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### Publications

#### Journals

A.37 H. C. Kim and J. P. Verboncoeur, "Time-dependent physics of a single-surface multipactor discharge", *Phys. Plasmas* **12**, 123506-1-7 (2005).

A.36 Y. Feng and J. P. Verboncoeur, "A model for effective field enhancement for Fowler–Nordheim field emission", *Phys. Plasmas* **12**, 103301 (2005).

A.35 G. Cho, J. Y. Lee, D. H. Lee, S. B. Kim, H. S. Song, J. Koo, B. S. Kim, J. G. Kang, E. H. Choi, U. W. Lee, S. C. Yang, and J. P. Verboncoeur, "Glow Discharge in the External Electrode Fluorescent Lamp", *IEEE Trans. Plasma Science* **33**, 1410-1415 (2005).

A.34 G.S. Nusinovich, Y. Carmel, A.G. Shkvarunets, J.C. Rodgers, T.M. Antonsen, V.L. Granatstein, Y.P. Bliokh, D.M. Goebel, and J.P. Verboncoeur, "The Pasotron: Progress in the theory and experiments", *IEEE Trans. Electron Devices* **52**, 845-857 (2005).

A.33. J. P. Verboncoeur, "Particle simulation of plasmas: review and advances", *Plasma Physics and Controlled Fusion* **47**, A231-A260 (2005), invited.

A.32. G. Cho, J. Lee, D. Lee, J. Koo, E. Choi, B. Kim, S. Lee, M. Pak, J. Kang and J. P. Verboncoeur, "Pinhole formation in capacitively coupled external electrode fluorescent lamps", *J. Phys. D: Appl. Phys.* **37**, 2863-2867 (2004).

A.31. J. P. Verboncoeur, "Aliasing of electromagnetic fields in stair step boundaries", *Computer Physics Communications* **164**, 344-352 (2004).

A.30. A. J. Christlieb, R. Krasny, and J. P. Verboncoeur, "A Treecode Algorithm for Simulating Electron Dynamics in a Penning-Malmberg Trap", *Computer Physics Communications* **164**, 306-310 (2004).

A.29. A. J. Christlieb, R. Krasny, and J. P. Verboncoeur, "Efficient Particle Simulation of a Virtual Cathode using a Grid-Free Treecode Poisson Solver", *IEEE Transactions on Plasma Science* **32**, 384-389 (2004).

A.28. M. Roberto, H. B. Smith and J. P. Verboncoeur, "Influence of metastable atoms in radio-frequency argon discharges", *IEEE Transactions on Plasma Science* **31**, 1292-1298 (2003).

A.27. H. J. Lee and J. P. Verboncoeur, "Radiation transport coupled particle-in-cell simulation of low-pressure inductive discharges", *Physics of Plasmas* **9**, 4804-4811 (2002).

A.26. K. M. Rantamäki, K. M. Alm-Lytz, T. J. H. Pättikangas, S. J. Kart-

tunen, J. P. Verboncoeur, and P. Mardahl, “Electromagnetic Particle-in-Cell Simulations of a Lower Hybrid Grill”, *Plasma Physics and Controlled Fusion* **44**, 1349-1362 (2002).

A.25. J. P. Verboncoeur, “Symmetric spline weighting for charge and current density in particle simulation”, *J. Comp. Phys.* **174**, 421-427 (2001).

A.24. W. Qiu, H. J. Lee, J. P. Verboncoeur and C. K. Birdsall, “A time domain circuit simulator for coupled-cavity traveling wave tubes”, *IEEE Trans. Plasma Science.* **29**, 911-920 (2001).

A.23. Y. Ikeda, K. Suzuki, H. Fukomoto, M. Shibata, M. Ishigaki, J. P. Verboncoeur, P. J. Christenson, and C. K. Birdsall, “Global breakdown in an alternating current plasma display panel”, *J. Appl. Phys.* **89**, 4231-4239 (2001).

A.22. H. J. Lee and J. P. Verboncoeur, “A radiation transport coupled particle-in-cell simulation. Part I: Description of the model”, *Physics of Plasmas* **8**, 3077 (2001).

A.21. H. J. Lee and J. P. Verboncoeur, “A radiation transport coupled particle-in-cell simulation. Part II: Simulations results in 1-D planar model”, *Physics of Plasmas* **8**, 3089 (2001).

A.20. H. J. Lee and J. P. Verboncoeur, “Simulation of a positive column discharge with a one-dimensional radial radiation transport coupled particle-in-cell model”, *J. Appl. Phys.* **90**, 4957-4965 (2001).

A.19. D. L. Bruhwiler, R. Giacone, J. R. Cary, J. P. Verboncoeur, P. J. Mardahl, E. Esarey, and W. Leemans, “Particle-in-Cell Simulations of Plasma Accelerators and Electron-Neutral Collisions”, *Physical Review ST Accelerators and Beams* **4**, 101302 (2001).

A.18. K. L. Cartwright, J. P. Verboncoeur and C. K. Birdsall, “Loading and Injection of Maxwellian Distributions in Particle Simulations”, *J. Comp. Phys.* **162**, 483-513 (2000).

A.17. H. Usui, J. P. Verboncoeur and C. K. Birdsall, “Development of 1D Object-Oriented Particle-in-Cell Code (1d-XOOPIC)”, *IEICE Transactions on Electronics* **83**, 989-992 (2000).

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A.15. A. Valfells, J. P. Verboncoeur and Y. Y. Lau, “Space charge effects on multipactor on a dielectric”, *IEEE Trans. Plasma Sci.* **28**, 529-536 (2000).

A.14. K. L. Cartwright, J. P. Verboncoeur and C. K. Birdsall, “Nonlinear hybrid-Boltzmann particle-in-cell acceleration algorithm”, *Phys. Plasmas* **7**, 3252-3264 (2000).

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A.10. V. P. Gopinath, J. P. Verboncoeur and C. K. Birdsall, “Multipactor electron discharge physics using an improved secondary emission model”, *Phys. Plasmas* **5**, 1535-1540 (1998).

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A.8. H. Gunell, J. P. Verboncoeur, N. Brenning and S. Torvén, “The Formation of Single-Wavelength Structures in Electron Beam-Plasma Interaction”, *Phys. Rev. Lett.* **77** (1996).

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A.3. J. P. Verboncoeur and N. T. Gladd, “Application of Object-Oriented Design to Particle-in-Cell Plasma Simulations”, in *Technology of Object-Oriented Languages and Systems*, ed. R. Ege, M. Singh, B. Meyer, Prentice-Hall (1994).

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## Book Chapters

B.4. O. Ishihara, G. Candler, C. O. Laux, A. P. Napartovich, L. C. Pitchford, J. P. Boeuf, and J. P. Verboncoeur, “Modeling”, in *Non-Equilibrium Air Plasmas at Atmospheric Pressure*, ed. H. H. Becker, U. Kogelschatz, K. H. Schoenbach, and R. J. Barker, Institute of Physics, 183-275 (2005).

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C.5. C. K. Birdsall and J. P. Verboncoeur, “On the Fly PIC-MCC Demonstrations”, *Czech. J. Phys.* **48**, 151-160 (1998).

C.4. J. P. Verboncoeur and D. Cooperberg, “Electromagnetic PIC modeling with a background gas”, in *Computational Accelerator Physics*, Ed. J. J. Bisognano and A. A. Mondelli, American Institute of Physics, Woodbury, NY (1997).

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D.139 H.C. Kim and J.P. Verboncoeur, “Physics of a single-surface multipactor discharge”, *International Conference on Computational Physics*, Gyeongju, Korea, 2006. (Invited Talk)

D.138 J.P. Verboncoeur and A. Minnich, “A self-consistent computational model for a thermionic energy converter”, *33rd IEEE ICOPS*, Traverse City, MI USA (2006)

D.137 J.P. Verboncoeur, H.C. Kim, Y. Chen, and Y.Y. Lau, “Modeling RF window breakdown: from vacuum multipactor to volumetric ionization discharge”, *27th IEEE International Power Modulator Symposium*, Washington, D.C. USA (2006).

D.136 H.P. Freund, J.P. Verboncoeur and J. Pasour, “Two-dimensional, time-domain simulation of klystrons and inductive output tubes”, *7th IEEE IVEC*, Monterey, CA USA (2006).

D.135 Y. Feng, J.P. Verboncoeur, and Y.Y. Lau, “Transition from Fowler-Nordheim field emission to space charge limited current density in the relativistic and quantum limits”, *7th IEEE IVEC*, Monterey, CA USA (2006).

D.134 H.C. Kim, Y. Chen, J.P. Verboncoeur, and Y.Y. Lau, “Electromagnetic and 3D effects in the multipactor discharge on a dielectric”, *7th IEEE IVEC*, Monterey, CA USA (2006).

D.133 H.C. Kim, J.P. Verboncoeur, G.F. Edmiston, A.A. Neuber, Y.Y. Lau and R.M. Gilgenbach, “Transition of window breakdown from the vacuum multipactor discharge to the collisional rf plasma”, *7th IEEE IVEC*, Monterey, CA USA (2006). (Keynote Address)

D.132 C.-H. Lim and J. P. Verboncoeur, “X-ray generation in energetic surface impact for the particle simulation model of plasmas”, *7th IEEE IVEC*, Monterey, CA USA (2006).

D.131 A. Chotia and J.P. Verboncoeur, “Relativistic radiation damping for simulation”, *Bull Am. Phys. Soc.* **50**, 357 (2005).

D.130 J. Marian, L.A. Zepeda-Ruiz, G.H. Gilmer, C. Mundy, E.M. Bringa, T. Roglien, and J.P. Verboncoeur, “Simulation of carbon production from material surfaces in fusion devices”, *Bull Am. Phys. Soc.* **50**, 86 (2005).

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D.127 A. Wu, M. Lieberman, J. Verboncoeur, “Mechanism of electron heating in radio-frequency capacitive discharges”, *32nd IEEE ICOPS*, Monterey, CA USA (2005).

D.126 A.J. Christlieb, R. Krasny, I.D. Boyd, J. Emhoff and J.P. Verboncoeur, “Grid-free plasma simulations”, *32nd IEEE ICOPS*, Monterey, CA USA (2005), invited.

D.125 J. Hammel, and J.P. Verboncoeur, “1D and 2D PIC-MCC simulations

of DC discharges between planar electrodes”, *32nd IEEE ICOPS*, Monterey, CA USA (2005).

D.124 H.C. Kim and J.P. Verboncoeur, “Effect of electron-neutral collisions in multipactor discharge on a dielectric”, *32nd IEEE ICOPS*, Monterey, CA USA (2005).

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D.122 Y. Feng and J.P. Verboncoeur, “Transition from Fowler-Nordheim field emission to space charge limited current density”, *32nd IEEE ICOPS*, Monterey, CA USA (2005).

D.121 C.H. Lim and J.P. Verboncoeur, “Relativistic collision model for particle simulation”, *32nd IEEE ICOPS*, Monterey, CA USA (2005).

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D.113 J.P. Verboncoeur, Y. Feng, K. Cartwright and T. Murphy, “Space-Charge-Limited Emission Models for Particle Simulation”, *Bull. Am. Phys. Soc.* **49**, 186 (2004).

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D.109 J.P. Verboncoeur, K.L. Cartwright and T. Murphy, "Space-charge limited emission models for particle simulation", *31st IEEE ICOPS*, Baltimore MD (2004).

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- D.87 W. D. Qiu, H. J. Lee, J. P. Verboncoeur, C. K Birdsall, “A Time-Domain 1D Kirchhoff-PIC Code for Coupled Cavity Traveling Wave Tubes”, *28th IEEE ICOPS*, Las Vegas, NV (2001).
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