



***David W. Nippa, Ph.D., PMP***

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**Research Scientist – ElectroScience Laboratory**

Dr. Nippa is a Research Scientist at the ElectroScience Laboratory (ESL) within The Ohio State University's College of Engineering. ESL is one of the nation's premier electromagnetics centers of excellence focusing on computational electromagnetics, radar systems, mixed-signal microelectronics, remote sensing, millimeter-wave systems, integrated photonics and THz technologies. Dr. Nippa has been a technical leader of engineers and scientists in the development of new photonic and RF technologies that satisfy challenging client needs. He is a successful proposal author with contract wins totaling over \$3M. He has been awarded 14 U.S. patents and been a contributing author on over 25 publications including works on new electrooptic devices and RF photonic wireless communications.

**PROFESSIONAL ACCOMPLISHMENTS**

- Provided leadership and actively engaged in research on millimeter-wave communications:
  - Principal Investigator on DARPA's 100G program striving for 100 Gb/s wireless transmission using spectral efficient modulation.
  - Principal Investigator on commercial radio development efforts for low latency, 10 Gb/s Ethernet transmission at millimeter-wave frequencies.
  - Led the development and field testing of radio systems using photonic approaches to form and modulate millimeter-waves for high data-rate wireless communications.
  - Led the development and demonstration of electrooptic devices for the phase modulation of millimeter-waves.
- Applied optical and RF engineering skills to advance communication and sensor technologies:
  - Performed simulations, device designs and characterization of periodically-poled lithium niobate (PPLN) devices for Quantum Key Distribution (QKD) systems.
  - Designed and tested electrooptic resonant META antennas that capture RF signals and transfer the energy to the optical domain.
  - Performed simulations, device designs and characterization of micro-toroidal resonators for fiber-optic microphones and optical computing.
  - Designed planar lightwave circuits and supporting electrode patterns for various devices including Mach-Zehnder interferometers, arrayed waveguide gratings, and wavelength selective switches.
  - Provided computational electromagnetic modeling support to projects using COMSOL Multiphysics, RSoft's BeamProp and FullWave, MATLAB, and custom C++-based modeling and simulation software.

**PROFESSIONAL EXPERIENCE**

The Ohio State University, Research Scientist - ElectroScience Laboratory, 2019 – Present

Pillar Technology, LLC, Software Artisan, 2016 – 2019

Battelle, Senior Research Scientist, 2007 – 2015

Optimer Photonics, Inc., Senior Photonics Engineer, 2001 – 2007

**EDUCATION**

Ph.D., Mechanical Engineering, *The Ohio State University*

M.S., Mechanical Engineering, *The Ohio State University*

B.S., Civil Engineering, *University of Illinois, Urbana-Champaign, IL*