

Dr. Su Yan

Department of Electrical Engineering and Computer Science
College of Engineering and Architecture, Howard University

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Education

University of Illinois at Urbana-Champaign

Doctor of Philosophy August 2016

Electrical and Computer Engineering

Dissertation: "Computational Modeling and Simulation of Nonlinear Electromagnetic and Multi-physics Problems"

GPA: 3.97/4.00

Master of Science August 2012

Electrical and Computer Engineering

Thesis: "Accuracy Improvement of the Second-Kind Fredholm Integral Equations in Computational Electromagnetics"

GPA: 4.00/4.00

University of Electronic Science and Technology of China

Doctor of Philosophy December 2011

Electromagnetics and Microwave Technology

Dissertation: "Calderón Technique Based Integral Equation Methods in Computational Electromagnetics"

GPA: 3.86/4.00

Bachelor of Science July 2005

Electronic Information Engineering

Thesis: "Analysis of the Near Singularity and Singular Currents in the Simulation of Electromagnetic Scattering Problems"

GPA: 3.75/4.00

Experience

Howard University

Washington, DC

Assistant Professor

August 2018–present

Department of Electrical Engineering and Computer Science

Director of Graduate Studies, Electrical Engineering

June 2020–present

Department of Electrical Engineering and Computer Science

University of Illinois at Urbana-Champaign

Urbana, IL

Postdoctoral Research Associate

August 2016–July 2018

Department of Electrical and Computer Engineering

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| Instructor <i>Department of Electrical and Computer Engineering</i> UIUC List of Teachers Ranked as Excellent by Their Students, Outstanding Rating (top 10%) | August 2012–December 2012, August 2016–May 2018 |
| Graduate Research Assistant <i>Department of Electrical and Computer Engineering</i> | August 2011–July 2012, January 2013–July 2016 |
| Graduate Teaching Assistant <i>Department of Electrical and Computer Engineering</i> | August 2013–May 2014 |
| Visiting Scholar <i>Department of Electrical and Computer Engineering</i> | September 2008–July 2011 |

*Schlumberger**Sugar Land, TX*

Modeling & Simulation Engineer Intern
Houston Formation Evaluation Integration Center (HFE)

June 2014–August 2014

Teaching

Howard University

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| Instructor | Fall 2018 – present |
| EECE 260 – <i>Engineering Programming and Application</i> | Undergraduate course, 3 hours |
| EECE 305 – <i>Fundamentals of Electromagnetics</i> | Undergraduate course, 4 hours |
| EECE 306 – <i>Fundamentals of Electromagnetics Laboratory</i> | Undergraduate course, 1 hour |
| EECE 310 – <i>Principles of Electronics</i> | Undergraduate course, 2 hours |
| EECE 466 – <i>Advanced Electromagnetic Theory</i> | Undergraduate course, 3 hours |
| EECE 501 – <i>Graduate Seminar</i> | Graduate course, 0 hour |
| EECE 520 – <i>Electromagnetic Theory</i> | Graduate course, 3 hours |
| EECE 629 – <i>Numerical Tech for Electromagnetics</i> | Graduate course, 3 hours |
| EECE 695 – <i>Special Topics in Microwaves</i> | Graduate course, 3 hours |

University of Illinois at Urbana-Champaign

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| Instructor | Fall 2012, 2016 – 2018 |
| ECE 210 – <i>Analog Signal Processing</i> | Undergraduate course, 4 hours |
| ECE 211 – <i>Analog Circuits & Systems</i> | Undergraduate course, 2 hours |
| ECE 520 – <i>Electromagnetic Waves & Radiating Systems</i> | Graduate course, 4 hours |
| UIUC List of Teachers Ranked as Excellent by Their Students, Outstanding Rating (top 10%) | |
| Graduate Teaching Assistant | Fall 2013, Spring 2014 |
| ECE 385 – <i>Digital Systems Laboratory</i> | Undergraduate course, 2 hours |
| ECE 540 – <i>Computational Electromagnetics</i> | Graduate course, 4 hours |

Research Interests

Current research interests include all aspects of electromagnetics and multiphysics modeling and simulation methods, high-performance and cloud computing technologies, and machine learning methods, with particular interests and related experiences in the following areas:

1 Electromagnetic Modeling & Simulation Methods

- a Linear and nonlinear electromagnetic modeling and simulation;
- b Forward and inverse problems;
- c Frequency- and time-domain algorithms;
- d Integral-equation- and partial-differential-equation-based methods;
- e Fast algorithms and preconditioning techniques.

2 Multiphysics Modeling & Simulation Methods

- a Electrical–thermal and magnetic–thermal coupling and co-simulation methods;
- b Electromagnetic–particle coupling and co-simulation methods;
- c Spatial and temporal multiscale problems and coupling schemes.

3 Advanced High-Performance Computing Methods

- a High throughput algorithm design;
- b Dynamically h -, p -, and hp -adaptive algorithms in the time domain;
- c Domain decomposition methods and multi-solver schemes;
- d Large-scale parallel computing techniques based on both CPU and GPU platforms.

4 High-Scalability Computing Methods for Cloud Architectures

- a High-scalability method development for cloud computing;
- b Fast parameter sweep methods;
- c Optimization methods: gradient-based and Newton methods for design optimization.

5 High-Performance and High-Scalability Computing for Engineering Applications

- a Electromagnetic radiation, propagation, and scattering: antenna and array analysis, radar cross section (RCS) evaluation;
- b Electromagnetic compatibility (EMC) and electromagnetic interference (EMI) analysis;
- c Microwave, nano- and electronic devices and circuits modeling and analysis;
- d High-speed electrical machine modeling: magnetic loss and hysteresis analysis, magnetic–thermal–structural co-simulation;
- e Bio-electromagnetic problems: specific absorption rate (SAR) modeling and evaluation, analysis of electromagnetic–thermal effects.

6 Machine Learning for Design Optimization

- a Reinforcement learning for antenna array thinning and optimization;
- b Deep learning for microwave filter and circuit design;
- c Electromagnetic inverse problems: microwave and optical imaging, well-logging technologies in oil and gas exploration.

Research Experiences & Projects

Howard University

1. Multiphysics and Multiscale Simulation Methods for Electromagnetic Energy Assisted Fossil Fuel to Hydrogen Conversion, Department of Energy, 6/2021 – 6/2024, PI, In preparation.
2. Center for Electromagnetic Detection and Imaging of Occluded Targets, Army Research Laboratory (ARL), 6/2021 – 5/2026, PI, Pending.
3. Bridging the Gap: From Computational Electromagnetics to Computational Quantum Electrodynamics, IBM, 3/2021 – 8/2022, PI, Pending.

4. Research Initiation Awards: Theoretical and Computational Methods for the Robust Retrieval of Effective Electromagnetic Properties of Random Composite Materials, National Science Foundation, 6/1/2021 – 5/31/2024, PI, Pending.
5. Excellence in Research: Eigen-Space-Based Computational Electromagnetic Methods for Modeling and Simulation of Large and Complex Problems, National Science Foundation, 6/1/2021 – 5/31/2024, PI, Pending.
6. A Novel Numerical Method for Electronic Circuit Modeling, Howard University, \$500, 5/19/2020 – 9/25/2020, PI, Awarded.
7. A Novel Approach to Coronagraph Design for ExoEarth Observations, JPL, NASA, \$40,000, 1/30/2020 – 9/27/2020, Co-PI, Awarded.
8. Advanced Computational Methods for Electromagnetic-Based Multiphysics and Multiscale Problems, Howard University, \$10,000, 5/16/2019 – 8/15/2019, PI, Awarded.

Schlumberger

Manager: Doctor Gong Li Wang, Doctor Aria Abubakar, Doctor Jaideva Goswami

1. Nonlinear inversion in triaxial induction well logging

University of Illinois at Urbana-Champaign

Advisor: Professor Jian-Ming Jin

1. Machine learning methods in computational electromagnetics
2. Nonlinear electromagnetic modeling & simulation in time domain
3. Computational methods for multiphysics & multiscale modeling & simulation
4. Advanced numerical methods towards highly accurate, efficient, & stable simulations
5. Domain-decomposition methods & multi-solver schemes
6. Efficient electromagnetic & multiphysics simulation with GPU acceleration
7. Highly accurate integral equations for electromagnetic problems
8. Advanced Calderón preconditioning techniques
9. Novel integral equation for modeling imperfectly coated objects
10. Minimizing exposure to electromagnetic radiation with multiple transmitter chains in portable devices
11. Scattering analysis of discrete body of revolution objects using the FE-BI method

University of Electronic Science and Technology of China

Advisor: Professor Zaiping Nie

1. Accurate modeling of the scattering from composite dielectric-conducting objects
2. Phase-extracted basis functions for electrically large scattering problems
3. Novel surface integral equations for electromagnetic scattering

Society Membership

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| Senior Member Institute of Electrical and Electronics Engineers (IEEE) IEEE Antennas and Propagation (AP) Society IEEE Microwave Theory and Techniques (MTT) Society | 2017–present |
| Life Member Applied Computational Electromagnetics Society (ACES) | 2011–present |
| Member Institute of Electrical and Electronics Engineers (IEEE) IEEE Antennas and Propagation (AP) Society | 2012–2016 |
| Student Member Institute of Electrical and Electronics Engineers (IEEE) IEEE Antennas and Propagation (AP) Society | 2008–2011 |

Honors, Awards, & Fellowships

1. Edward E. Altschuler AP-S Magazine Prize Paper Award, IEEE Antennas and Propagation Society, 2020
2. Faculty Scholar, Junior Faculty Writing and Creative Works Summer Academy, Howard University, 2020
3. ACES Early Career Award, "For contributions to linear and nonlinear electromagnetic and multi-physics modeling and simulation methods." Applied Computational Electromagnetics Society (ACES), 2020
4. Summer Faculty Research Fellowship, Howard University, 2019
5. Outstanding Reviewer, Journal of Computational Physics, November, 2018
6. Best Student Paper Award, The First Place Winner, ACES, Honolulu, HI, 2016
7. USNC/URSI Travel Fellowship Grant Award, The National Academies (NAS), 2015
8. P. D. Coleman Outstanding Research Award, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, 2015
9. Yuen T. Lo Outstanding Research Award, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, 2014
10. Outstanding Doctoral Dissertation, Sichuan Provincial People's Government, 2014
11. UIUC List of Teachers Ranked as Excellent by Their Students, Outstanding Rating (top 10%), University of Illinois at Urbana-Champaign, Fall 2012
12. Outstanding Graduate Student (Highest honor from the university, ten recipients annually), UESTC, 2011
13. Best Student Paper Award, The First Place Winner, ACES, Williamsburg, VA, 2011
14. Best Student Paper Award, IEEE Chengdu Section, 2010
15. Distinguished Dissertation Award, UESTC, 2005
16. China Aerospace Science and Technology Corporation (CASC) Scholarship, CASC, 2011

17. Scholarship for Graduates, UESTC, The Top Grade, 2006; The 2nd Grade, 2008 and 2009; and The 3rd Grade, 2010
18. People's Scholarship for Undergraduates, UESTC, The 3rd Grade, 2002; The 2nd Grade, 2003 and 2004; and The 1st Grade, 2005
19. National Mathematical Modeling Competition, The 3rd Award, Sichuan, China, 2003
20. Mathematical Modeling Competition, The 3rd Award, UESTC, 2002

Professional Activities

Journal Editorship

Academic Editor, *PeerJ Computer Science*, 2020–present.

Associate Editor, *IEEE Access*, 2019–present.

Associate Editor & Editorial Board Member, *International Journal of Numerical Modelling: Electronic Networks, Devices and Fields*, 2019–present.

Editorial Board Member, *Advances in Mathematical Physics*, 2018–present.

Guest Editor of a special issue "Challenges and Endeavors of Over-the-Air (OTA) and Electromagnetic Compatibility (EMC) Tests for 5G Radios" for *IEEE Access*, scheduled, 2021.

Guest Editor of a special issue "Multiscale Modeling and Simulation Methods for Electromagnetic and Multiphysics Problems" for *International Journal of Numerical Modelling: Electronic Networks, Devices and Fields*, scheduled, 2021.

Lead Guest Editor of a special issue "Advanced Modeling and Simulation Methods for Multiphysics and Multiscale Problems" for *International Journal of Antennas and Propagation*, published, August 18, 2017. (Call for papers can be found [here](#).)

Conference Committees

Steering Committee Member, Publicity and Communications Chair, IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, Denver, CO, USA, 2022.

Steering Committee Member, 2021 International Applied Computational Electromagnetics Society (ACES) Symposium, Online meeting due to pandemic, August, 2021.

Member of Technical Program Committee, Symposium on Recent Advances in Communication Theory, Information Theory, Antennas and Propagation (CIAP'20), Chennai, India, October 14–17, 2020.

Special Session Organizer and Chair, 2020 International Applied Computational Electromagnetics Society (ACES) Symposium, Monterey, CA, USA, March 22–26, 2020.

Special Session Organizer and Chair, IEEE International Conference on Computational Electromagnetics (ICCEM), Singapore, March 25–27, 2020.

Special Session Organizer, International Conference on Electromagnetics in Advanced Applications (ICEAA), Granada, Spain, September 9–13, 2019.

Special Session Organizer and Chair, IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, Atlanta, GA, USA, July 7–12, 2019.

Member of Organizing Committee, Short Course/Tutorial Chair, IEEE MTT-S International Conference on Numerical Electromagnetic and Multiphysics Modeling and Optimization (NEMO 2019), Cambridge, MA, USA, May 29–31, 2019.

Special Session Organizer and Chair, 2019 International Applied Computational Electromagnetics Society (ACES) Symposium, Miami, FL, USA, April 14–18, 2019.

Session Chair, IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, Boston, MA, USA, July 2018.

Member of Technical Program Committee, International Applied Computational Electromagnetics Society (ACES) Symposium, Beijing, China, July 2018.

Session Organizer and Chair, IEEE International Conference on Computational Electromagnetics (IC-CEM), Chengdu, China, March 2018.

Session Chair, IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, San Diego, CA, USA, July 2017.

Member of Scientific Committee, 13th International Workshop on Finite Elements for Microwave Engineering, Florence, Italy, May 2016.

Member of Scientific Committee and Session Chair, 12th International Workshop on Finite Elements for Microwave Engineering, Chengdu, China, May 2014.

Journal and Proposal Review

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| NSF Reviewer | 2020 |
| Journal of Computational Physics | 2018–present |
| Computer Physics Communications | 2019–present |
| Proceedings of the IEEE | 2011–present |
| IEEE Access | 2018–present |
| IEEE Antennas and Propagation Magazine | 2014–present |
| IEEE Transactions on Antennas and Propagation | 2011–present |
| IEEE Transactions on Microwave Theory and Techniques | 2015–present |
| IEEE Transactions on Magnetics | 2014–present |
| IEEE Transactions on Plasma Science | 2020–present |
| IEEE Journal on Multiscale and Multiphysics Computational Techniques | 2018–present |
| IEEE Photonics Journal | 2017–present |
| IEEE Antennas and Wireless Propagation Letters | 2013–present |
| IET Microwaves, Antennas and Propagation | 2014–present |
| Scientific Reports | 2017–present |
| Electromagnetics | 2013–present |
| Applied Computational Electromagnetics Society (ACES) Journal | 2010–present |
| Waves in Random and Complex Media | 2015–present |
| Progress In Electromagnetics Research (PIER) | 2009–present |
| Journal of Electromagnetic Waves and Applications (JEMWA) | 2009–present |
| International Journal of Antennas and Propagation | 2015–present |
| International Journal of Numerical Modelling: Electronic Networks, Devices and Fields | 2015–present |
| Computers in Biology and Medicine | 2018–present |
| International Journal of RF and Microwave Computer-Aided Engineering | 2016–present |
| Elsevier, Engineering Science and Technology (JESTECH) | 2014–present |
| Universal Journal of Electrical and Electronic Engineering | 2015–present |

Departmental Service

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| 1. Faculty Search Committee | 2020 |
| 2. The Laboratory Committee | 2019–present |
| 3. EE/CpE Curriculum & Assessment Committee | 2018–present |

University Service

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| 1. Judge | |
| Howard University Research Symposium | April 11, 2019 |

Invited Talks

1. Computational Electromagnetics Research: An Overview and Case Studies, NSF-sponsored workshop, Online Summer Research Experiences on Nanoparticles, May 18–29, 2020
2. Computational Electromagnetics Research: A Brief Overview, Howard University Research Retreat Symposium, April 9, 2019
3. All-Frequency Stable Finite-Element Formulation and Application in Electromagnetic Multiscale Problems, Howard University Research Symposium, April 11, 2019
4. Computational Modeling and Simulation of Electromagnetic and Multiphysics Problems: Challenges and Opportunities, Department of Electrical Engineering and Computer Science, Howard University, April 5, 2018
5. Computational Modeling and Simulation Methods for Electromagnetic and Multiphysics Problems, Resonant Inc., Santa Barbara, CA, March 20, 2018
6. Computational Modeling and Simulation Methods for Electromagnetic and Multiphysics Problems, School of Engineering and Technology, Central Michigan University, March 16, 2018
7. Computational Modeling and Simulation of Electromagnetic and Multiphysics Problems: Challenges and Opportunities, Department of Electrical and Computer Engineering, University of Wisconsin–Madison, August 15, 2017
8. Computational Modeling and Simulation of Electromagnetic and Multiphysics Problems: Challenges and Opportunities, Department of Electrical and Computer Engineering, Stony Brook University, May 11, 2017
9. CEM Challenges in Multiphysics Modeling and Simulation, IEEE International Symposium on Antennas and Propagation, Fajardo, Puerto Rico, June 30, 2016
10. Calderón Technique Based Integral Equation Methods in Computational Electromagnetics, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, August 30, 2011

Publications

1 edited book, **1** book chapter, **36** journal articles, **55** full conference papers, **18** conference abstracts.
Citations: **826**, h-index: **16**, i10-index: **29**. (as of January 15, 2021, based on Google Scholar)

Book Chapter

1. Q. Ren, **Su Yan**, and A. Elsherbeni (ed.), *Advances in Time-Domain Computational Electromagnetic Methods*, Hoboken, NJ: John Wiley & Sons, Inc., 2021. In Preparation.
2. B. M. Notaroš and **Su Yan**, "New Trends in Finite Element Methods," in *New Trends in Computational Electromagnetics*, Ö. Ergül (ed.), The IET, pp. 259–313, Oct., 2019.

Journal Articles

1. **Su Yan**, P. Chen, M. Wade, T. L. Gill, and J. T. Trauger, "Coronagraph pupil–mask co-design and sensitivity analysis based on the method of moments and model order reduction," 2021, In Preparation.
2. **Su Yan**, "A continuous–discontinuous Galerkin method for electromagnetic simulations based on an all-frequency stable formulation," *IEEE Trans. Antennas Propag.*, 2020, Under Review.
3. **Su Yan** and J.-M. Jin, "An enhanced transient solver with dynamic p -adaptation and multirate time integration for electromagnetic and multiphysics simulations," *International Journal of Numerical Modelling: Electronic Networks, Devices and Fields*, Jun. 2019, <https://doi.org/10.1002/jnm.2626>.
4. J.-M. Jin and **Su Yan**, "Multiphysics modeling in electromagnetics: Technical challenges and potential solutions," *IEEE Antennas Propag. Mag.*, vol. 61, no. 2, pp. 14–26, Apr. 2019.
5. P. Karimi, X. Zhang, **Su Yan**, M. Ostojca-Starzewski, and J.-M. Jin, "Electrostatic and magnetostatic properties of random materials," *Phys. Rev. E*, vol. 99, p. 022120, Feb. 2019.
6. **Su Yan**, J. Qian, and J.-M. Jin, "An advanced electromagnetic–plasma simulator based on the discontinuous Galerkin time-domain algorithm with dynamic adaptation and multirate time integration techniques," *IEEE J. Multiscale and Multiphys. Comput. Techn.*, vol. 4, pp. 76–87, Feb. 2019.
7. **Su Yan**, A. D. Greenwood, and J.-M. Jin, "Simulation of high-power microwave air breakdown modeled by a coupled Maxwell–Euler system with a non-Maxwellian EEDF," *IEEE Trans. Antennas Propag.*, vol. 66, no. 4, pp. 1882–1893, Apr. 2018.
8. G. Chen, L. Zhao, W. Yu, **Su Yan**, K. Zhang, and J.-M. Jin, "A general scheme for the DGTD modeling and S-parameter extraction of inhomogeneous waveports," *IEEE Trans. Microw. Theory Tech.*, vol. 66, no. 4, pp. 1701–1712, Apr. 2018.
9. **Su Yan**, J. D. Kotulski, and J.-M. Jin, "Nonlinear multiphysics and multiscale modeling of dynamic ferromagnetic–thermal problems," *J. Appl. Phys.*, vol. 123, no. 10, p. 105107, Mar. 2018.
10. J. Li, **Su Yan**, Y. Liu, B. M. Hochwald, and J.-M. Jin, "A high-order model for fast estimation of specific absorption rate induced by multiple transmitters in portable devices," *IEEE Trans. Antennas Propag.*, vol. 65, no. 12, pp. 6768–6778, Dec. 2017.
11. **Su Yan**, C.-P. Lin, R. R. Arslanbekov, V. I. Kolobov, and J.-M. Jin, "A discontinuous Galerkin time-domain method with dynamically adaptive Cartesian meshes for computational electromagnetics," *IEEE Trans. Antennas Propag.*, vol. 65, no. 6, pp. 3122–3133, Jun. 2017.
12. **Su Yan** and J.-M. Jin, "A dynamic p -adaptive DGTD algorithm for electromagnetic and multiphysics simulations," *IEEE Trans. Antennas Propag.*, vol. 65, no. 5, pp. 2446–2459, May 2017.
13. **Su Yan** and J.-M. Jin, "A continuity-preserving and divergence-cleaning algorithm based on purely and damped hyperbolic Maxwell equations in inhomogeneous media," *J. Comput. Phys.*, vol. 334, pp. 392–418, Apr. 2017.
14. J. Guan, **Su Yan**, and J.-M. Jin, "A multi-solver scheme based on combined field integral equations for electromagnetic modeling of highly complex objects," *IEEE Trans. Antennas Propag.*, vol. 65, no. 3, pp. 1236–1247, Mar. 2017.

15. C.-P. Chang, G. Chen, **Su Yan**, and J.-M. Jin, "Waveport modeling for the DGTD simulation of electromagnetic devices," *International Journal of Numerical Modelling: Electronic Networks, Devices and Fields*, pp. 1–9, Feb. 2017.
16. Y. Wang, **Su Yan**, and Z. Nie, "A point-adaptive grouping scheme of MLFMA for electromagnetic simulation," *IEEE Trans. Antennas Propag.*, vol. 64, no. 12, pp. 5527–5530, Dec. 2016.
17. J. Guan, **Su Yan**, and J.-M. Jin, "A multisolver scheme based on Robin transmission conditions for electromagnetic modeling of highly complex objects," *IEEE Trans. Antennas Propag.*, vol. 64, no. 12, pp. 5345–5358, Dec. 2016.
18. **Su Yan** and J.-M. Jin, "A fully coupled nonlinear scheme for time-domain modeling of high-power microwave air breakdown," *IEEE Trans. Microw. Theory Tech.*, vol. 64, no. 9, pp. 2718–2729, Sept. 2016.
19. **Su Yan**, A. D. Greenwood, and J.-M. Jin, "Modeling of plasma formation during high-power microwave breakdown in air using the discontinuous Galerkin time-domain method (Invited Paper)," *IEEE J. Multiscale and Multiphys. Comput. Techn.*, vol. 1, pp. 2–13, 2016.
20. **Su Yan** and J.-M. Jin, "Three-dimensional time-domain finite-element simulation of dielectric breakdown based on nonlinear conductivity model," *IEEE Trans. Antennas Propag.*, vol. 64, no. 7, pp. 3018–3026, Jul. 2016.
21. **Su Yan** and J.-M. Jin, "Theoretical formulation of a time-domain finite element method for nonlinear magnetic problems in three dimensions (Invited Paper)," in *the Commemorative Collection on the 150-Year Anniversary of Maxwell's Equations, Progress In Electromagnetics Research*, vol. 153, pp. 33–55, 2015.
22. **Su Yan**, J.-M. Jin, C.-F. Wang, and J. Kotulski, "Numerical study of a time-domain finite element method for nonlinear magnetic problems in three dimensions (Invited Paper)," *Progress In Electromagnetics Research*, vol. 153, pp. 69–91, 2015.
23. J. Guan, **Su Yan**, and J.-M. Jin, "An accurate and efficient finite element-boundary integral method with GPU acceleration for 3-D electromagnetic analysis," *IEEE Trans. Antennas Propag.*, vol. 62, no. 12, pp. 6325–6336, Dec. 2014.
24. B. M. Hochwald, D. J. Love, **Su Yan**, P. Fay, and J.-M. Jin, "Incorporating specific absorption rate (SAR) constraints into wireless signal design," *IEEE Commun. Mag.*, vol. 52, no. 9, pp. 126–133, Sept. 2014.
25. **Su Yan** and J.-M. Jin, "Self-dual surface integral equations for electromagnetic scattering from IBC objects," *IEEE Trans. Antennas Propag.*, vol. 61, no. 11, pp. 5533–5546, Nov. 2013.
26. J. Guan, **Su Yan**, and J.-M. Jin, "An openMP-CUDA implementation of multilevel fast multipole algorithm for electromagnetic simulation on multi-GPU computing systems," *IEEE Trans. Antennas Propag.*, vol. 61, no. 7, pp. 3607–3616, July 2013.
27. **Su Yan**, J.-M. Jin, and Z. Nie, "Accuracy improvement of the second-kind integral equations for generally shaped objects," *IEEE Trans. Antennas Propag.*, vol. 61, no. 2, pp. 788–797, Feb. 2013.
28. Z. Nie, S. Ren, **Su Yan**, S. He, and J. Hu, "Modified phase extracted basis functions for efficient analysis of scattering from electrically large targets," *Proc. IEEE*, vol. 101, no. 2, pp. 401–413, Feb. 2013.
29. **Su Yan**, S. Ren, Z. Nie, S. He, and J. Hu, "Efficient analysis of electromagnetic scattering from electrically large complex objects by using phase extracted basis functions," *IEEE Antennas Propag. Mag.*, vol. 54, no. 5, pp. 88–108, Oct. 2012.
30. **Su Yan**, J.-M. Jin, and Z. Nie, "Analysis of electrically large problems using the augmented EFIE with a Calderón preconditioner," *IEEE Trans. Antennas Propag.*, vol. 59, no. 6, pp. 2303–2314, June 2011.

31. **Su Yan**, J.-M. Jin, and Z. Nie, "Improving the accuracy of the second-kind Fredholm integral equations by using the Buffa-Christiansen functions," *IEEE Trans. Antennas Propag.*, vol. 59, no. 4, pp. 1299–1310, Apr. 2011.
32. **Su Yan**, J.-M. Jin, and Z. Nie, "Calderón preconditioner: From EFIE and MFIE to N-Müller equations," *IEEE Trans. Antennas Propag.*, vol. 58, no. 12, pp. 4105–4110, Dec. 2010.
33. **Su Yan**, J.-M. Jin, and Z. Nie, "A comparative study of Calderón preconditioners for PMCHWT equations," *IEEE Trans. Antennas Propag.*, vol. 58, no. 7, pp. 2375–2383, July 2010.
34. **Su Yan**, J.-M. Jin, and Z. Nie, "EFIE analysis of low-frequency problems with loop-star decomposition and Calderón multiplicative preconditioner," *IEEE Trans. Antennas Propag.*, vol. 58, no. 3, pp. 857–867, Mar. 2010. (**Best Student Paper Award, IEEE Chengdu Section, 2010**)
35. **Su Yan**, S. He, Z. Nie, and J. Hu, "Simulating wide band radar response from PEC targets using phase extracted basis functions," *Progress In Electromagnetics Research B*, vol. 13, pp. 409–431, 2009.
36. Z. Nie, **Su Yan**, S. He, and J. Hu, "On the basis functions with traveling wave phase factor for efficient analysis of scattering from electrically large targets," *Progress In Electromagnetics Research*, vol. 85, pp. 83–114, 2008.

Full Conference Papers

1. **Su Yan**, "A continuous-discontinuous Galerkin method for the modeling and simulation of electromagnetic multiscale problems," in *Proc. ICEAA-IEEE APWC 2020*, Honolulu, Hawaii, USA, Aug. 2020.
2. **Su Yan**, "All-frequency stable potential-based formulation for electromagnetic modeling and simulation," in *Proc. IEEE Antennas Propag. Symp.*, Atlanta, GA, USA, July 2019.
3. **Su Yan** and J.-M. Jin, "Advanced discontinuous Galerkin time-domain methods for challenging engineering problems," in *Proc. IEEE Antennas Propag. Symp.*, Atlanta, GA, USA, July 2019.
4. **Su Yan** and J.-M. Jin, "A DGTD-based multiscale simulator for electromagnetic multiphysics problems," in *Proc. IEEE Antennas Propag. Symp.*, Atlanta, GA, USA, July 2019.
5. **Su Yan**, "Effective electromagnetic parameter extractions for porous media using a potential-based formulation," in *2019 International Applied Computational Electromagnetics Society (ACES) Symposium*, Miami, FL, USA, April 2019.
6. J. Guan, **Su Yan**, K. Zhang, and J.-M. Jin, "A parallelized multi-solver algorithm for solving large and complex electromagnetic problems," in *Proc. ICEAA-IEEE APWC 2018*, Cartagena De Indias, Colombia, Sept. 2018.
7. **Su Yan** and J.-M. Jin, "An efficient transient EM solver with dynamic p -adaptation and multirate time integration," in *Proc. IEEE Antennas Propag. Symp.*, Boston, MA, USA, July 2018.
8. **Su Yan** and J.-M. Jin, "A multiscale time integration method for coupled nonlinear electrical–thermal simulation," in *Proc. IEEE Antennas Propag. Symp.*, Boston, MA, USA, July 2018.
9. **Su Yan**, J.-M. Jin, R. R. Arslanbekov, and V. I. Kolobov, "A dynamically h -adaptive discontinuous Galerkin time-domain method for electromagnetic field simulation," in *Proc. ICEAA-IEEE APWC 2017*, Verona, Italy, Sept. 2017.
10. **Su Yan**, A. D. Greenwood, and J.-M. Jin, "DGTD simulation of HPM air breakdown using a 5-moment fluid model and non-Maxwellian EEDF," in *Proc. IEEE Antennas Propag. Symp.*, San Diego, CA, USA, July 2017.
11. **Su Yan**, J. Kotulski, and J.-M. Jin, "Magnetic–thermal co-simulation of nonlinear magnetic materials at high frequencies," in *Proc. IEEE Antennas Propag. Symp.*, San Diego, CA, USA, July 2017.

12. J. Guan, **Su Yan**, and J.-M. Jin, "Electromagnetic simulation of specific absorption rate at 5G frequencies with a simplified human head model and a multi-solver method," in *Proc. IEEE Antennas Propag. Symp.*, San Diego, CA, USA, July 2017.
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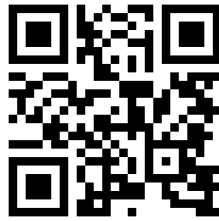
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