browsing and buying experience more relevant to individuals.

2019-2020 IEEE Board of Directors. Fiduciary and strategic leadership for $550M non-profit company with a presence in over 190 countries. Largest scientific professional society in the world, with 450,000 members, 230 publications, over 2,000 conferences per year.

2019 Chaired IEEE-wide committee to improve shared governance policy and process, including document transparency and election system reforms to ensure equity and inclusion. This effort, in response to a 2015-2016 attempt to limit participation in governance (see below), passed unanimously and resulted in a dramatic change in the culture of inclusivity of IEEE leadership.

2019 Chaired development of Powered by IEEE entrepreneurship packaged product delivering publications and other IEEE products and services to startup companies at a steeply discounted rate, along with a third-party marketplace for startup-focused products and services such as bookkeeping, business planning, legal, HR, and graphics arts.

2018- American Center for Mobility Board of Directors. Fiduciary and strategic oversight of the premier national proving grounds for connected and autonomous vehicles and smart infrastructure.

2018-2023 Associate Dean for Graduate Studies. Oversee the funding resources, curriculum, and policy for about 1,000 graduate students. Implemented accountability on work location and pay sources, expanded travel support and dissertation completion programs. Expanded annual graduate student symposium, incorporating industry judges, awards, and financial support.

2015-2016 Led the global opposition to an attempt to change the IEEE Constitution which employed methods not permitted in the governing documents, prevailing at the ballot box despite threats of censor and expulsion, ultimately preserving egalitarian democratic ideals. Subsequently often serve the diplomatic role of bridging potentially acrimonious differences in major governance matters.

2015-2016 President IEEE Nuclear and Plasma Sciences Society. Executive position overseeing $5M annual portfolio of conferences, publications, and 3,000 members. NPSS has the highest per-capita reserves of any IEEE Society or Council.

2014-2015 Co-founded pioneering Department of Computational Mathematics, Science, and Engineering (CMSE), building consensus among colleges and the administration for resources. Within five years, CMSE had more than 30 faculty split between data science and high-performance computing and applications.

2014- Associate Dean for Research: Lead the research strategy, operations, and compliance for the college of Engineering at MSU. Designed a hiring strategy around emerging research areas resulting in a 50% increase in the number of tenure system faculty, 7.5% average annual growth in research expenditures (50% in most recent 3 years). Government affairs and corporate engagement resulted in strong partnership with both stakeholders, and an increase in industry sponsored research from 14% to nearly 20% of the total. Designed new accounting and management processes for fee-for-service and gifts, resulting in improved compliance and elimination of nearly $100,000 in annual over-expenditures. High efficiency customer-service oriented research operations are now top in the university, with highest productivity and retention achieved by adoption of cutting-edge tools, processes, and training, fueled by diversity, resulting in staff contributions to process improvement. Managed pandemic full lab reopening with zero known transmissions.

2000 Co-founded and chaired the pioneering multidisciplinary undergraduate program, Computational Engineering Science (CES) at UC-Berkeley. Developed novel computational modeling curriculum. The program encompasses Engineering, Applied Mathematics, and the Natural Sciences.

1991-1992	Chief Technology Officer, The University Research Network: led a startup team designing a cutting edge digital medical management system.
1991-1992	Chief Technology Officer, Wellness Institute Network (WIN): led startup developing physical therapy quality computerized fitness and rehabilitation equipment.
1990-	President and Founder, Research Institute for Science and Engineering (RISE): Scientific and engineering consulting and services, including development of distributed consumer credit report for TRW Credit Data (now Experian) and a digital medical system. RISE has provided consulting and engineering services for over 40 companies.

Academic Administration, Committees and Chairmanship

2021-	Senior Associate Dean for Research (and Graduate Studies through 2024)
2020-2021	Chair, Engineering Research and Instructional Lab reopening and COVID safety committee, managed reopening of all labs with three months of initial shutdown, including processes, procedures, and an interactive dashboard; zero known transmissions in labs.
2019	Chair, Reappointment, Promotion and Tenure Committee, Computational Mathematics, Science, and Engineering Dept.
2018-	Associate Dean of Graduate Studies, College of Engineering
2018-	Engineering Graduate Studies Committee
2018-	Council of Graduate Associate and Assistant Deans
2015-2017	Advisory Committee, Computational Mathematics, Science, and Engineering Dept.
2014-	Associate Dean for Research, College of Engineering
2014-	Engineering Research Committee
2014-	Council of Research Deans
2011-2014	Graduate Admissions, Recruitment, and Financial Aid Committee, ECE (Chair 2012-2014)
2011-2013	Advisory Committee, Electrical and Computer Engineering
2001-2010	Chairperson, Computational Engineering Science, UC-Berkeley

Research Interests

Computational plasma physics, numerical methods, boundary conditions, chemistry and collisional effects, with applications including microwave beam devices, high pressure discharges, cathode physics, magnetic and inertial fusion, conventional and wakefield accelerators, low temperature plasmas for materials processing, lighting, combustion, and ion thrusters. Pioneered bounded plasmas with self-consistent external circuits, object-oriented plasma modeling, accurate boundary conditions and collision models for particle codes, as well as novel kinetic global models for non-equilibrium plasma chemistry.

Research Highlights

Prof. Verboncoeur has over 30 years of experience developing and applying kinetic particle simulation tools. Prof. Verboncoeur has over 140 journal publications in computational plasmas and applications, in addition to over 350 conference publications, and 5 book chapters, with over 7,250 citations. He has pioneered several key technologies in the area, including the first self-consistent model for plasmas bounded by electrodes connected to complex driving circuits [A.2], the first interactive graphical user interface, and the first object-oriented plasma model [A.3-A.4]. His group also developed the first time-dependent explanation of the transition of multipactor breakdown to gaseous discharge [A.44], as well as a novel kinetic global model [A.58,A.60,A.61,A.63]. Several of these key journal articles have well over 500 citations each, indicating a high impact on the research community. Prof. Verboncoeur has also been involved in many other advances in plasma simulation, as summarized in a recent review article [A.34], which was recently noted as one of the top 10 cited articles in the journal.

The Plasma Theory and Simulation Group (PTSG) at MSU (formerly UCB) has been a leader in developing and distributing plasma modeling tools for over two decades. The PTSG code suite, comprising

one and two dimensional codes, has over 1000 users in academia, industry, and government labs, with over 450 publications in the last decade. The flagship code in the PTSG suite, OOPIC, has two commercial versions in addition to the open-source version, with advanced graphical user interfaces and professional support. Prof. Verboncoeur has taught thirteen mini-courses on plasma simulation at conferences, government and industrial laboratories, and academic institutions internationally.

Research Supervision:

Past Students

- Keith Cartwright, MS 1995, PhD 1999
- Peter Mardahl, MS 1995, PhD 2001
- Weigang Qiu, PhD 2004
- Hang Ping Chen, MS 2004
- Jeff Hammel, MS 2004
- Yang Feng, PhD 2007
- Chul Hyun Lim, MS 2004, PhD 2007
- Christine Nguyen, MS 2007
- Alan Wu, MS-NE 2005, MS-EECS 2007, PhD 2007
- Sven Chilton, MS 2008, PhD 2014
- Jonathan Noland, PhD 2011
- Ying Wang, PhD 2012
- Benjamin Ragan-Kelley, MS 2009, PhD 2013
- Manuel Aldan, MS 2009, PhD 2015
- Mayur Jain, MS 2015
- Rahnuma Chowdhury, MS 2016
- Guy Parsey, PhD 2017
- Scott Rice, PhD 2017
- Asif Iqbal, PhD 2021 (co-advised)
- Janez Krek, PhD 2021

Current Students:

- Corey Scutt, PhD expected 2025
- Matthew “Cole” Stewart, PhD expected 2026
- Yves Heri, PhD expected 2027 (coadvised)
- Mohammed Mashrafi, PhD expected 2028 (coadvised)

Significant role in thesis research:

- David Cooperberg, PhD 1996
- Peggy Christiansen, PhD 1996
- Trudy VanDerStratten, PhD 1998
- Kevin Bowers PhD 2001
- Emi Kawamura, PhD 2003
- Lana Garmire, PhD 2008
- Jung Yel Lee, PhD 2013
- David Liaw, PhD 2014
- Mohammad Ali Asgarian, PhD 2014
- Naiguang Lei, PhD 2014
- Janez Krek, MS 2015
- Hyo Won Bae, PhD 2015

- Gautham Dharuman, PhD 2018
- Scott O'Connor, PhD 2021

Postdoctoral Researchers:

- Venkatesh Gopinath 1995-1997
- Peggy Christiansen 1996-1998
- Helen Smith 1998-1999
- Hae June Lee 2000-2001
- Hyun Chul Kim 2005-2007
- Sang Ki Nam 2008-2009
- Yaman Guclu 2011-2014
- Yangyang Fu 2016-2020
- Deqi Wen 2018-2024
- Patrick Wong (co-advised) 2018-2022
- Asif Iqbal (co-advised) 2021-

Hosted over 25 visiting scholars.

Current/Recent Research Funding (MSU, excluding UCB funding, individual credit in parens)

- UW Consortium (AFOSR Prime): Basic Studies of Distributed Discharge Limiters for Counter-HPM 2011-2013 $387,696 (100%)
- AFOSR-BRI: Novel tools for the modeling and simulation of ultra cold plasmas 2012-2017 $1,142,135 (33%)
- MSU Foundation SPG: Plasma Assisted Combustion 2011-2014 $400,000 (50%)
- AFOSR: Advanced Modeling of Electro-Energetic Devices 2011-2012 $139,416 (100%)
- NSF: Conference Travel Grant 2012 $8,000 (100%)
- ONR: PPPS 2013 Grant $12,000 (100%)
- NSF: Conference Travel Grant 2013-2014 $10,000 (100%)
- MSU Foundation SPG: Accelerator Technology Modeling Center 2014-2018 $400,000 (34%)
- New Mexico Consortium: Modeling Quantum Effects 2014-2016 $160,318 (50%)
- DOE: Center for Predictive Control of Plasma Kinetics: Multi-phase and Bounded Systems 2015-2019 $370,900 (100%).
- Boise State University (AFOSR prime): AFOSR in 2030 Research Directions ($34k) (100%).
- AFOSR: Multipactor and breakdown susceptibility and mitigation in space-based RF systems, 2017-2022 ($7.6M) (MSU portion $1.8M) (50%).
- DOE Accelerator Science and Engineering Traineeship, 2018-2022 ($1,490,000) (25%)
- American Center for Mobility: Preparing the Workforce for Automation in the Mobility Space 2017-18 ($169,220.52)(25%)
- NSF-IRES Track 1: Algorithms and Software for SUpercomputers and emerging aRchitEctures (AS-SURe) 2019-2024 ($197,575)(33%)
- Sandia National Laboratories: ElectroMagnetic Plasma In Radiation Environments (EMPIRE) 2018-2019 ($141k)(33%).
- NSF: Preparing the Future Workforce for the Era of Automated Vehicles (WEAVE) 2019-2024 ($2,499,999)(1%)
- AFOSR: Exploration of Fundamental Limits to High Power Electromagnetic Amplification, 2020-2025 ($7.5M, MSU portion $1,250,000)(100%)
- NSF-DOE Partnership: Studies of key mechanisms and control strategies for plasmas in micro/sub-micro scales, 2021-2025 ($462,000)(100%)

- AFOSR: Multipactor and breakdown susceptibility and mitigation in space-based RF systems, 2021-2024 ($3,230,842)(50%)

Teaching and Curriculum Development

MSU courses taught:

- ECE 802-602 Plasma Simulation (developed new course)
- ECE 850 Fundamentals of Plasma Physics
- ECE 305 Electromagnetics I

UC-Berkeley courses taught:

- CES 39B Introduction to Computational Engineering Science (developed new course)
- CES 170A,B Introduction to Modeling and Simulation I and II (developed new course)
- CES 180A,B Computational Engineering Science Modeling and Simulation I and II (developed new course)
- E 92 Perspectives in Engineering
- E 117 Methods of Engineering Analysis
- NE 155 Introduction to Numerical Simulation in Radiation Transport
- EECS 298-9 Plasma Simulation
- NE 290F Particle Simulation of Plasmas (developed new course)

Professional Societies, Awards, and Service

- Fellow, Institute of Electrical and Electronic Engineers (IEEE), 2013: *For contributions to computational plasma physics and plasma device applications*
- Member American Physical Society (APS)
- Member, Association of Women in Science (AWIS)
- 2022-present: Standing Committee NSF Engineering Research Visioning Alliance
- 2022 IEEE NPSS Charles K. Birdsall Award
- 2019 IEEE Plasma Science Applications Committee Award
- 2018 IEEE NPSS Richard F. Shea Distinguished Member Award
- DOE Incite Leadership Computing Review Panel for Accelerator/High Energy Physics 2014
- DOE Incite Leadership Computing Review Panel for Plasma Physics 2012-2013, Chair 2015
- DOE Fusion Energy Sciences Advisory Committee 2015-
- DOE Sandia National Laboratories Grand Challenge LDRD External Advisory Board 2018-2020
- Administrative Committee, IEEE Nuclear and Plasma Sciences Society 2010-2013
- Vice President/President Elect IEEE Nuclear and Plasma Sciences Society 2013-2014
- President IEEE Nuclear and Plasma Sciences Society 2015-2016
- IEEE Technical Activities Board Management Committee 2017-2019
- Vice President, IEEE Publications, Services, and Products Board ($270M rev, 135 paid employees, 1000+ volunteer editors) 2020
- IEEE Division IV Director 2019-2020
- VP IEEE Technical Activities 2023 (VP-elect in 2022, past-VP in 2024)
- Chair, IEEE SmartAg Executive Committee and AdHoc 2016-
- Chair, Powered by IEEE initiative for startup companies, 2019
- Chair, IEEE Transparency in Meeting, Documents, and Elections Ad Hoc Committee 2019-
- Member, IEEE PSPB/TAB Products and Services Committee 2019-
- VP IEEE Publication Services and Products Board 2020
- Board Coordinator, IEEE Public Visibility Committee 2019-2020
- Associate Editor, Physics of Plasmas 2012-

- Guest Editor, IEEE Trans. Plasma Sci. Special Issue for Plenary and Invited Papers of the PPPS2013
- Guest Editor, IEEE Trans. Plasma Sci. Special Issue on High Power Microwaves (2008)
- Senior Guest Editor, IEEE Trans. Plasma Sci. Special Issue on Chinese National Conference on Plasma Science (2017-18)
- Technical Program Co-Chair, 2013 IEEE Pulsed Power and Plasma Sciences Conference (PPPS)
- Technical Area Coordinator – Basic Plasmas, 2012 IEEE ICOPS
- Session Organizer – Computational Plasmas, Basic Plasmas, Microwave Sources, Microwave-Plasma Interactions, IEEE ICOPS 1998-2011.
- Board of Directors Engineering Research Council, American Society for Engineering Education (2025-2028)
- Session Organizer, Computational Plasmas, APS Division of Plasma Physics 2008-2009
- Expert witness in a number of legal suits including with Fortune 500 companies, prevailing in each
- Over 15 International Workshops and Short Courses on Plasma Simulation taught
- Co-founded the Asia-Pacific Conference on Plasma and Terahertz Science (2018+).

Publications

A. Journals

150. M. Mashrafi, A. Iqbal, J. Verboncoeur and P. Zheng, "Two-Frequency RF Fields Induced Multipactor in Coaxial Transmission Lines," Phys. Plasmas 32, 102112 (2025).
149. A. Iqbal, J. Verboncoeur and P. Zhang, "A Supervised Machine Learning Framework for Multipactor Breakdown Prediction in High-Power Radio Frequency Devices and Accelerator Components: A Case Study in Planar Geometry," arXiv arXi0076 (2025).
148. A. Iqbal, D.-Q. Wen, P. Wong, C. Chen, S. Lin, M. Mashrafi, J. Verboncoeur and P. Zhang, "Coaxial Multipactor with Non-Sinusoidal RF Fields," Phys. Plasmas 32, 082112 (2025).
147. D. Yang, J.P. Verboncoeur and Y. Fu, "Demonstration of Similarity Laws and Scaling Networks for Radio-Frequency Plasmas," Phys. Rev. Lett. 134, 045301 (2025).
146. X. Qu, Y. Huang, B. Zhou, M. Gao, J. Lou, Y. Feng, Z. Zhao, C. Chang, A.P. Shkurinov, J. Verboncoeur, "Ultrafast plasma-based terahertz modulator," Optica 11, 1478-1481(2024).
145. A. Iqbal, D. Wen, J. Verboncoeur and Peng Zhang, "Two surface multipactor with non-sinusoidal RF fields", J. Appl. Phys. 134, 153304 (2023).
144. D.-Q. Wen, J. Krek, J.T. Gudmundsson, E. Kawamura, M.A. Lieberman, P. Zhang, J.P. Verboncoeur, "Field reversal in low pressure, unmagnetized radio-frequency capacitively coupled argon plasma discharges," Appl. Phys. Lett 123, 264102 (2023).
143. H. Wang, D. Yang, B. Zheng, J.P. Verboncoeur, and Y. Fu, "Similarity-based scaling networks for capacitive radio frequency discharge plasmas," *AIP Advances* **13** (2023).
142. A. Iqbal, D.-Q Wen, J Verboncoeur, P Zhang, "Recent advances in multipactor physics and mitigation", High Voltage **8**, 1095 (2023), Review.
141. D.-Q. Wen, J. Krek, J.T. Gudmundsson, E. Kawamura, M. Lieberman, P. 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).
140. S.W. Buchholz, F.I. Mowbray, G. Allman, J.P. Verboncoeur, L. Beam, L. Small, "Wearable Devices and Nurses' Health: An Integrative Review Protocol," *JMIR Res Protoc* **12**, e48178 (2023).
139. O.H. Ramachandran, L.C. Kempel, J.P. Verboncoeur, B. Shanker, "A Necessarily Incomplete Review of Electromagnetic Finite Element Particle-in-Cell Methods," IEEE Trans. Plasma Sci. (2023).
138. S. Lin, H. Qu, N. Xia, P. Wong, P. Zhang, J. Verboncoeur, M. Cao, Y. Zhai, Y. Li, H. Wang, "Quantitative Analysis of Multipactor Threshold Sensitivity to Secondary Emission Yield of Microwave Devices," *Phys. Plasmas* **30**, 033104 (2023).

137. J. Chen, J.P. Verboncoeur and Y. Fu, "Microgap breakdown with floating metal rod perturbations," *Appl. Phys. Lett.* **121,** 074102 (2022).
136. A. Iqbal, D. Wozniak, M. Rahman, S. Banerjee, J. Verboncoeur, P. 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).
135. S. Lin, H. Qu, P. Wong, P. Zheng, 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).
134. D.-Q. Wen, P. Zhang, J. Krek, Y. Fu, and J.P. Verboncoeur, "Higher Harmonics in Multipactor Induced Plasma Ionization Breakdown near a Dielectric Surface," *Phys. Rev. Lett.,* **129**, 045001 (2022).
133. D.-Q. Wen, J. Krek, J. Gudmundsson, E. Kawamura, M.A. Lieberman, and J. Verboncoeur, "Particle-in-cell simulations with fluid metastable atoms in capacitive argon discharges: electron elastic scattering and plasma density profile transition," *IEEE Trans. Plasma. Sci.* **50**, 2548-2557 (2022), Invited.
132. A. Iqbal, J. Verboncoeur, and P. Zhang, "Two surface multipactor discharge with two-frequency rf fields and space-charge effects," *Phys. Plasmas* **29**, 012102 (2022).
131. D. Wen, A. Iqbal, P. 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).
130. D. Wen, P. 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).
129. M. Mirmozafari, A. Iqbal, P. 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).
128. D. Wen, P. Zhang, J. Krek, Y. Fu, and J. P. Verboncoeur, "Observation of multilayer-structured discharge in plasma ionization breakdown", *Appl. Phys. Lett.* **119**, 264102 (2021).
127. Y. Fu, H. Wang, B. Zheng, P. 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).
126. Y. Fu, H. Wang, B. Zheng, P. Zhang, Q. Fan, X. Wang, and J. Verboncoeur, "Direct current microplasma formation around microstructure arrays", *Appl. Phys. Lett.* **118**, 174101 (2021).
125. D-Q. Wen, J. Krek, J.T. Gudmundsson, E. Kawamura, M.A. Lieberman, and J.P. Verboncoeur, "Benchmarked and upgraded particle-in-cell simulations of a capacitive argon discharge at intermediate pressure: the role of metastable atoms," *Plasma Sources Sci Tech* **30**, 105009 (2021).
124. A. Iqbal, J. Verboncoeur, and P. Zhang. "Two Surface Multipactor Discharge with Two-Frequency RF Fields and Space-Charge Effects," *Phys. Plasmas* **29**, 012102 (2021).
123. A. Iqbal, P.Y. Wong, D.-Q. Wen, J.P. Verboncoeur, and P. Zhang, "A Review of Recent Studies on Two-Frequency RF Field-Induced Single-Surface Multipactor Discharge," *IEEE Trans. Plasma Sci.* **49**, 3284 (2021).
122. S. O'Connor, Z.D. Crawford, J.P. Verboncoeur, J. Luginsland, B. Shanker, "A Set of Benchmark Tests for Validation of 3-D Particle-in-Cell Methods," *IEEE Trans. Plasma Sci.* **49**, 1724 (2021).
121. Y. Fu, B. Zheng, P. Zhang, Q.H. Fan, J.P. Verboncoeur, "Transition characteristics and electron kinetics in microhollow cathode discharges," *J. Appl. Phys.* **129**, 023302 (2021)
120. J. Krek, Y. Fu, G.M. Parsey, J.P. Verboncoeur, "Benchmark of the KGMf with a coupled Boltzmann equation solver," *Comput. Phys. Comm.* **260**, 107748 (2021).
119. Y. Fu, B. Zheng, D.-Q. Wen, P. Zheng, Q.H. Fan, J.P. Verboncoeur, "Similarity law and frequency scaling in low pressure capacitive radio frequency plasmas," *Appl. Phys. Lett.***117**, 204101 (2020).
118. Y. Fu, B. Zheng, P. Zhang, Q.H. Fan, J.P. Verboncoeur, and X. Wang, "Similarity of capacitive radio-frequency discharges in nonlocal regimes," *Phys. Plasmas* **27**, 113501 (2020).
117. A. Iqbal, P.Y. Wong, D.-Q. Wen, S. Lin, J. Verboncoeur, and P. Zhang, "Time-dependent physics of single-surface multipactor discharge with two carrier frequencies," *Phys. Rev. E* **102**, 043201 (2020).

116. Y. Fu, B. Zheng, D. Wen, P. Zhang, Q. H. Fan, and J. P. Verboncoeur, "High-Energy Ballistic Electrons in Low-Pressure Radio-Frequency Plasmas", *Plasma Sources Sci. Technol*. **29**, 09LT01 (2020).
115. Y. Fu, P. Zhang, X. Wang, and J.P. Verboncoeur, "Electrical breakdown from macro to micro/nano scales: A tutorial and a review of the state of the art", *Plasma Research Express* **2** (2020). [Invited Review]
114. A. Iqbal, P.Y. Wong, J.P. Verboncoeur, and P. Zhang, "Frequency-Domain Analysis of Single-Surface Multipactor Discharge With Single- and Dual-Tone RF Electric Fields," IEEE Trans. Plasma Sci. 48, 1950 (2020).
113. P.Y. Wong, P. Zhang, and J.P. Verboncoeur, "Harmonic Generation in Multipactor Discharges," IEEE Trans. Plasma Sci. **48**, 1959 (2020).
112. M. Y. Hur, J. S. Kim, I. C. Song, J. V. Verboncoeur, and H. J. Lee, "Model description of a two-dimensional electrostatic particle-in-cell simulation parallelized with a graphics processing unit for plasma discharges," *Plasma Res. Express* **1**, 015016 (2019).
111. D.-Q. Wen, P. Zhang, Y. Fu, J. Krek, J.P. Verboncoeur, "Temporal single-surface multipactor dynamics under obliquely incident linearly polarized electric field," *Phys. Plasmas* **26**, 123509 (2019).
110. P. Wong, Y.Y. Lau, P. Zhang, N. Jordan, R. Gilgenbach, and J. Verboncoeur, "The Effects of Multipactor on the Quality of a Complex Signal Propagating in a Transmission Line," *Phys. Plasmas* (2019)
109. Y. Fu, J. Krek, D. Wen, P. 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).
108. D.-Q. Wen, A. Iqbal, P. Zhang, and J.P. Verboncoeur, "Suppression of single-surface multipactor discharges due to non-sinusoidal tangential electric field," *Phys. Plasmas* **26**, 093503 (2019).
107. Y. Fu, P. Zhang, J. Krek, and J.P. Verboncoeur, "Gas breakdown and its scaling law in microgaps with multiple concentric cathode protrusions," *Appl. Phys. Lett.* **114**, 014102 (2019).
106. A. Iqbal, J. Verboncoeur, and P. Zhang, "Temporal Multiparticle Monte Carlo Simulation of Dual Frequency Single Surface Multipactor," *Phys. Plasmas* **26**, 024503 (2019).
105. Y. Fu, J.P. Verboncoeur, "On the Similarities of Low-Temperature Discharge Plasmas," *IEEE Trans. Plasma Sci.* **47**, 1994 (2019). [invited]
104. Y. Fu, J. Krek, P. Zhang, and J.P. Verboncoeur, "Gas Breakdown in Microgaps with a Surface Protrusion on the Electrode," *IEEE Trans. Plasma Sci.*, **47**, 2011 (2019) [invited].
103. Y. Fu, J. Krek, P. Zhang, and J.P. Verboncoeur, "Evaluating microgap breakdown mode transition with electric field non-uniformity," *Plasma Sources Sci. Technol*. **27**, 095014 (2018).
102. Y. Fu, P. Zhang, and J.P. Verboncoeur, "Paschen's curve in microgaps with an electrode surface protrusion," *Appl. Phys. Lett.* **113**, 054102 (2018).
101. A. Iqbal, J. Verboncoeur, and P. Zhang, "Multipactor susceptibility on a dielectric with two carrier frequencies," *Phys. Plasmas* **25**, 043501 (2018).
100. Y. Fu, P. Zhang, J. P. Verboncoeur, "Gas breakdown in atmospheric pressure microgaps with a surface protrusion on the cathode", *Appl. Phys. Lett.*, **112**, 254102 (2018). Featured.
99. J. Y. Lee, J. P. Verboncoeur, and H. J. Lee, "Analysis of energy relaxation kinetics for control of the electron energy distributions in capacitively coupled RF discharges," *Plasma Sources Sci. Technol.* **27**, 04LT01 (2018).
98. Y. Fu, J. Krek, G.M. Parsey, and John P. Verboncoeur, "Characterizing the dominant ions in low-temperature argon plasmas in the range of 1-800 Torr," *Phys. Plasmas* **25**, 033505 (2018).
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377. A. Iqbal, DQ. Wen, M. Mashrafi, P. Wong, S. Lin, J. Verboncoeur, P. Zhang, "Multipactor Discharge with Engineered RF Fields," Int. Power Modulator High Voltage Conf., Indianapolis, IN USA (2024).

376. G.-N. Wang, K. Aranganadin, M.-C. Lin, H.-Y. Hsu, J. P. Verboncoeur, "A Simple Space Charge Limited Emission Algorithm for 1-D Particle-in-Cell Simulations," 25th IEEE Int. Vacuum Electronics Conf., Monterey, CA (2024).
375. A. Iqbal, DQ. Wen, S. Suresh, J. Verboncoeur, P. Zhang, P. Wong and S. Lin, "Multipactor in a Coaxial Geometry with Non-Sinusoidal RF Fields," 25th IEEE Int. Vacuum Electronics Conf., Monterey, CA (2024).
374. S.W. Buchholz, F. Mowbray, L. Small, G. Allman, L. Beam, A. Hubbell, J. Verboncoeur, "Wearable Devices and Promotion of Health for Nurses: An Integrative Review," Midwest Nursing Research Society, Minneapolis, MN (2024).
374. D.-Q. Wen, J.P. Verboncoeur, P. Zhang, "Characterization of Two-Surface Multipactor with Non-Sinusoidal RF Fields," *Bull. Am. Phys. Soc.***65**, DR2.00004 (2023).
373. D.-Q 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", AVS 69th International Symposium and Exhibition, Portland, OR, USA (2023).
372. A. Iqbal, D.-Q. Wen, J.P. Verboncoeur and P. Zhang, "Characterization of Two-Surface Multipactor with Non-Sinusoidal RF Fields," 76th Annual Gaseous Electronics Conf., Ann Arbor, MI (2023).
371. M.C. Stewart, D.-Q. Wen and J.P. Verboncoeur, "Effect of Macroparticle Weight Factor on Particle-in-Cell Simulations in Low Pressure Plasmas" 76th Annual Gaseous Electronics Conf., Ann Arbor, MI (2023).
370. J.P. Verboncoeur, "Transition from multipactor discharge to ionization breakdown in microwave systems," 76th Annual Gaseous Electronics Conf., Ann Arbor, MI (2023) Invited.
369. D.-Q. Wen, J. Krek, J.T. Gudmundsson, E. Kawamura, M.A. Lieberman, P. Zhang and J.P. Verboncoeur, "Particle-in-Cell simulations of high voltage-driven low pressure capacitively coupled plasmas," 76th Annual Gaseous Electronics Conf., Ann Arbor, MI (2023).
368. S.W. Buchholz, F. Mowbray, L. Small, G. Allman, L. Beam, J. Verboncoeur, "Utility of Wearable Technology in Monitoring and Promoting the Health of Nurses: Narrative Review," Council for the Advancement of Nursing Science Advanced Methods Conference: Biosocial Methods to Advance Health Equity, 13-Sep (2023).
367. D.-Q. Wen, J. Krek, J. Gudmunddson, E. Kawamura, M.A. Lieberman, P. Zhang, J. Verboncoeur, "Recent advances in particle-based simulations for capacitively coupled plasmas," Asia Pacific Conf. on Plasma and Terahertz Science, Busan, South Korea, 25-28 August (2023) Invited.
366. J. P. Verboncoeur, D.-Q. Wen, A. Iqbal, Y. Fu, P. Wong, and P. Zhang, "From Multipactor to Ionization Breakdown: Review and Recent Advances," Asia Pacific Conf. on Plasma and Terahertz Science, Busan, South Korea, 25-28 August (2023) Plenary.
365. D. Wen and J. Verboncoeur, "Recent Advances in Low Temperature Plasma Modeling Using a Kinetic Global Model," International Fusion and Plasma Conference, Busan, South Korea 21-25 August (2023) Plenary.
364. G.-N. Wang, K. Aranganadin, H.-Y. Hsu, J. Verboncoeur, M.-C. Lin, "Implementation and Benchmark of Simple Space-Charge Limited and Field Emission Algorithms in 1-D Particle-in-Cell Simulations," IEEE Pulsed Power Conference, San Antonio, TX, USA, June 25-29 (2023).
363. R. F. Jao, K. Aranganadin, H.-Y. Hsu, J. Verboncoeur, M.-C. Lin. "A high transmission multilayer window for short Gaussian wave pulses," IEEE Pulsed Power Conference, San Antonio, TX, USA, June 25-29 (2023).
362. D.-Q Wen, J P Verboncoeur, "Reaction dynamics in high voltage gaseous breakdown", IEEE Pulsed Power Conference, San Antonio, TX, USA, June 25-29 (2023).
361. M. C. Stewart, D.-Q. Wen, J. Verboncoeur, "Effect of Super-Particle Weight Factor on Particle-in-Cell Simulations in Low Pressure Capacitively Coupled Plasmas," 50th International Conference on Plasma Science, Santa Fe, New Mexico, USA, May 21-25 (2023).
360. G.-N. Wang, K. Aranganadin, H.-Y. Hsu, J.P. Verboncoeur, M.-C. Lin, "1-D Electromagnetic Particle-In-Cell Simulations on Helium Capacitively Coupled Plasma Discharges," 50th International Conference on Plasma Science, Santa Fe, New Mexico, USA, May 21-25 (2023).

359. 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," 50th International Conference on Plasma Science, Santa Fe, New Mexico, USA, May 21-25 (2023).
358. D.-Q Wen, P Zhang, Y.N. Wang, J. P. Verboncoeur, "Analysis of microscale high pressure argon discharges: global model approach", 50th International Conference on Plasma Science, Santa Fe, New Mexico, USA, May 21-25 (2023).
357. D.-Q Wen, P Zhang, J Krek, Y Fu, J Verboncoeur, "Transient physics of multipactor-induced plasma breakdown: higher harmonic generation and multi-layer structured discharge", International Online Plasma Seminar, organized by APS-GEC, Feb 02, Virtual, (2023) Invited.
356. G.-N. Wang, K. Aranganadin, H.-Y. Hsu, J.P. Verboncoeur, M.-C. Lin, "Implementation of the Simple Algorithm for Space Charge Limited Emission in a 1-D Particle-in-Cell Simulation," 24th IEEE Int. Vacuum Electronics Conf., Chengdu, China (2023).
355. A. Iqbal, DQ. Wen, J. Verboncoeur, P. Zhang, "Two Surface Multipactor with Non-Sinusoidal RF Fields and Space Charge Effects," 24th IEEE Int. Vacuum Electronics Conf., Chengdu, China (2023).
354. D. Wen, P. 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, Foshan, Guangdong, China (2022).
353. D.-Q. Wen, P. Zhang, J. Krek, Y. Fu, J.P. Verboncoeur, "Transient physics of multipactor induced plasma breakdown near a dielectric surface," *Bull. Am. Phys. Soc.***64**, CO08.00011 (2022).
352. G. Wang, K. Avanganadin, H.-Y. Hsu, J.P. Verboncoeur, M.-C. Lin, "Simulation Benchmark of the XPDP1 PIC-MCC Code for Capacitively Coupled Plasma Helium Discharges," *Bull. Am. Phys. Soc.***64**, TO07.00014 (2022).
351. R.-F. Jao, K. Aranganadin, H.-Y. Hsu, J.P. Verboncoeur and M.-C. Lin, "Transmission Loss of a millimeter wave pulse through a dielectric window," *Bull. Am. Phys. Soc.***64**, CO07.00013 (2022).
350. J.P. Verboncoeur, D-Q. Wen, A. Iqbal, Y. Fu, P. Wong, P. Zhang, "From Multipactor to Ionization Breakdown: Recent Advances," Proc. MULCOPIM 2022, Valencia, Spain (2022).
349. K. Aranganadin, G. Wang, H.-Y. Hsu, J.P. Verboncoeur and M.-C. Lin, "Study of ac magnetically enhanced capacitively coupled plasma argon discharges using particle-in-cell simulations," 75th Gaseous Electronics Conf., Sendai, Japan (2022).
348. G. Wang, K. Arangandin, H.-Y. Hsu, J.P. Verboncoeur and M.-C. Lin, "Simulation benchmarks of the XPDP1 PIC-MCC code on capacitively coupled plasma helium discharges," 75th Gaseous Electronics Conf., Sendai, Japan (2022).
347. D.-Q. Wen, J. Krek, J.T. Gudmundsson, E. Kawamura, M.A. Lieberman, P. Zhang, and J.P. Verboncoeur, "Important role of excited state atoms in low pressure capacitive rf argon discharges," 75th Gaseous Electronics Conf., Sendai, Japan (2022).
346. D.-Q. Wen, P. Zhang, Y.-N. Wang, J.P. Verboncoeur, "Plasma species and reaction dynamic-oriented global model studies for microscale argon discharges," 75th Gaseous Electronics Conf., Sendai, Japan (2022).
345. D.-Q Wen, P Zhang, J Verboncoeur, "Microscale microwave argon discharges", 11th International Workshop on Microplasmas (IWM-11), Raleigh, North Carolina, June 6 – 10 (2022) Invited.
344. J.P. Verboncoeur, D-Q. Wen, A. Iqbal, Y. Fu, P. Wong, P. Zhang, "From Multipactor To Ionization Breakdown: Review and Recent Advances," Int. Power Modulator High Voltage Conf., Knoxville, TN USA (2022) [Invited Plenary]
343. J.P. Verboncoeur, "Evolution of PIC simulation with applications to rf multipactor," 49th IEEE Int. Conf. Plasma Science, Seattle, WA USA (2022) [plenary IEEE Birdsall Award talk].
342. D.-Q. Wen, P. Zhang, Y.-N. Wang, J. Verboncoeur, "Microscale radio-frequency argon discharges via particle-in-cell simulation incorporating self-consistent fluid excited state species," 49th IEEE Int. Conf. Plasma Science, Seattle, WA USA (2022).
341. A. Iqbal, J. Verboncoeur, P. Zhang, "Non-sinusoidal rf field induced two-surface multipactor discharge," 49th IEEE Int. Conf. Plasma Science, Seattle, WA USA (2022).

340. D.-Q. Wen, A. Iqbal, C. Scutt, P. Zhang, J. Verboncoeur, "Multipactor mitigation via Gaussian-shape transverse RF electric field near a dielectric surface," 49th IEEE Int. Conf. Plasma Science, Seattle, WA USA (2022).
339. Y. Fu, H. Wang, B. Zheng, D. Yang, X. Wang, P. Zhang, Q.H. Fan, J. Verboncoeur, "Similarity and scaling laws for radio frequency discharge plasmas across nonlinear transition regimes," 49th IEEE Int. Conf. Plasma Science, Seattle, WA USA (2022).
339. S.R. Cotten, E.A. Mack, C.-H. Chang, J.K. Ford, P. Savolainen, J. Verboncoeur, J., and T. Hale, "Preparing the Future Workforce for the Era of Automated Vehicles," Automated Road Transportation Symposium (ARTS), Garden Grove, CA (2022).
338. R-F. Jao, K. Aranganadin, M-C. Lin, H-Y Hsu, J.P. Verboncoeur, "Transmission Loss of a Millimeter-Wave Pulse through a Waveguide Window," 23rd IEEE Int. Vacuum Electronics Conf., Monterey, CA (2022).
337. A. Iqbal, J. Verboncoeur, P. Zhang, "Investigation of Two-Surface Multipactor with Two-Frequency RF Fields and Space-Charge Effects," 23rd IEEE Int. Vacuum Electronics Conf., Monterey, CA (2022).
336. D-Q. Wen, A. Iqbal, C. Scutt, P. Zhang, J.P. Verboncoeur, "Susceptibility of Single-Surface Multipactor Driven by Non-sinusoidal Transverse RF Electric Field," 23rd IEEE Int. Vacuum Electronics Conf., Monterey, CA (2022).
335. Y. Fu, B. Zheng, H. Wang, P. Zhang, Q.H. Fan, X. Wang, and J.P. Verboncoeur, "On the similarity and scaling laws in low-pressure capacitive radio frequency discharges," 74th Gaseous Electronics Conf., Huntsville, AL (2021).
334. D. Wozniak, M.Z. Rahman, S. Banerjee, A. Iqbal, J. Verboncoeur, P. Zhang, C. Jiang, "Meeks' Criteria for Breakdown Examined in Air Using a Needle-to-Plate Configuration," 48th IEEE Int. Conf. Plasma Science, Lake Tahoe, CA USA (2021).
333. D-Q. Wen, J. Krek, J.T. Gudmundsson, E. Kawamura, M. Lieberman, J. Verboncoeur, "Benchmarked and Upgraded Particle-in-Cell Simulations Treating Excited State Atoms as a Fluid in Argon Discharge," 48th IEEE Int. Conf. Plasma Science, Lake Tahoe, CA USA (2021) Invited.
332. P. Wong, S. Lin, P. Zhang, J. Verboncoeur, "Angular Momentum Effects in Coaxial Multipactor," 48th IEEE Int. Conf. Plasma Science, Lake Tahoe, CA USA (2021).
331. S. Lin, H. Wang, H. Qu, Y. Li, P. Wong, J. Verboncoeur, "Multipactor Statistical Modeling Regarding Space Charge Effect for Saturation Investigation," 48th IEEE Int. Conf. Plasma Science, Lake Tahoe, CA USA (2021).
330. A. Iqbal, P. Wong, J. P. Verboncoeur, P. Zhang, "Study of Two-Frequency Rf Field Induced Two-Surface Multipactor," 48th IEEE Int. Conf. Plasma Science, Lake Tahoe, CA USA (2021).
329. Y. Fu, H. Wang, B. Zheng, P. Zhang, Q.H. Fan, X. Wang, J.P. Verboncoeur, "Microplasma Formation Around a Microstructured Surface," 48th IEEE Int. Conf. Plasma Science, Lake Tahoe, CA USA (2021).
328. D-Q. Wen, P. Zhang, J. Krek, Y. Fu, and J. Verboncoeur, "Multilayer-Structured Discharged in Plasma Ionization Breakdown Near a Dielectric Surface," 48th IEEE Int. Conf. Plasma Science, Lake Tahoe, CA USA (2021).
327. P. Wong, S. Lin, P. Zhang, and J. Verboncoeur, "The Effects of Angular Momentum on Multipactor in Coaxial Lines," IEEE International Vacuum Electronics Conference (IVEC), virtual, Netherlands (2021).
326. S. Lin, P. Wong, J. Verboncoeur, Y. Li, and Chunliang Liu, "The Effect of Angular Secondary Emission and Impact on Multipactor Statistical Modeling and Threshold Analysis," IEEE International Vacuum Electronics Conference (IVEC), virtual, Netherlands (2021).
325. A. Iqbal, P. Wong, D-Q. Wen, S. Lin, J. Verboncoeur, and P. Zhang, "Multipactor Dynamics Near a Dielectric Due to Two-Frequency RF Fields," IEEE International Vacuum Electronics Conference (IVEC), virtual, Netherlands (2021).

324. Y. Fu, B. Zheng, P. Zhang, Q. Fan, and J. P. Verboncoeur, "Similarity Laws for Low Temperature Plasmas from Continuum to Kinetic Regimes," Joint Conference on the 8th International Conf. on Microelectronics and Plasma Technology (ICMAP) and the 9th International Symposium on Functional Materials (ISFM), Virtual/Korea (2021)
323. J.P. Verboncoeur, "The Internet of Food," IEEE Summit on Communications Futures (2021), [Invited].
322. 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", 47th IEEE Int. Conf. Plasma Science, Singapore (2020).
321. D-Q. Wen, P. Zhang, J. Krek, Y. Fu, J.P Verboncoeur, "Higher Harmonics in Multipacting Gas Ionization Breakdown near a Microwave Window," 47th IEEE Int. Conf. Plasma Science, Singapore (2020).
320. P. Wong, Y.Y. Lau, P. Zhang, N. Jordan, R. Gilgenbach, J. Verboncoeur, "Multipactor Effects on Signal Quality in Transmission Lines Driven by Digitally Modulated Signals", 47th IEEE Int. Conf. Plasma Science, Singapore (2020).
319. Y. Fu, B. Zheng, P. Zhang, and J. P. Verboncoeur, "Similarity of Low-pressure Radiofrequency Discharges," 47th IEEE Int. Conf. Plasma Science, Singapore (2020).
318. D. Wen, Peng Zhang, J. Krek, Y. Fu, and J. Verboncoeur, "Higher harmonics in multipactor-induced gas ionization breakdown near a microwave window," 21st IEEE International Vacuum Electronics Conference (IVEC), Virtual, USA (2020).
317. A. Iqbal, P .Wong, J. Verboncoeur, and P. Zhang, "Analysis of Single-Surface Multipactor Discharge in the Frequency Domain," 21st IEEE International Vacuum Electronics Conference (IVEC), Virtual, USA (2020).
316. P. Wong, Y.Y. Lau, N. Jordan, R. Gilgenbach, P. Zhang, and J. Verboncoeur, "Multipactor Effects on Signal Quality in Transmission Lines with Impedance Mismatches," 21st IEEE International Vacuum Electronics Conference (IVEC), Virtual, USA (2020).
315. Y. Fu, B. Zheng, P. Zhang, Q. H. Fan, J. P. Verboncoeur, and X. Wang, "Similarity of Radio-Frequency Discharges in Nonlocal Regimes," 73rd Gaseous Electronics Conf., San Diego, CA USA (2020).
314. Y. Fu, B. Zheng, D. Wen, P. Zhang, Q. H. Fan, and J. P. Verboncoeur, "High-Energy Ballistic Electrons in Low-Pressure Radio-Frequency Plasmas," 73rd Gaseous Electronics Conf., San Diego, CA USA (2020).
313. J. Krek, Y. Fu, DQ. Wen, J. P. Verboncoeur, "Global Model Framework to Identify Relevant Species and Reactions in Chemically Complicated Plasma Systems," 73rd Gaseous Electronics Conf., San Diego, CA USA (2020)
312. Y. Fu, B. Zheng, J. Krek, D-Q. Wen, P. Zhang, and J.P. Verboncoeur, "On the similarities of high pressure microdischarges", 72nd Gaseous Electronics Conference, Bryan, Texas, USA, (2019).
311. Y. Fu and J.P. Verboncoeur, "Tunability and Scalability of Low-temperature Microplasmas", *Bull. Am. Phys. Soc.***61**, Fort Lauderdale, Florida, USA, (2019).
310. D.-Q. Wen, P. Zhang, J. Krek, Y. Fu, and J.P. Verboncoeur, "Harmonics in single surface multipactor-induced ionization breakdown", North Amer. Particle Accelerator Conference (NAPAC), Lansing, Michigan, USA (2019).
309. Y. Fu, J. Krek, P. Zhang, S. Baryshev, J.P. Verboncoeur, G. Parsey, and M. Kushner, "Atmospheric pressure micro-gap breakdown with interactions between multiple field emitters," 1st Joint Int. Vac. Nanoelectronics (IVNC) and Int. Vac. Elec. Sources (IVESC) Conference, Cincinnati, Ohio USA (2019).
308. J.P. Verboncoeur, "SmartAg: Smart Agro-Food Systems," *Eighth International Conference on Agro-Geoinformatics*, Istanbul, Turkey (2019) [keynote].
307. P. Wong, Y.Y.Lau, P. Zhang, N. Jordan, R. Gilgenbach, and J. Verboncoeur, "The Effects of Multipactor on the Quality of a Signal in a Transmission Line," IEEE Pulsed Power and Plasma Sci., Orlando, FL 23-28-Jun (2019).

306. A. Iqbal, J. Verboncoeur, and P. Zhang, "Temporal study of dual frequency multipactor on dielectric," IEEE Pulsed Power and Plasma Sci., Orlando, FL 23-28-Jun (2019).
305. J. Krek, Y. Fu, and J. Verboncoeur, "Benchmarking the Kinetic Global Model framework (KGMf): EEDF evaluations in low-temperature argon plasmas," IEEE Pulsed Power and Plasma Sci., Orlando, FL 23-28-Jun (2019).
304. D. Wen, A. Iqbal, P. Zhang, and J.P. Verboncoeur, "Suppressing single-surface multipactor discharges using non-sinusoidal electric field," IEEE Pulsed Power and Plasma Sci., Orlando, FL 23-28-Jun (2019).
303. J. Verboncoeur, "From Multipactor to Ionization Breakdown: Review and Recent Advances," IEEE Pulsed Power and Plasma Sci., Orlando, FL 23-28-Jun (2019), Plenary.
302. D. Wen, P. Zhang, Y. Fu, J. Krek, and J. P. Verboncoeur. "Multipactor dynamics under obliquely incident rf electric field," IEEE Pulsed Power and Plasma Sci., Orlando, FL 23-28-Jun (2019).
301. Y. Fu, J. Krek, P. Zhang, J. P. Verboncoeur, G. Parsey, and M. Kushner. "Characterizing breakdown voltage in micro-gaps with multiple field emitters at atmospheric pressure," IEEE Pulsed Power and Plasma Sci., Orlando, FL 23-28-Jun (2019).
300. Y. Fu, J. Krek, D. Wen, P. Zhang, and J. P. Verboncoeur. "Transition of low-temperature plasma similarity laws from low to high ionization degree regimes," IEEE Pulsed Power and Plasma Sci., Orlando, FL 23-28-Jun (2019).
299. J. Krek, Y. Fu, and J. P. Verboncoeur. "Benchmarking the Kinetic Global Model framework (KGMf): EEDF evaluations in low-temperature argon plasmas," IEEE Pulsed Power and Plasma Sci., Orlando, FL 23-28-Jun (2019).
298. P.Y. Wong, Y.Y.Lau, P. Zhang, N. Jordan, R.M. Gilgenbach, and J. Verboncoeur, "The Effect of Multipactor on the Quality of a Signal," IEEE IVEC, Busan, S. Korea (2019).
297. Y. Fu, J. Krek, D.-Q. Wen, P. Zhang, and J.P. Verboncoeur, "On the deviations of similarity laws in low-temperature discharges," 71th Gaseous Electronics Conference, Portland, OR, USA, HW4.00001 (2018).
296. D.-Q. Wen, Y. Fu, J. Krek, Peng Zhang, J.P. Verboncoeur, "Effect of linearly and elliptically polarized electric fields on multipactor discharges," 71th Gaseous Electronics Conference, Portland, OR, USA, PR4.00009 (2018).
295. Y. Fu, J. Krek, P. Zhang, and J.P. Verboncoeur, "Gas Breakdown in Microgaps with Electrode Surface Protrusions: Paschen's curve, Non-uniformity of Electric Field, and Breakdown Mode Transitions," iPlasmaNano-IX 2018 Conf. on Plasma Nanoscience and Nanotechnology, New Buffalo, MI, USA, August 26-29, 2018 [invited].
294. Y. Fu, J. Krek, and J.P. Verboncoeur, "Evolutions of electron energy probability function in low-pressure radio-frequency discharges," Gordon Research Conferences: Plasma Processing Science, Fundamental Insight in Plasma Processes, Smithfield, Rhode Island, USA, August 5-10, 2018.
293. J.P. Verboncoeur, N. Behdad, J.H. Booske, J. 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 P. Zhang, "Multipactor and Breakdown Susceptibility and Mitigation in Space-Based RF Systems," 45th IEEE ICOPS, Denver, CO USA, 8B-1 (2018), invited.
292. S. Shannon, M. Talley, Y. Dao, and J. Verboncoeur, "Reduction of Space Charge Distortion in Retarding Field Energy Analyzers," 45th IEEE ICOPS, Denver, CO USA, 8F-3 (2018).
291. J. Krek, Y. Fu, J.P. Verboncoeur, "Dynamic Evaluation Frequency of Boltzmann Equation Solver in the KGMf," ," 45th IEEE ICOPS, Denver, CO USA, P2A1346-25 (2018).
290. A. Iqbal, J. Verboncoeur, and P. Zhang, "Dual Frequency Multipactor on a Dielectric," 45th IEEE ICOPS, Denver, CO USA, 8B-7 (2018).
289. Y. Fu, P. Zhang, and J.P. Verboncoeur, "Gas Breakdown in Atmospheric Microgaps with Surface Protrusion on the Cathode," 45th IEEE ICOPS, Denver, CO USA, 1F-4 (2018), invited.
288. Y. Fu and J.P. Verboncoeur, "On the Similarities of Low-Temperature Plasma Discharges," 45th IEEE ICOPS, Denver, CO USA, 4A-1 (2018), invited.

287. J.P. Verboncoeur, “IoT in SmartAg: Technology Applied to the Agro-Food Supply Chain,” Design Automation Conference 2018, San Francisco, CA USA (2018) keynote.
286. J.P. Verboncoeur, “Space charge limited Fowler-Nordheim emission,” 7th Int. Mechanisms Vac. Arcs, San Juan, Puerto Rico, USA (2018).
285. J.P. Verboncoeur, J. Booske, R. Gilgenbach, Y. Y. Lau, A. Neuber, J. Scharer, R. Temkin, “Review of high voltage breakdown: from multipactor to ionization discharge,” 7th Int. Mechanisms Vac. Arcs, San Juan, Puerto Rico, USA (2018), invited.
284. J.P. Verboncoeur, “IEEE SmartAg initiative: Technology Applied to the Food Supply Chain,” IEEE IoT Vertical and Topical Summit for Agriculture, Tuscany, Italy (2018), keynote.
283. A. Iqbal, P. Zhang, J. Verboncoeur, “Dual-frequency Multipactor Susceptibility on a Dielectric,” 19th Int. Vac. Elect. Conf., Monterey, CA USA (2018).
282. J.P. Verboncoeur, “SmartAg Initiative: Technology applied to the food supply chain” IEEE Bio-Circuits and Systems Conference, Torino, Italy (2017), keynote.
281. Y. Fu, P. Zhang, J. Verboncoeur, A. Christlieb, “Effect of Surface Protrusion on Plasma Sheath Properties in Atmospheric DC Microdischarges.” 70th Gaseous Electronics Conference, Pittsburgh, PA, USA (2017).
280. J. P. Verboncoeur, “Particle Simulation of Plasmas: Review,” 18th Chinese National Conference on Plasmas Science and Technology, Xi’an City, China (2017), keynote.
279. J. P. Verboncoeur, M.P. Aldan, J. Booske, R. Gilgenbach, Y.Y. Lau, A. Neuber, J. Scharer, R. Temkin, “High-voltage breakdown: from surface multipactor to ionization discharge,” 16th Latin America Workshop on Plasma Physics, Mexico City, Mexico (2017), invited.
278. Y. Fu, G. Parsey, J. Krek, J. Verboncoeur, A. Christlieb, X. Wang, “Investigation of the similarity law in discharges at high pressure using a kinetic global model,” 44th IEEE ICOPS, Atlantic City, NJ USA, TH1.2-2 (2017).
277. M. L. Talley, S. Shannon, L. Chen, J. P. Verboncoeur, “Retarding field energy analyzer optimization and space charge effects,” 44th IEEE ICOPS, Atlantic City, NJ USA, WE1.5-2 (2017).
276. Y. Choi, A. Christlieb, J.P. Verboncoeur, “Plasma oscillations and expansion of ultra-cold plasma in magnetic field,” 44th IEEE ICOPS, Atlantic City, NJ USA, TU2.2-6 (2017).
275. B.S. Stutzman, “Change in guiding center position as a function of incident and scattering angle in cross-field diode,” 44th IEEE ICOPS, Atlantic City, NJ USA, TUP-2 (2017).
274. H.Y. Hsu, M.C. Lin, J.P. Verboncoeur, “A relativistic self-consistent model for studying enhancement of Child-Langmuir limit due to counterstreaming ions,” 44th IEEE ICOPS, Atlantic City, NJ USA, MO1.4-5 (2017).
273. G. M. Parsey, J. Verboncoeur, A. Christlieb, “Uncertainty quantification in global modeling of plasma assisted combustion,” 44th IEEE ICOPS, Atlantic City, NJ USA, MOP-21 (2017).
272. J. Krek, G. Parsey, J. Verboncoeur, “Boltzman equation solver coupled to a kinetic global model framework,” 44th IEEE ICOPS, Atlantic City, NJ USA, MOP-20 (2017).
271. A. Christlieb, G. Dharuman, J. Verboncoeur, M. S. Murillo, “Effective momentum-dependent potentials for atomic bound states and scattering in strongly coupled plasmas,” *Bull. Am. Phys. Soc.***61**,PP10-127 (2016).
270. D.E. Neben, J. Fogelman, A.N. Pham, S. Renteria, L. Tobos, G. Machicoane, D. Leitner, G. Parsey, and J. Verboncoeur, “Fast Sputtering Measurements of Uranium with an 18 GHz ECRIS and Ion Density Simulations with a Kinetic Global Model (KGM),” ECRIS2016, Busan, S. Korea (2016)
269. M. C. Lin and J. Verboncoeur, “A relativistic self-consistent model for studying enhancement of space charge limited emission due to counter-streaming ions,” *Bull. Am. Phys. Soc.***61**, YP10-22 (2016).
268. G. Parsey, J. Verboncoeur, and A. Christlieb, “Kinetic Global Modeling of Rare Gas Lasers,” *Bull. Am. Phys. Soc.***61**, BP10-17 (2016).
267. D. E. Neben, J. Fogleman, D. Leitner, G. Machicoane, A.N. Pham, L. Tobas, G. Parsey, and J.P. Verboncoeur, “An Interpretation of Fast Sputtering Studies of Uranium on the NSCL Electron Cyclotron Resonance Ion Source.” LINAC 2016, East Lansing, MU USA (2016).

266. M. Aldan and J. Verboncoeur, "DC Breakdown From Vacuum to Low Pressure in Dielectric-Loaded Systems", *IEEE IPMHVC*, San Francisco, CA USA, (2016).
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E. Patents

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