

## Farhad Azadi Namin, Ph.D.

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CONTACT INFORMATION	Assistant Professor Dept. of Electrical Engineering Amirkabir University of Technology (Tehran Polytechnic) 424 Hafez Ave Tehran, Iran, 15875-4413	Office: 021-6454-3382 namin_farhad@aut.ac.ir
RESEARCH INTERESTS	Metamaterials, aperiodic plasmonic nanoparticle arrays, plasmonics, quasicrystals, electromagnetic wave propagation and scattering, Mie scattering, ultra-wideband antenna arrays, evolutionary optimization algorithms, convex optimization, iterative eigenvalue algorithms, numerical methods.	
EDUCATION	<b>The Pennsylvania State University (Penn State)</b> , University Park, PA Ph.D., Electrical Engineering, 2012 <ul style="list-style-type: none"><li>• Dissertation Topic: <i>Nature-Inspired Optimization of Quasicrystalline Arrays and All-Dielectric Optical Filters and Metamaterials</i></li><li>• Advisor: Douglas H. Werner, Ph.D</li></ul> <b>University of Texas at Dallas</b> , Richardson, TX M.S., Electrical Engineering, 2008 <ul style="list-style-type: none"><li>• Thesis Topic: <i>Lifetime Maximization and Resource Management in Wireless Sensor Networks</i></li><li>• Advisor: Aria Nosratinia, Ph.D</li></ul> B.S., Electrical Engineering, 2006	
RESEARCH EXPERIENCE	<b>Post-doctoral Research Fellow</b> Computational Electromagnetics and Antennas Research Lab (CEARL), Penn State Supervisor: Douglas H. Werner, Ph.D	Jan 2012 to Aug 2012
	<b>Research Assistant</b> CEARL, Penn State Supervisor: Douglas H. Werner, Ph.D	Sep 2008 to Dec 2012
	<b>Research Assistant</b> Multimedia Communications Laboratory, University of Texas at Dallas Supervisor: Aria Nosratinia, Ph.D	Sep 2006 to May 2008
WORK EXPERIENCE	<b>Assistant Professor</b> Department of Electrical Engineering Amirkabir University of Technology (Tehran Polytechnic)	Jan 2014 to present
	<b>Senior Technical Adviser</b> Islamic Parliament Research Center	Dec 2013 to present
	<b>Lecturer</b> Sharif University of Technology	Aug 2013 to Dec 2013
	<b>Technology Development Engineer</b> Radiology Department, University of Texas Southwestern Medical Center	May 2008 to Aug 2008

- AWARDS & HONORS
- Dr. Nirmal K. Bose Dissertation Excellence Award 2012
  - Applied Research Laboratory (ARL) Exploratory and Foundational Program Fellowship 2008-2012
  - Joseph R. and Janice M. Monkowski Graduate Fellowship in Electrical Engineering 2012
  - Society of Penn State Electrical Engineers (SPSEE) Graduate Fellowship 2010-2011

SKILLS

- Programming and Markup Languages
  - C++, FORTRAN, Matlab, Mathematica, Linux, LabView, L<sup>A</sup>T<sub>E</sub>X
- Electromagnetic Simulation Software
  - CST MWS, HFSS, FEKO
- Electrical Engineering
  - **Electromagnetics and Photonics:** Wave propagation and scattering, metamaterials, plasmonics, photonic crystals, antenna design and optimization.
  - **Communications and Signal Processing:** Digital signal processing, digital communications, estimation theory, signal theory.
- Mathematics
  - Partial differential equations, advanced linear algebra, convex optimization, special functions, probability theory, signal theory.
- Numerical Techniques
  - Numerical optimization (convex), evolutionary optimization algorithms (GA, CMA-ES), iterative eigenvalue solvers.

BOOKS

Book Chapter

- Douglas Werner, Micah Gregory, **Farhad Namin**, Joshua Petko, and Thomas Spence, “Ultra-Wideband Antenna Arrays”, *Frontiers in Antennas*, McGraw-Hill Professional, New York, NY, USA, 2011

Contributor

- Kasra Barkeshli, *Advanced Electromagnetics and Scattering Theory*, Springer, Switzerland, 2015
- I. S. Gradshtein and D. Zwillinger, *Table of Integrals, Series, and Products*, Academic Press, Waltham, MA, USA, 2014

JOURNAL  
PUBLICATIONS

1. **F. Namin** and D. H. Werner, "Rigorous Analysis of Diffraction from Quasicrystalline Gratings via Floquet's Theorem in Higher-Dimensional Space", *ACS Photonics*, No. 1, pp. 212 - 220, Feb. 2014.
2. S. Yun\*, **F. Namin**\*, D. H. Werner, T. S. Mayer, C. Bungay, C. Rivero-Belaine, and L. Zhang "Demonstration of a nearly ideal wavelength-selective optical mirror using a metamaterial-enabled dielectric coating", *Applied Physics Letters*, Vol. 102, Issue. 17, May 2013. (\* equal contribution)
3. **F. Namin**, X. Wang, and D. H. Werner, "Reflection and transmission coefficients for finite-sized aperiodic aggregates of spheres", *Journal of the Optical Society of America B*, Vol. 30, No. 4, Apr. 2013.
4. M. D. Gregory, **F. Namin**, and D. H. Werner, "Exploiting Rotational Symmetry for the Design of Ultra-Wideband Planar Phased Array Layouts," *IEEE Transactions on Antennas and Propagation*, Vol. 61, No. 1, pp. 176 - 184, Jan. 2013.
5. **F. Namin**, J. S. Petko, and D. H. Werner, "Analysis and Design Optimization of Robust Aperiodic Micro-UAV Swarm-Based Antenna Arrays," *IEEE Transactions on Antennas and Propagation* , Vol. 60, No. 5, pp. 2295 - 2308, May 2012.
6. **F. Namin**, T. G. Spence, D. H. Werner, and E. Semouchkina, "Broadband, Miniaturized Stacked-Patch Antennas for L-Band Operation Based on Magneto-Dielectric Substrates," *IEEE Transactions on Antennas and Propagation* , Vol. 58, Issue 9, pp. 2817-2822, Sep. 2010.

CONFERENCE  
PAPERS

1. Y. A. Yuwen, **F. Namin**, L. Liu, D. H. Werner, and T. S. Mayer, "Synthesis of 2D Spherical Periodic and Aperiodic Nanoparticle Arrays via Au-Enhanced Oxidation of Silicon," *Proceedings of the 2014 Spring Meeting of the Materials Research Society, III.08*, April 21-25, 2014, San Francisco, CA, USA.
2. **F. Namin** and D. H. Werner, "Higher-Dimensional Application of Rigorous Coupled-Wave Analysis to Quasicrystalline Gratings," *Proceedings of the 2013 IEEE International Symposium on Antennas & Propagation and USNC/URSI National Radio Science Meeting*, July 7-13, 2013, Orlando, FL, USA.
3. **F. Namin**, X. Wang, and D. H. Werner, "Enhanced Local Fields in Aperiodic Rotationally Symmetric Nanosphere Arrays," *Proceedings of the 2012 IEEE International Symposium on Antennas & Propagation and USNC/URSI National Radio Science Meeting*, July 8-14, 2012, Chicago, IL, USA.
4. **F. Namin**, S. Yun, X. Wang, D. H. Werner, and T. S. Mayer, "Optical Properties of Quasicrystalline Gold Nanoparticle Arrays in the Visible Spectrum," *Proceedings of the 2012 IEEE International Symposium on Antennas & Propagation and USNC/URSI National Radio Science Meeting*, July 8-14, 2012, Chicago, IL, USA.
5. **F. Namin**, X. Wang, and D. H. Werner, "Wideband Absorbers in the Visible Spectrum Based on Optimizing Quasicrystal Nanosphere Arrays,"

Proceedings of the *2012 IEEE International Symposium on Antennas & Propagation and USNC/URSI National Radio Science Meeting*, July 8-14, 2012, Chicago, IL, USA.

6. **F. Namin**, D. H. Werner, and P. L. Werner, "Broadband Transmission Gratings with Wide Field of View Based on Efficient Optimization of Polynomial Sidewall Profiles," Proceedings of the *2011 IEEE International Symposium on Antennas and Propagation and USNC/URSI National Radio Science Meeting*, Spokane, WA, USA, July 3-8, 2011.
7. **F. Namin**, S. Yun, T. S. Mayer, D. H. Werner, and C. Rivero-Baleine, "Near-Perfect Optical Mirrors Based on Thin All-Dielectric Zero Index Metamaterial Coatings," Proceedings of the *2011 IEEE International Symposium on Antennas and Propagation and USNC/URSI National Radio Science Meeting*, Spokane, WA, USA, July 3-8, 2011.
8. J. A. Bossard, Z. Jiang, **F. A. Namin**, S. Yun, D. H. Werner, and T. S. Mayer, "Synthesis, Fabrication, and Characterization of Optical Metallo-dielectric and All-dielectric Metamaterials", invited presentation at the *Progress in Electromagnetics Research Symposium (PIERS 2011)*, Marrakesh, Morocco, March 20-23, 2011.
9. **F. A. Namin**, J. S. Petko, and D. H. Werner, "Design of Robust Aperiodic Antenna Array Formations for Micro-UAV Swarms," Proceedings of the *2010 IEEE International Symposium on Antennas and Propagation and USNC/URSI National Radio Science Meeting*, Toronto, Canada, July 11-17, 2010.
10. **F. A. Namin** and D. H. Werner, "Design of Volumetric Antenna Arrays Based on Three-Dimensional Aperiodic Tilings," Proceedings of the *2010 IEEE International Symposium on Antennas and Propagation and USNC/URSI National Radio Science Meeting*, Toronto, Canada, July 11-17, 2010.
11. J. A. Ashbach, P. L. Werner, D. H. Werner, and **F. Namin**, "Single Material Alternative to a Multilayer Optical Window," *Proceedings of the 2010 IEEE International Symposium on Antennas and Propagation and USNC/URSI National Radio Science Meeting*, Toronto, Canada, July 11-17, 2010.
12. D. H. Werner, Z. Bayraktar, **F. Namin**, T. G. Spence, M. D. Gregory, P. L. Werner, and E. A. Semouchkina, "A Novel Miniature Wideband Stacked-Patch Antenna Design Using Matched Impedance Magneto-Dielectric Substrates," *The 3rd International Congress on Advanced Electromagnetic Materials in Microwave and Optics*, London, UK, Aug. 30-Sept. 4, 2009. Invited paper for a special session on Metamaterial-Based Directive Antennas.
13. **F. Namin**, T. G. Spence, D. H. Werner, and E. Semouchkina, "Broadband, Miniaturized Stacked-Patch Antenna Based on Magneto-Dielectric Substrates for L-Band Operation," Proceedings of the *2009 IEEE International Symposium on Antennas and Propagation and USNC/URSI National Radio Science Meeting*, Charleston, SC, USA, June 1-5, 2009.
14. **F. Namin** and A. Nosratinia, "Resource allocation for distributed detection in sensor networks," *Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, Oct. 2008

15. **F. Namin** and A. Nosratinia, "Pragmatic lifetime maximization of cooperative sensor networks via a decomposition approach," Proc. *IEEE ICASSP*, Las Vegas, NV, 2008.

REFERENCES Dr. Douglas H. Werner, *IEEE Fellow*

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