

## John J. Burke, Ph.D., P.E.

### Education

Ph.D.	Electrical Engineering	University of Massachusetts	1993
M.S.	Electrical Engineering	University of California at Los Angeles	1986
B.S.	Electrical Engineering	Northeastern University	1984

### Faculty: Western New England College

2004-Present      **Associate Professor**, Western New England College  
2000-2004      **Assistant Professor**, Western New England College  
Department of Electrical Engineering, Springfield, Massachusetts  
Courses Taught:

- *Fields and Waves*
- *RF & Microwave Active Circuit Design*
- *Electromagnetic Compatibility*
- *Microwave Engineering*
- *Semiconductor Devices*
- *Electronics of Radio*
- *Linear Circuits I & II*
- *Microelectronic Circuits I & II*
- *RF & Microwave Wireless Systems*
- *Antenna Theory and Design*
- *Advanced Electromagnetics*
- *Analog Integrated Circuit Design*
- *Communication*
- *Signals and Systems II*

### Other Teaching Experience

1999-2000      **Assistant Adjunct Professor**, Wright State University  
Department of Electrical and Computer Engineering, Dayton, Ohio

- *Circuit Analysis II*, Winter Quarter 2000
- *Transmission Lines, Waveguides, and Radiating Systems*, Fall Quarter 1999

### Professional Experience

2005-2007      **Senior Research Engineer**, Millitech Corporation, Northampton, MA  
Main focus of research at Millitech was the design of high frequency antennas. Specifically was involved in the design of a 16 GHz Phase Comparison Monopulse Antenna, designed the feed for an On-the-Move (OTM) satellite communications directional antenna system, participated in the initial design of a 94.5 GHz horn antenna that is used in radar that detects debris on airport runways, and participated in the design of Diverse Polarization Electrically Scanned Antenna.

1995-2001      **Senior Research Engineer**, Mission Research Corporation, Dayton, OH  
Main focus of research at MRC was the design of phased array antennas. Specifically was involved in the design of wideband corporate feed networks, wideband planar microstrip baluns, and wideband interconnects.

1992-1995      **Product Specialist, Electromagnetics**, The MacNeal-Schwendler Corporation, Milwaukee, WI  
Involved in the technical support of an electromagnetic analysis program (EMAS) employing the finite element method. Provided technical consulting to a number of clients in the design and analysis of microstrip filters, waveguide resonators, waveguide aperture and phased array antennas. Consulted with a major semiconductor company on analyzing multi-pin high-speed packages and a large communications company on the design of a ceramic comb-line filter. Also consulted with a research lab on analyzing the effects of losses in electrically large microstrip transmission lines.

1990-1992      **Senior Research Engineer**, Compact Software Incorporated, Elmwood Park, New Jersey  
One of the principal developers of EXPLORER, a full-wave electromagnetic simulator for the analysis of arbitrary microwave microstrip circuits employing the moment method. Developed and implemented a Green's function for multi-layered microstrip structures with horizontal and vertical currents.

1984-1986

**Microwave Engineer**, Hughes Aircraft, El Segundo, California  
Involved in the design of microwave integrated circuits such as low noise amplifiers, filters, mixers and multipliers that were used in a satellite transmitter and receiver.

### Funded Research

**Project:** 1 × 64 Phased Array Antenna Design  
**Type:** Phase I  
**Sponsor:** Navel Sea Systems Command (NAVSEA)  
**Funding:** \$124,000  
**Status:** Complete

**Project:** Active Antenna Design Concept Using Microwave Power  
**Type:** Phase I Small Business Innovation Research (SBIR)  
**Sponsor:** Navel Sea Systems Command (NAVSEA)  
**Funding:** \$66,528  
**Status:** Complete

**Project:** Low Cost Planar Array (LCPA)  
**Type:** Phase I  
**Sponsor:** Johns Hopkins University Applied Physics Laboratory  
**Funding:** \$90,919  
**Status:** Complete

### Registration

Professional Engineer: Electrical, State of Ohio, 63286

### Professional Development

**Summer Faculty Fellowship Program with the Air Force Research Laboratory (AFRL)**  
Hanscom Air Force Base - Summer 2002  
Involved in the design of a thin, low cost, lightweight phased array antenna. Responsibilities included:

### Professional Activities

National Council of Examiners for Engineering and Surveying (NCEES)

- Member of the committee that develops the Principles and Practice of Electrical Engineering Examination. Involved in the writing and reviewing of exam questions.
- Member of the committee that performs the PIA (Preliminary Item Analysis) for each administration of the Electrical and Computer ECC examination (PE Exam).
- Member of the committee that converted the Principles and Practice of Electrical Engineering Examination to a Depth format.

### Professional Affiliations

Institute of Electrical and Electronics Engineers (IEEE) – Senior Member

- Microwave Theory and Techniques Society
- Antennas and Propagation Society
- Electromagnetic Compatibility Society
- Electron Devices Society
- Education Society

American Society for Engineering Education (ASEE)

### Professional Service

Institute of Electrical and Electronics Engineers (IEEE)

- Treasure Springfield Section - 2002
- WNE Student Branch Advisor

## Awards, Fellowships and Honors

Nominated for Outstanding Teacher - 2003, 2007, 2008, 2009  
Outstanding Teaching Assistant for the Academic Year 1986-1987  
Commonwealth of Massachusetts Regents Doctoral Fellowship (1987-1990)  
Hughes Aircraft Masters Fellowship (1984-1986)  
Phi Kappa Phi Honor Society  
Tau Beta Pi Engineering Honor Society  
Eta Kappa Nu, Electrical Engineering Honor Society

- Chapter President (1983 - 1984)

## Publications

S. Northrup, J.J. Burke, "A Hybrid Approach to a Flipped Classroom for an Introductory Circuits Course for all Engineering Majors," American Society for Engineering Education (ASEE) Conference Proceedings 2015.

Adamshick, S., Carroll, R., Rao, M., La Tulipe, D., Kruger, S., Burke, J., & Liehr, M. High Frequency Electrical Characterization of 3D Signal/Ground through Silicon Vias. Progress in Electromagnetics Research Letters, 47, 2014.

J.J. Burke, "Introducing a Business Acumen into an Engineering Curriculum," American Society for Engineering Education (ASEE) Conference Proceedings 2013.

R.A. Rimmer, J.J. Burke, "Electromagnetic Modeling of the PEP-II RF Cavity using the 3D Finite Element Code MSC/EMAS," AIP Conference Proceedings 297, 1993, pp. 27-34, February 1993.

J.J. Burke, "Considerations in the Simulation of Large Monolithic Microwave Integrated Circuits Enclosed in a Conducting Package," Ph.D. Dissertation, February 1993.

A. Hill, J. Burke and K. Kottapalli, "Three-Dimensional Electromagnetic Analysis of Shielded Microstrip Circuits," International Journal of Microwave and Millimeter-Wave Computer-Aided Engineering, Vol. 2, No. 4, pp 286-296, 1992.

J.J. Burke and R.W. Jackson, "A Simple Circuit Model for Resonant Mode Coupling in Packaged MMICs," IEEE MTT International Microwave Symposium Digest 1991, pp. 1221-1224, June 1991.

A. Hill, J. Burke and K. Kottapalli, "EM Simulator Models Microstrip," Microwaves & RF, pp. 7A-10A, June 1991.

A. Hill, J. Burke and K. Kottapalli, "Method of Moments Characterization of Planar Microstrip Discontinuities," Microwave Engineering Europe, pp. 51-55, May 1991.

J.J. Burke and R.W. Jackson, "Reduction of Parasitic Coupling in Packaged Microwave Circuits," IEEE MTT International Microwave Symposium Digest 1990, pp. 255-258, May 1990.

J.J. Burke and R.W. Jackson, "Surface-to-Surface Transition via Electromagnetic Coupling of Microstrip and Coplanar Waveguide," IEEE Trans. MTT, Volume 37, pp 519-525, March 1989.

J.J. Burke and R.W. Jackson, "Microwave Interconnects Via Electromagnetic Coupling," Interconnection of High Speed and High Frequency Devices and Systems Conference, Newport Beach, California, March 15-17, 1988.