DAVID H. BARNETT, PhD., P.E.
Engineering Design & Testing Corporation
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EDT
Forensic Engineering & Consulting

ENGINEER: ELECTRICAL

EDUCATION

2019 — **Doctorate of Philosophy, Electrical Engineering**
Texas Tech University

2015 — **Master of Science, Electrical Engineering**
Texas Tech University

2013 — **Bachelor of Science, Electrical Engineering**
Texas Tech University

EXPERIENCE

January 2026 to Present — **Engineering Design & Testing Corp.**
Overland Park, Kansas

Consulting Engineer
Specialized consulting in the area of electrical engineering for commercial, industrial and residential systems, including system failures, damage assessment/evaluation, code and standards compliance, troubleshooting of electrical equipment and control systems. Preparation of repair/replace cost estimates.

August 2019 to January 2026 — **Scientific Applications & Research Associates.**
Colorado Springs, Colorado

Pulsed Power Engineer
Performed high-voltage testing of devices and equipment, including setup, execution, data collection, and interpretation of results under controlled and stress conditions. Designed and evaluated microwave and high-voltage systems, supporting both experimental and operational applications. Conducted circuit modeling, data processing, and system integration to predict performance, validate designs, and correlate simulations with measured results. Lead failure analysis of circuits and assemblies, identifying root causes, implementing corrective actions, and improving reliability and safety margins. Provided technical and team leadership, coordinating multidisciplinary efforts, guiding design and testing activities, and supporting project execution from concept through validation.

January 2013 to August 2019 — **Texas Tech University.**
Lubbock, Texas

Sr. Research Associate (May 2016 – August 2019)

Research Assistant (January 2013 – May 2016)

Oversaw 2–3 concurrent projects while mentoring research assistants on daily tasks. Conducted circuit and control board design, device testing, and failure evaluation, with responsibility for mechanical and high-voltage electrical design. Applied a wide range of simulation tools, PCB design software, and laboratory and fabrication equipment to support end-to-end system development.

March 2008 to December 2013 **Hall Electrical Services.** ***Odessa, Texas***

Electrician
Designed, supervised, installed, and approved electrical systems in compliance with the National Electrical Code (NEC), state and local amendments, and safety regulations. Work on power distribution systems, service entrances, feeders, switchgear, panels, grounding and bonding systems, lighting and controls, motor and control systems, and emergency and standby power systems. Worked across residential, commercial, and industrial environments, including single- and multi-family housing, offices, retail spaces, manufacturing plants, warehouses, and critical infrastructure, overseeing new construction, renovations, and troubleshooting of existing electrical systems.

May 2013 to August 2013 **Oncor Electric Delivery Co LLC.** ***Midland, Texas***

Intern in Large Commercial and Industrial Customers
Customer interface to support large engineering projects within Oncor.

May 2012 to August 2012 **Oncor Electric Delivery Co LLC.** ***Fort Worth, Texas***

Intern in Network Design Group
Design of electrical delivery network configured systems for high reliability services i.e. high rise building, critical infrastructure.

May 2011 to August 2011 **Oncor Electric Delivery Co LLC.** ***Fort Worth, Texas***

Intern in System Protection Group
Generate and issue transmission relay updates. Evaluation of fault data in software (aspen oneliner), verify compliance with FERC.

EXPERIENCE

Representative Investigations (partial list)

Description

Residential Fire — Denver, Colorado

Consultation regarding root cause and origin of house building fire. Conduct onsite examination; provide engineering opinion regarding root cause and origin of fire.

Damage to Electrical System — Steamboat Springs*, Colorado*

Consultation regarding cause and scope of damage to electrical system in a residential home.. Conduct onsite examinations; conduct evaluation of electrical system; review reports and other publications; provide engineering opinion regarding cause and scope of damage.

REGISTRATIONS and CERTIFICATIONS

Licensed Master Electrician in Colorado (3000374)

Registered Professional Engineer in Colorado (56547)

Registered Professional Engineer in Texas (130996)

Registered Professional Engineer in Utah (14272359-2202)

Licensed Ham Radio Operator (KF0VJZ)

PROFESSIONAL ORGANIZATIONS

Institute of Electrical and Electronic Engineers (IEEE)

International Association of Arson Investigators (IAAI)

National Association of Fire Investigators (NAFI)

National Fire Protection Association (NFPA)

American Radio Relay League (AARL)

PUBLICATIONS

Barnett, D. H., et al. "Optically isolated, 2 kHz repetition rate, 4 kV solid-state pulse trigger generator." *Review of Scientific Instruments* 86.3 (2015): 034702.

Barnett, D. H., et al. "160 J, 100 HZ repetition rate, compact Marx generator and high-power microwave system." *2017 IEEE 21st International Conference on Pulsed Power (PPC)*. IEEE, 2017.

Barnett, D. H., et al. "Results of a compact reflex triode with multi cavity adjustment." *Pulsed Power (PPC), 2017 IEEE 21st International Conference on*. IEEE, 2017.

Barnett, David H., et al. "A modular, high REP-RATE, fast-risetime, optically-isolated, pulse trigger generator." *Pulsed Power Conference (PPC), 2015 IEEE*. IEEE, 2015.

Barnett, David H., et al. "A Reflex Triode System with Multi Cavity Adjustment" IEEE Transactions on Plasma Science

Johnson, J. M., Reale, D. V., Cravey, W. H., Garcia, R. S., Barnett, D. H., Neuber, A. A., & Mankowski, J. J. (2015). “Material selection of a ferrimagnetic loaded coaxial delay line for phasing gyromagnetic nonlinear transmission lines”. Review of Scientific Instruments, 86(8), 084702.

Woodrum, Randall B. and Barnett, David H. and Dickens, James C. and Neuber, Andreas A. “Developing Safe Lathing Parameters for PBX 9501” Propellants, Explosives, Pyrotechnics 43(8), (pp. 779-788), July 2018

PROCEEDINGS

2018 Barnett, D. H., A. Neuber, and J. Mankowski. "CST Particle-In-Cell Modeling Of A Tunable Reflex-Triode Vircator" *2018 IEEE 22st International Conference on Pulsed Power (PPC)*. IEEE, 2018.

2018 Gaus, Henry J. III, Barnett, D. H., Jaxom Hartman, James. C. Dickens, Andreas A. Neuber, and John J. Mankowski. "High-Speed Imaging Of Exploding Detonators" *2018 IEEE 22nd International Conference on Pulsed Power (PPC)*. IEEE, 2018.

2017 Barnett, D. H., et al. "Results of a compact reflex triode with multi cavity adjustment." *Pulsed Power (PPC), 2017 IEEE 21st International Conference on*. IEEE, 2017.

2016 Rainwater, K., D. Barnett, C. Lynn, J. Dickens, A. Neuber, and J. Mankowski. "A 160 J, 100 Hz rep rate, compact Marx generator for driving and HPM source." In Power Modulator and High Voltage Conference (IPMHVC), 2016 IEEE International, pp. 228-230. IEEE, 2016.

2015 Parson, J. M., Lynn, C. F., Barnett, D. H., Holt, S. L., Kelly, P. M., Dickens, J. C., & Mankowski, J. J. “Repetitive Operation Of A Megawatt Class Reflex-Triode Vircator”. In Pulsed Power Conference (PPC), 2015 IEEE (pp. 1-3). IEEE May 2015

2015 Barnett, David H., et al. "A Modular, High REP-RATE, Fast-Risetime, Optically-Isolated, Pulse Trigger Generator." *Pulsed Power Conference (PPC), 2015 IEEE*. IEEE, 2015.

2015 Johnson, J., D. Reale, D. Barnett, R. Garcia, W. Cravey, J. Parson, A. Neuber, J. Dickens, and J. Mankowski. "1 kHz rep-rate operation of a spark-gap switched gyromagnetic nonlinear transmission line array." In Pulsed Power Conference (PPC), 2015 IEEE, pp. 1-4. IEEE, 2015.

2014 Lynn, Curtis F., Jonathan Parson, Patrick Kelly, Mark Taylor, David Barnett, Andreas Neuber, James Dickens, John Mankowski, Steve Calico, and Michael Scott. "Frequency tuning a reflex triode vircator from 1.5 to 5.9 GHz." In Power Modulator and High Voltage Conference (IPMHVC), 2014 IEEE International, pp. 209-212. IEEE, 2014.

2014 Parson, Jonathan M., Curtis F. Lynn, James-William B. Bragg, Patrick Kelly, Mark Taylor, David Barnett, Shad Holt et al. "Rep-rate operation of a 300 kV, high-power microwave sealed-tube vircator." In Power Modulator and High Voltage Conference (IPMHVC), 2014 IEEE International, pp. 326-328. IEEE, 2014.

PRESENTATIONS

2018 Shaw, Zachary; Mankowski, John; Powell, Melvin; Barnett, David; Neuber, Andreas; Dickens, James; " High power microwave pulse sharpening utilizing a waveguide spark gap " *7th Euro-Asian Pulsed Power Conference, 22nd International Conference on High-Power Particle Beams* , 2018.

2018 Barnett, David; Mankowski, John; Dickens, James; Neuber, Andreas; " Vircator validation using particle-in-cell modeling" *7th Euro-Asian Pulsed Power Conference, 22nd International Conference on High-Power Particle Beams* , 2018.

2018 Barnett, D. H., A. Neuber, and J. Mankowski. "CST Particle-In-Cell Modeling Of A Tunable Reflex-Triode Vircator" *2018 IEEE 22st International Conference on Pulsed Power (PPC)*. IEEE, 2018.

2018 Gaus, Henry J. III, Barnett, D. H., Jaxom Hartman, James. C. Dickens, Andreas A. Neuber, and John J. Mankowski. "High-Speed Imaging Of Exploding Detonators" *2018 IEEE 22nd International Conference on Pulsed Power (PPC)*. IEEE, 2018.

2017 Barnett, D. H., J. C. Dickens, A. A. Neuber and J.J. Mankowski, "Compact Reflex Triode Radiation Pattern and Power" *2017 Pacific Symposium on Pulsed Power and Applications,* 2017.

2017 Barnett, D. H., et al. "Results of a compact reflex triode with multi cavity adjustment." *Pulsed Power (PPC), 2017 IEEE 21st International Conference on*. IEEE, 2017.

2016 Rainwater, K., D. Barnett, C. Lynn, J. Dickens, A. Neuber, and J. Mankowski. "A 160 J, 100 Hz rep rate, compact Marx generator for driving and HPM source." In Power Modulator and High Voltage Conference (IPMHVC), 2016 IEEE International, pp. 228-230. IEEE, 2016.

2016 D. H. Barnett, K. Rainwater, C. F. Lynn, J. C. Dickens, A. A. Neuber and J. J. Mankowski, "Compact reflex triode with multi cavity adjustment," 2016 IEEE International Conference on Plasma Science (ICOPS), Banff, AB, 2016, pp. 1-1.

2016 Lynn, Curtis, David Barnett, Kirk Rainwater, Andreas Neuber, James Dickens, and John Mankowski. "Reflex triode vircator design for extended frequency tuning capabilities." In Plasma Science (ICOPS), 2016 IEEE International Conference on, pp. 1-1. IEEE, 2016.

2015 Parson, J. M., Lynn, C. F., Barnett, D. H., Holt, S. L., Kelly, P. M., Dickens, J. C., & Mankowski, J. J. “Repetitive Operation Of A Megawatt Class Reflex-Triode Vircator”. In Pulsed Power Conference (PPC), 2015 IEEE (pp. 1-3). IEEE May 2015

2015 Barnett, David H., et al. "A Modular, High REP-RATE, Fast-Risetime, Optically-Isolated, Pulse Trigger Generator." *Pulsed Power Conference (PPC), 2015 IEEE*. IEEE, 2015.

2015 Johnson, J., D. Reale, D. Barnett, R. Garcia, W. Cravey, J. Parson, A. Neuber, J. Dickens, and J. Mankowski. "1 kHz rep-rate operation of a spark-gap switched gyromagnetic nonlinear transmission line array." In Pulsed Power Conference (PPC), 2015 IEEE, pp. 1-4. IEEE, 2015.

2014 Lynn, Curtis F., Jonathan Parson, Patrick Kelly, Mark Taylor, David Barnett, Andreas Neuber, James Dickens, John Mankowski, Steve Calico, and Michael Scott. "Frequency tuning a reflex triode vircator from 1.5 to 5.9 GHz." In Power Modulator and High Voltage Conference (IPMHVC), 2014 IEEE International, pp. 209-212. IEEE, 2014.

2014 Parson, Jonathan M., James-William B. Bragg, Mark Taylor, David Barnett, Patrick Kelly, Curtis F. Lynn, Shad Holt, James C. Dickens, Andreas A. Neuber, and John J. Mankowski. "REP-rate operation of a∼ 200 KV sealed-tube reflex-triode vircator at∼ 200 A/cm 2." In Plasma Sciences (ICOPS) , 2014 IEEE 41st International Conference on, pp. 1-1. IEEE, 2014.

2014 Parson, Jonathan M., Curtis F. Lynn, James-William B. Bragg, Patrick Kelly, Mark Taylor, David Barnett, Shad Holt et al. "Rep-rate operation of a 300 kV, high-power microwave sealed-tube vircator." In Power Modulator and High Voltage Conference (IPMHVC), 2014 IEEE International, pp. 326-328. IEEE, 2014.