

De-Qi Wen

PhD. Research Associate, Michigan State University, East Lansing MI, USA

BASIC INFORMATION

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RESEARCH INTERESTS

A. Computational plasma physics

Capacitive/inductive rf plasma discharges; plasma and electromagnetic wave interaction physics; radio frequency sheath dynamics; electron heating in electropositive and negative low temperature plasmas; magnetized plasmas; pulsed plasmas; multipactor and ionization breakdown plasmas in microwave devices; multipactor suppression; theory and particle-in-cell/Monte Carlo simulations

B. Source code development

Independent development of framework for kinetic global model, ion fluid sheath model, ion Monte-Carlo collision process for continuous and/or pulsed waveform-driven inductive plasmas (Argon, Oxygen, Chlorine etc) with application in semiconductor industry (fortran); further development/optimization for multiple kinds of (1D/2D) particle-in-cell codes, such as oopd1/xoopic/xpdc2 (c, c++ based) in PTSG group (MSU, Prof J Verboncoeur); Recently strong interest in Particle-in-Cell development via OpenMP, MPI and GPU

C. Plasma Theory

Multipactor discharge in microwave devices; electromagnetic waves in capacitive discharges, power transfer efficiency in inductive discharges; nonlinear series resonance in capacitive discharges; Stream-plasma instabilities; modelling for low temperature, low pressure discharges

EDUCATION

2015- 2017, University of California at Berkeley, CA, USA

Jointly trained PhD candidate

Low temperature plasma physics in Electric Engineering and Computer Science

Advisors: Prof. M A Lieberman and Y-N Wang

2012 - 2018, Dalian University of Technology, Dalian, China

PhD candidate, Low temperature plasma physics in School of Physics

Advisor: Prof. Y-N Wang

2008 - 2012, Dalian University of Technology, Dalian, China

Undergraduate Student, Major in Physics (Ranked 1st/58)

2010 - 2012, Dalian University of Technology, Dalian, China

Undergraduate Student, Minor in Applied Mathematics

2005 - 2008, No.1 High School in Huludao City, Huludao, China

APPOINTMENT

Since 2018, Research Associate, Michigan State University, East Lansing, USA
Plasma and multipactor discharge in Electrical and Computer Engineering,
Advisor: Prof John P Verboncoeur

AWARDS AND GRANTS

08/2021: NPSS Young Professionals Grant
10/2016: National Scholarship for PhD candidate
10/2015: Outstanding Graduate Student Award over Dalian University of Technology (DLUT)
2012-2015: First Class Scholarship for PhD candidate
2009-2012: National Encouragement Scholarship for Three Continuous Years
10/2011: First Prize for Study etc
10/2009: Science and Technology Innovation Award in DLUT
2009: First Prize for Mathematical Olympiad over Dalian City
2004: First Prize for Mathematical Olympiad over Liaoning Province

PROFESSIONAL SERVICE, SOCIETIES

10/2023: **Best poster award committee**, 76th Annual Gaseous Electronics Conference (64th APS-GEC, 2023), Ann Arbor, Michigan, USA
10/2023: **Session Chair**, 76th Annual Gaseous Electronics Conference (64th APS-GEC, 2023), Ann Arbor, Michigan, USA
10/2022: **Session Chair** (live poster session), 64th Annual Meeting of the APS Division of Plasma Physics (64th APS DPP, 2022), Spokane, Washington, USA
06/2022: **Session Chair**, the 11th International Workshop on Microplasma (11th IWM), Raleigh, North Carolina, USA
11/2021: **Judge for best poster awards**, the 12th Annual Michigan Institute for Plasma Science and Engineering (MIPSE) Graduate Student Symposium, MI, USA
09/2021: **Session Chair**, the 48th IEEE international Conference on Plasma Science (the 48th ICOPs, virtual), Stateline, Lake Tahoe, Nevada, USA
01/2021: **Session Chair**, the 8th International Conference on Microelectronics and Plasma Technology (the 8th ICMAP), Rolling Hills, Hwaseong, Korea
2018-: Member of IEEE
2019-: Member of IEEE Nuclear and Plasma Sciences Society
2018-: Member of American Physical Society
2019-: Member of Michigan Institute for Plasma Science and Engineering

EXPERIENCE/PROJECTS

- 2021- Project: "Studies of key mechanisms and control strategies for plasmas in micro/submicro scales" supported by NSF-DOE Partnership Grant (No. DE-SC0022078, \$462k)
- 2021 - Project: "Multipactor and breakdown susceptibility and mitigation in space-based RF systems" Supported by Air Force Office of Scientific Research (No. FA9550-21-1-0367, \$3.2M)
- 2018 - 2021 Project: "Multipactor and breakdown susceptibility and mitigation in space-based RF systems" Supported by Air Force Office of Scientific Research (No. FA9550-18-1-0062, \$7.6M)
- 2018 - 2019 Project: "Center for predictive control of plasma kinetic: multi-phase and bounded systems" supported by U.S Department of Energy (No. DE-SC0001939)
- 2017 - 2018 Project: "on the characteristics of pulsed inductively coupled plasma source with application in etching process" supported by National Natural Science Foundation of China (No. 11675039).
- 2015 – 2017 Project: Electromagnetic effects in large area and very high frequency capacitively coupled plasma source National Natural Science Foundation of China, Key Program (No 11335004, ¥ 3600,000)
- 2012 - 2015 Project: Platform for Multi-physical field coupled simulation in rf plasma sources Supported by National Technology Major Program (No. 2011ZX02403, ¥ 8490,000)
- 2012 - 2014 Project: Simulation and experiments for industrial rf plasma chamber Supported by national program for international cooperation (No. 2012DFG02150)

REFEREE SERVICES

Physical Review E
 Applied Physic Letter
 Plasma Sources Science and Technology
 IEEE Electron Device Letter
 Journal of Applied Physics
 Physics of Plasmas
 Review of Scientific Instruments
 AIP Advance
 Journal of Physics D: Applied Physics
 Plasma Physics and Control Fusion
 Physica Scripta
 Japanese Journal of Applied Physics
 Journal of Instruments
 IEEE Transaction on Electron Device
 IEEE Transaction on Plasma Science

PUBLICATIONS

A. Software copyright

5. **De-Qi Wen**, Y-R Zhang, F Gao and Y-N Wang, Kinetic Global Model Code for rf Plasma Source (No.2014SR152023), China (2014)
4. **De-Qi Wen**, Y-R Zhang, F Gao and Y-N Wang, Fast hybrid simulation code for biased inductively coupled plasma source (No. 2017SR569637), China (2017)
3. W Yang, **De-Qi Wen**, F G and Y-N Wang, Hybrid Simulation Code for Negative H Ion Source in Inductive Discharges (No. 2017SR427672, China (2017)
2. W Yang, **De-Qi Wen**, F Gao and Y-N Wang, Volume-averaged Model Code for Inductively Coupled Plasma Source (No. 2016SR241275), China (2016)
1. X Bao, Y-S Liang, **De-Qi Wen**, Y-R Zhang, F Gao and Y-N Wang, Multi-Physics Field Analysis Platform for Multiple rf Plasma Sources, China (2016)

B. Peer-Reviewed Journal Articles (*As corresponding author, #equal contribution)

45. **De-Qi 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, *Applied Physics Letter* 123, 264102 (2023).
44. **De-Qi Wen***, J Krek, J T Gudmundsson, E Kawamura, M A Lieberman, P Zhang, J P Verboncoeur, On the importance of excited state species in low pressure capacitively coupled plasma argon discharges, *Plasma Source Science & Technology*, 32, 064001, 2023 [**Most Read**]
43. A. Iqbal, **De-Qi Wen**, J. Verboncoeur and P Zhang, Two surface multipactor with non-sinusoidal RF fields, *Journal of Applied Physics* 134, 153304 (2023).
42. A Iqbal#, **De-Qi Wen#(equal contribution)**, P Zhang, J Verboncoeur, Recent advances in multipactor physics and mitigation, *High Voltage*. 8, 1095 (2023)
41. **De-Qi Wen***, A Iqbal, P Zhang, J Verboncoeur, Susceptibility of multipactor near a dielectric surface driven by a Gaussian-type transverse rf electric field, *Applied Physics Letter*, 121, 164103, 2022
40. **De-Qi Wen***, J Krek, J T Gudmundsson, E Kawamura, M A Lieberman, J P Verboncoeur, Particle-in-cell simulations with fluid metastable atoms in capacitive argon discharges: electron elastic scattering and plasma density profile, *IEEE Transactions on Plasma Science*, 50, 9, 2548-2557, 2022 [**Invited Paper**]
39. **De-Qi 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 Source Science and Technology*, 31, 095004, 2022
38. **De-Qi Wen***, P Zhang, J Krek, Y Fu, and J Verboncoeur, Higher harmonics in multipactor induced plasma ionization breakdown near a dielectric surface, *Physical Review Letter*, 129, 045001, 2022

37. **De-Qi Wen***, P Zhang, J Krek, Y Fu, J P Verboncoeur, Observation of multilayer-structured discharge in plasma ionization breakdown, *Applied Physical Letter*, 119, 264102 (2021)
36. J T. Gudmundsson, J Krek, **De-Qi Wen**, E. Kawamura, and M. A. Lieberman, Surface effects in a capacitive argon discharge in the intermediate pressure regime, *Plasma Sources Science and Technology*, 30 (12), 125011 (2021)
35. F-J Zhou, K Zhao, **De-Qi Wen**, J-K Liu, Y-X Liu, and Y-N Wang, Simulation of nonlinear standing wave excitation in very-high-frequency asymmetric capacitive discharges: roles of radial plasma density profile and rf power, *Plasma Sources Science and Technology*, 30, 125017 (13pp), (2021)
34. A Iqbal, P Y Wong, **De-Qi Wen**, J P Verboncoeur, P Zhang, A review of recent studies on two-frequency RF field-induced single-surface multipactor discharge, *IEEE Transactions on Plasma Science*, 49 (11), 3284 – 3292, (2021)
33. **De-Qi Wen***, J Krek, J T Gudmundsson, E Kawamura, M A Lieberman, 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 Science and Technology* 30 (10), 105009 (2021)
32. L Tong, Y-R Zhang, J-W Huang, M-L Zhao, **De-Qi Wen**, Y-H Song, Y-N Wang, Hybrid simulation of radio frequency biased inductively coupled Cl₂ plasmas, *Physics of Plasmas* 28 (5), 053512 (2021)
31. L Wang, **De-Qi Wen**, C-B Tian, Y-H Song, Y-N Wang, Electron heating dynamics and plasma parameters control in capacitively coupled plasma, *Acta Physica Sinica*, 70(9): 095214(2021)
30. J Liu, Y Zhang, K Zhao, **De-Qi Wen**, Y-N Wang, Simulations of standing wave effect, stop band effect, and skin effect in large-area very high frequency symmetric capacitive discharges, *Plasma Science and Technology* 23 (3), 035401 (2021)
29. Y Fu, B Zheng, **De-Qi Wen**, P Zhang, Q-H Fan, J P Verboncoeur, Similarity law and frequency scaling in low-pressure capacitive radio frequency plasmas, *Applied Physics Letters* 117 (20), 204101 (2020)
28. L Wang, **De-Qi Wen**, P Hartmann, Z Donkó, A Derzsi, X-F Wang, Y-H Song, Y-N Wang, Julian Schulze, Electron power absorption dynamics in magnetized capacitively coupled radio frequency oxygen discharges, *Plasma Sources Science and Technology* 29 (10), 105004 (2020) [**Top 1% Most-Cited Paper in IOP Publishing**]
27. Y Fu, B Zheng, **De-Qi Wen**, P Zhang, Q-H Fan, J P Verboncoeur, High-energy ballistic electrons in low-pressure radio-frequency plasmas, *Plasma Sources Science and Technology*, *Plasma Sources Science and Technology* 29 (9), 09LT01 (2020)
26. A Iqbal, P Y Wong, **De-Qi Wen**, S Lin, J Verboncoeur, P Zhang, Time-dependent physics of single-surface multipactor discharge with two carrier frequencies, *Physical Review E*, 102(4),043201 (2020)
25. B Zheng, Y Fu, **De-Qi Wen**, K Wang, T Schuelke, and Q Fan, Influence of metastable atoms in low pressure magnetized radio-frequency argon discharges, *Journal of Physics D: Applied Physics*, 53 (43), 435201 (2020).

24. J-K Liu, Y-R Zhang, K Zhao, **De-Qi Wen**, and Y-N Wang, Simulations of electromagnetic effects in large-area high-frequency capacitively coupled plasmas with symmetric electrodes: Different axial plasma density profiles, *Physics of Plasmas*, 27 (12), 023502 (2020).
23. **De-Qi Wen***, P Zhang, Y Fu, J Krek, and J P. Verboncoeur, Temporal single-surface multipactor dynamics under obliquely incident linearly polarized electric field, *Physics of Plasmas*, 26 (12), 123509 (2019).
22. **De-Qi Wen***, A Iqbal, P Zhang and J P. Verboncoeur, Suppression of single surface multipactor discharges due to non-sinusoidal transverse electric field, *Physics of Plasmas*, 26 (9), 093503 (2019).
21. Y Fu, J Krek, **De-Qi Wen**, P Zhang, J P Verboncoeur, Transition of low temperature plasma similarity laws from low to high ionization degree regimes, *Plasma Sources Science and Technology* 28 (9), 095012 (2019).
20. K Zhao#(equal contribution), **De-Qi Wen#(equal contribution)**, Y-X Liu, M A Lieberman, D. J Economou, Y-N Wang, Observation of Nonlinear Standing Waves Excited by Plasma-Series-Resonance-Enhanced Harmonics in Capacitive Discharges, *Physical Review Letters* 122 (18), 185002 (2019) (The whole simulation part).
19. J-Y Sun, **De-Qi Wen**, Q-Z Zhang, Y-X Liu and Y-N Wang, The effects of electron surface interactions in geometrically symmetric capacitive RF plasmas in the presence of different electrode surface materials, *Physics of Plasmas* 26 (6), 063505 (2019).
18. L Wang, **De-Qi Wen**, Q-Z Zhang, Y-H Song, Y-R Zhang, Y-N Wang, Disruption of self-organized striated structure induced by secondary electron emission in capacitive oxygen discharges, *Plasma Sources Science and Technology* 28 (5), 055007 (2019).
17. H Li, F Gao, **De-Qi Wen**, W Yang, P-C Du, Y-N Wang, Investigation of the power transfer efficiency in a radio-frequency driven negative hydrogen ion source, *Journal of Applied Physics* 125 (17), 173303 (2019).
16. C Xue, F Gao, **De-Qi Wen**, Y-N Wang Experimental investigation of the electron impact excitation behavior in pulse-modulated radio frequency Ar/O₂ inductively coupled plasma, *Journal of Applied Physics* 125 (2), 023303 (2019).
15. K Zhao, Y-X Liu, **De-Qi Wen**, D. J Economou, Y-N Wang, A new B-dot probe circuit for magnetic diagnostics of radio frequency discharges, *Review of Scientific Instruments* 89 (10), 105104 (2018).
14. K Zhao, Y-X Liu, E Kawamura, **De-Qi Wen**, M A Lieberman, Y-N Wang, Experimental investigation of standing wave effect in dual-frequency capacitively coupled argon discharges: role of a low-frequency source, *Plasma Sources Science and Technology* 27 (5), 055017 (2018).
13. E Kawamura, **De-Qi Wen**, M A Lieberman, A J Lichtenberg, Effect of a dielectric layer on plasma uniformity in high frequency electronegative capacitive discharges, *Journal of Vacuum Science & Technology A* 35(5):05C311 (2017).
12. **De-Qi Wen**, E Kawamura, M A Lieberman, A J Lichtenberg, Y-N Wang, Two-dimensional particle-in-cell simulations of standing waves and wave-induced hysteresis in asymmetric capacitive discharges, *Journal of Physics D: Applied Physics* 50 (49), 495201 (2017).

11. **De-Qi Wen**, E Kawamura, M A Lieberman, A J Lichtenberg, Y-N Wang, A nonlinear electromagnetics model of an asymmetrically-driven, low pressure capacitive discharge, *Physics of Plasmas* 24 (8), 083517 (2017).
10. **De-Qi Wen**, Y-R Zhang, M A Lieberman, Y-N Wang Ion Energy and Angular Distribution in Biased Inductively Coupled Ar/O₂ Discharges by Using a Hybrid Model, *Plasma Processes and Polymers* 14, 1600100 (2017).
9. C Xue, **De-Qi Wen**, W Liu, Y-R Zhang, F Gao, Y-N Wang, Experimental and numerical investigations on time-resolved characteristics of pulsed inductively coupled O₂/Ar plasmas, *Journal of Vacuum Science and Technology A* 35(2), 021301 (2017)
8. **De-Qi Wen**, E Kawamura, M A Lieberman, A J Lichtenberg, Y-N Wang, Nonlinear series resonance and standing waves in dual-frequency capacitive discharges, *Plasma Sources Science and Technology* 26 (1), 015007 (2016).
7. **De-Qi Wen**, W Liu, F Gao, M A Lieberman, Y-N Wang, A hybrid model of radio frequency biased inductively coupled plasma discharges: description of model and experimental validation in argon, *Plasma Sources Science and Technology* 25 (4), 045009 (2016).
6. W Yang, S-X Zhao, **De-Qi Wen**, W Liu, Y-X Liu, X-C Li, Y-N Wang, F-atom kinetics in SF₆/Ar inductively coupled plasmas, *Journal of Vacuum Science and Technology A*, 34 3 031503 (2016)
5. G-H Liu, Y-X Liu, **De-Qi Wen**, Y-N Wang, Heating mode transition in capacitively coupled CF₄ discharges: comparison of experiments with simulations, *Plasma Sources Science and Technology* 24 (3), 034006 (2015)
4. W Liu, **De-Qi Wen**, S-X Zhao, F Gao, Y-N Wang, Characterization of O₂/Ar inductively coupled plasma studied by using a Langmuir probe and global model, *Plasma Sources Science and Technology* 24 (2), 025035 (2015)
3. Y-X Liu, Y-S Liang, **De-Qi Wen**, Z-H Bi, Y-N Wang, Experimental diagnostics of plasma radial uniformity and comparisons with computational simulations in capacitive discharges, *Plasma Sources Science and Technology* 24 (2), 025013 (2015)
2. **De-Qi Wen**, Q-Z Zhang, W Jiang, Y-H Song, A Bogaerts, and Y-N Wang, Phase modulation in pulsed dual-frequency capacitively coupled plasmas, *Journal of Applied Physics* 115 (23), 233303 (2014)
1. J Liu, **De-Qi Wen**, Y-X Liu, F Gao, W-Q Lu, Y-N Wang, Experimental and numerical investigations of electron density in low-pressure dual-frequency capacitively coupled oxygen discharges, *Journal of Vacuum Science and Technology A* 31 (6), 061308 (2013)

C. Conference and Symposium Proceedings

34. **[Invited Talk]** J Verboncoeur, **De-Qi Wen**, A Iqbal, Y Fu, P Zhang, Transition from multipactor discharge to ionization breakdown in microwave systems, 76th Annual Gaseous Electronics Conference (64th APS-GEC, 2023), Ann Arbor, Michigan, USA, October 9-13, 2023
33. **[Invited Talk]** **De-Qi Wen**, J Krek, J. T Gudmundsson, E Kawamura, M A Lieberman, P Zhang, J P Verboncoeur, Recent Advance of Particle-based Simulations in Capacitively

- Coupled Plasmas, 3rd Asia-Pacific Conference on Plasma and Terahertz Science, Pusan City, South Korea, Aug 25-28, 2023
32. **[Plenary Talk] De-Qi Wen** and J Verboncoeur, “Recent Advances in Low Temperature Plasma Modeling Using a Kinetic Global Model” (co-author for conference paper), 2nd International Fusion and Plasma Conference (iFPC), Busan, South Korea, Aug 21-25, 2023
 31. **[Invited Talk] De-Qi 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 GEC, February 02, 2023
 30. **[Invited Talk] De-Qi Wen**, P Zhang, J Krek, Y Fu, J Verboncoeur, Temporal physics of multipactor-induced plasma ionization breakdown, Foshan, Guangdong, China, November 25-27, 2022
 29. **[Plenary Talk] J Verboncoeur, De-Qi Wen**, A Iqbal, Y Fu, P Wong, P Zhang, “From Multipactor to Ionization Breakdown: Review and Recent Advances”, IEEE International Power Modulator and High Voltage Conference (IPMHVC)& IEEE Electrical Insulation Conference, Knoxville, TN, USA, June 19-23, 2022
 28. **[Invited Talk] De-Qi Wen**, P Zhang, J Krek, Y Fu, J Verboncoeur, “Transient physics from multipactor to plasma breakdown near a dielectric surface”, Multipactor Teleconference, 23 August, 2022 [**60 mins**]
 27. **[Invited Talk] De-Qi Wen**, P Zhang, J Verboncoeur, Microscale microwave argon discharges, The 11th International Workshop on Microplasmas (IWM-11), Raleigh, North Carolina, June 6 – 10, 2022
 26. **[Plenary Talk] J Verboncoeur, De-Qi Wen**, A Iqbal, Y Fu, P Wong, P Zhang, “Evolution of PIC simulation with applications to rf multipactor”, The 49th IEEE International Conference on Plasma Science (ICOPS), Seattle, Washington, USA, May 22-26, 2022
 25. **[Invited Talk] De-Qi Wen**, J Krek, J T. Gudmundsson, E Kawamura, M A. Lieberman, and J P. Verboncoeur, Benchmarked and Upgraded Particle-in-Cell Simulations Treating Excited State Atoms As a Fluid in Argon Discharge, the 48th IEEE International Conference on Plasma Science (ICOPS), virtual, Stateline, Lake Tahoe, Nevada, USA, Sep 12-16, 2021
 24. **[Invited Talk] De-Qi Wen**, Nonlinear Standing Wave Effects by Plasma Series Resonance Enhanced Harmonics in Low Pressure, High Frequency CCPs, Seminar Modern Problems of Plasma Physics hosted by Prof Uwe. Czarnetzki, Ruhr University Bochum, Germany, July, 2021 [**90mins**]
 23. **De-Qi Wen**, J Krek, J Gudmundsson, E Kawamura, M Lieberman, P Zhang, J Verboncoeur, Particle-in-cell simulations of high voltage-driven low pressure capacitively coupled plasmas, 76th Annual Gaseous Electronics Conference (64th APS-GEC, 2023), Ann Arbor, Michigan, USA, October 9-13, 2023

22. **De-Qi Wen**, J P Verboncoeur, Reaction dynamics in high voltage gaseous breakdown, IEEE Pulsed Power Conference, San Antonio, TX, USA, 25-29 Jun 2023
21. **De-Qi 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
20. **De-Qi Wen**, P Zhang, J Krek, Y Fu, J Verboncoeur, Transient physics of multipactor induced plasma breakdown near a dielectric surface, Spokane, Washington, USA, October 17-21, 2022 [oral talk]
19. J Verboncoeur, **De-Qi Wen**, A Iqbal, Y Fu, P Wong, P Zhang, “From Multipactor to Ionization Breakdown: Recent Advances”, the European Space Agency (ESA) MULCOPIIM conference, 19-21, Oct, Valencia, Spain, 2022
18. **De-Qi Wen**, J Krek, J Gudmundsson, E Kawamura, M Lieberman, P Zhang, J Verboncoeur, “Important role of excited state atoms in low pressure capacitive rf argon discharges”, 75th Annual Gaseous Electronics Conference, Sendai International Center, Sendai, Japan, Oct 3-7, 2022 [oral talk]
17. **De-Qi Wen**, P Zhang, Y-N Wang, J Verboncoeur, “Plasma species and reaction dynamics-oriented global model studies for microscale argon discharges”, 75th Annual Gaseous Electronics Conference, Sendai International Center, Sendai, Japan, Oct 3-7, 2022 [oral talk]
16. **De-Qi Wen**, A Iqbal, C Scutt, P Zhang, J P Verboncoeur, Multipactor mitigation via Gaussian-shape transverse RF electric field near a dielectric surface, The 49th IEEE International Conference on Plasma Science (ICOPS), Seattle, Washington, USA, May 22-26, 2022 [oral talk]
15. **De-Qi Wen**, P Zhang, Y-N Wang, J P Verboncoeur, Microscale radio-frequency argon discharges via particle-in-cell simulation incorporating self-consistent fluid excited state species, The 49th IEEE International Conference on Plasma Science (ICOPS), Seattle, Washington, USA, May 22-26, 2022 [oral talk]
14. **De-Qi Wen**, A Iqbal, C Scutt, P Zhang, J P Verboncoeur, Multipactor mitigation via Gaussian-shape transverse RF electric field near a dielectric surface, The 23rd International Vacuum Electrical Conference (IVEC), Monterey, California, on April 25-29, 2022 [oral talk]
13. **De-Qi Wen**, P Zhang, J Krek, Y Fu, J P Verboncoeur, Multilayer-Structured Discharge in Plasma Ionization Breakdown, The 48th IEEE International Conference on Plasma Science (ICOPS), virtual, Stateline, Lake Tahoe, Nevada, USA, Sep 12-16, 2021[oral talk]
12. **De-Qi Wen**, P 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). [oral talk]
11. **De-Qi Wen**, P Zhang, J Krek, Y Fu and J Verboncoeur, Harmonic Generation in Multipactor-Induced Plasma Ionization Breakdown, 73rd Gaseous Electronics Conf., San Diego, CA, USA, October 5 – 9, 2020. [oral talk]
10. Y. Fu, B. Zheng, **De-Qi 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, October 5 – 9, 2020[oral talk]

9. J. Krek, Y. Fu, **De-Qi 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, October 5 – 9, 2020
8. Y Fu, B Zheng, J Krek, **De-Qi Wen**, P Zhang, and J P. Verboncoeur, On the similarities of high pressure microdischarges. The 72nd Annual Gaseous Electronics Conference (GEC), Bryan, Texas, USA, Oct 28-Nov 1, 2019. [Poster].
7. **De-Qi Wen**, P Zhang, J Krek, Y Fu, and J P. Verboncoeur, Harmonics in single surface multipactor-induced ionization breakdown, 2019 North American Particle Accelerator Conference (NAPAC), Lansing, Michigan, USA, Sep 1-6, 2019. [Poster]
6. **De-Qi Wen**, A Iqbal, P Zhang, and J P. Verboncoeur, Suppressing single-surface multipactor discharges by non-sinusoidal electric field, The 1st joint meeting of the International Vacuum Nanoelectronics (IVNC) and International Vacuum Electron Sources (IVESC) Conferences, Cincinnati, Ohio, USA, July 22-26, 2019. [Poster]
5. **De-Qi Wen**, P Zhang, Y Fu, J Krek, and J P. Verboncoeur. Multipactor dynamics under obliquely incident rf electric field. 2019 IEEE Pulsed Power and Plasma Science Conference (PPPS), Orlando, Florida, USA, June 23-28, 2019 [oral talk].
4. **De-Qi Wen**, A Iqbal, P Zhang, and J P. Verboncoeur, Suppressing single-surface multipactor discharges by non-sinusoidal electric field, 2019 IEEE Pulsed Power and Plasma Science Conference (PPPS), Orlando, Florida, USA, June 23-28, 2019 [poster].
3. Y Fu, J Krek, **De-Qi Wen**, P Zhang, and J P. Verboncoeur, Transition of low-temperature plasma similarity laws from low to high ionization degree regimes. 2019 IEEE Pulsed Power and Plasma Science Conference (PPPS), Orlando, Florida, USA, June 23-28, (2019).
2. **De-Qi Wen**, Y Fu, J Krek, P Zhang, and J P. Verboncoeur. Effect of linearly and elliptically polarized electric fields on multipactor discharges. The 71th Annual Gaseous Electronics Conference (GEC), Portland, Oregon, USA, November 5-9, 2018 [oral talk].
1. Y Fu, J Krek, **De-Qi Wen**, P Zhang, and J P. Verboncoeur. On the deviations of similarity laws in low-temperature discharges. The 71th Annual Gaseous Electronics Conference (GEC), Portland, Oregon, USA, November 5-9, 2018, [oral talk].