

Jacob Stephens

Education:

PhD, Electrical Engineering, May 2015, Texas Tech University, Lubbock, TX, USA
MS, Electrical Engineering, December 2011, Texas Tech University, Lubbock, TX, USA
BS, Electrical Engineering, May 2011, Texas Tech University, Lubbock, TX, USA

Academic experience:

Sep. 2019 – present: Assistant professor, Department of Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, USA
Feb. 2018 – Aug. 2019 Research scientist, MIT Plasma Science and Fusion Center, Cambridge, MA, USA
Feb. 2016 – Jan. 2018 Post-doctoral research associate, MIT Plasma Science and Fusion Center, Cambridge, MA, USA

Non-academic experience: None

Certifications or professional registrations:

MIT Kaufmann Teaching Program Certification, May 2018

Current membership in professional organizations:

Institute for electrical and electronics engineers

Honors and awards: none

Service activities:

- Guest Editor, 2022 IEEE Transactions on Plasma Science Special Issue on High Power Microwaves
- IEEE Nuclear and Plasma Sciences Society, Pulsed Power Science and Technology, committee member 2022
- Session Chair for the 2022 IEEE International Power Modulator and High Voltage Conference
- Co-coordinator of 2022 LXCat Ion Transport Workshop
- Technical area coordinator for the 2021 IEEE Pulsed Power Conference
- Session Chair for the 2021 IEEE International Conference on Plasma Science
- Graduate Studies Committee, Texas Tech ECE 2021
- Faculty Search Committee, Texas Tech ECE 2021
- Safety committee, Texas Tech ECE 2021
- Project laboratory subcommittee, Texas Tech ECE 2021
- Physics and fields subcommittee, Texas Tech ECE 2020
- Technical area coordinator for the 2019 IEEE Pulsed Power and Plasma Science Conference
- Publication peer-review (IEEE Trans. Plasma Sci., Phys. Plasmas, Appl. Phys. Lett., etc.)

Important publications (from the past 5 years):

- (Open Access) A.T. Hewitt, B. Esser, R.P. Joshi, J. Mankowski, J. Dickens, A. Neuber, R. Lee, J. Stephens, “Optically Activated In-Waveguide Semiconductor Attenuators for the Controllable Isolation of Ka-band Microwaves” *IEEE Trans. Microwave Theory and Techniques*, **70**, pp. 2217-2223 (2022).
- J. Stephens, “A Multi-Term, Multi-Harmonic Boltzmann Equation Model for Kinetic Behavior in Intense Microwave and Terahertz Excited Low Temperature Plasmas”, *Phys. Plasmas*, **25**, 103502 (2018).
- J. Stephens, “A Multi-Term Boltzmann Equation Benchmark of Electron-Argon Cross-Sections in Low Temperature Plasma Environments”, *J. Phys. D: Appl. Phys.* **51**, 125203 (2018).
- M. Flynn, A. Neuber, J. Stephens, “Benchmarking the calculation of electrically insulating properties of complex gas mixtures using a multi-term Boltzmann equation model” *J. Phys. D: Appl. Phys.* **55**, 015201, (2022).
- M. Tahiyat, J. Stephens, V. Kolobov, T. Farouk, “Striations in moderate pressure dc driven nitrogen glow discharge” *J. Phys. D: Appl. Phys.* **55**, 085201 (2022).
- L. Silvestre, Z.C. Shaw, T. Sugai, J. Stephens, J.J. Mankowski, J. Dickens, A.A. Neuber, R.P. Joshi, “A continuum approach for multipactor using Vlasov-Poisson analysis” *J. Phys. D: Appl. Phys.* **55**, 045202 (2022).
- Carbone, E.; Graef, W.; Hagelaar, G.; Boer, D.; Hopkins, M.M.; Stephens, J.C.; T. Yee, B.; Pancheshnyi, S.; van Dijk, J.; Pitchford, L.; “Data Needs for Modeling Low-Temperature Non-Equilibrium Plasmas: The LXCat Project, History, Perspectives and a Tutorial” *Atoms* **9**, (2021).
- A.T. Hewitt, R. Lee, S. Watkins, J. Brinkman, J. Stephens, J. Dickens, A. Neuber “Apparatus for Skidding Sensitivity Testing of Energetic Materials”, *Rev. Sci. Instrum.* **92**, 045101 (2021).
- F. Liu, L. Nie, X. Lu, J. Stephens, K. Ostrikov, “Atmospheric plasma VUV photon emission”, *Plasma Sources Sci. Technol.* **29**, 065001 (2020).
- J. C. Stephens, G. Rosenzweig, M. A. Shapiro, R. J. Temkin, J. C. Tucek, and K. E. Kreisler, “Subterahertz Photonic Crystal Klystron Amplifier”, *Phys. Rev. Lett.* **123**, 244801 (2019).
- J.F. Picard, S.C. Schaub, G. Rosenzweig, J.C. Stephens, M.A. Shapiro, R.J. Temkin, “Laser-Driven Semiconductor Switch for Generating Nanosecond Pulses from a Megawatt Gyrotron”, *Appl. Phys. Lett.* **114**, 164102 (2019).

Recent professional development activities:

- American Society for Engineering Education (ASEE)
- Junior Faculty Institute (October 2022).