

CURRICULUM VITAE

(Update: February 2023)

NAME: DAVOOD ZARIFI

**SCHOOL OF ELECTRICAL AND COMPUTER ENGINEERING
UNIVERSITY OF KASHAN, KASHAN, IRAN**

Date & Place of birth: September 14, 1987, Kashan, Iran.

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FIELDS OF INTEREST

- Gap Waveguide Technology
- Millimeter Wave Antennas and Microwave Components
- Electromagnetics Complex Media
- Inverse Scattering Problems
- Metamaterials
- Antenna Design

EDUCATION

- Visiting Student, **Chalmers University of Technology**, Gothenburg, Sweden, 2015
Course Title: "Gap Waveguide Technology"
Supervisor: **Prof. P. S. Kildal**
- PhD., **Iran University of Science and Technology**, Tehran, Iran
(Sep.2011-Dec. 2015), GPA= 18.1 out of 20.
Thesis Title: "Analysis of Inverse Scattering Problems Involving Planar Complex and Metamaterial Structures Using the State Space Method".
Supervisor: **Dr. M. Soleimani**
- M.Sc., **Iran University of Science and Technology**, Tehran, Iran
(Sep.2009- July.2011), GPA= 18 out of 20.
Thesis Title: "Parameter Retrieval of Chiral Metamaterials and design of novel structures".
Supervisor: **Dr. M. Soleimani**
- B.Sc., **University of Kashan**, Kashan, Iran (2005-2009), GPA = 18.1 out of 20.

MAIN COURSES (M.Sc)

- Design of high frequency circuits
- Antenna 2
- Radar systems
- Microwave 2
- Advanced electromagnetics
- Advanced engineering mathematics
- Numerical methods in electromagnetics
- Introduction to Satellite Design

MAIN COURSES (PhD)

- Electromagnetic waves in complex media
- Scattering of electromagnetic waves
- Photonic
- Microwave measurement
- Radio Wave Propagation

PUBLICATIONS

Conference papers:

- D. Zarifi, A. Farahbakhsh and A. U. Zaman, "A 60 GHz-Band 4×4 Butler Matrix Based on Ridge Gap Waveguide," *IEEE European Conference on Antenna and Propagation (EuCAP 2022)*, 2022.
- A. Farahbakhsh, D. Zarifi and A. U. Zaman, "A Single Layer Dual-Polarization Array Antenna Based on Parallel Plate Gap Waveguide," *IEEE European Conference on Antenna and Propagation (EuCAP 2022)*, 2022.
- A. J. Alazemi, A. Farahbakhsh and D. Zarifi, "Design of A Dual-Circularly Polarized Antenna Using Gap Waveguide Based on Contactless Sliding Mechanism," *IEEE European Conference on Antenna and Propagation (EuCAP 2022)*, 2022.
- D. Zarifi, A. Farahbakhsh and A. U. Zaman, "A V-Band Low Sidelobe Cavity-Backed Slot Array Antenna Based on Gap Waveguide," *IEEE European Conference on Antenna and Propagation (EuCAP 2020)*, 2020.
- D. Zarifi, A. Farahbakhsh and A. U. Zaman, "A Broadband Transition From Microstrip to Groove Gap Waveguide For Ka-Band Applications," *IEEE European Conference on Antenna and Propagation (EuCAP 2020)*, 2020.
- D. Zarifi, A. Farahbakhsh and A. U. Zaman, "A D-Band Center-Feed Linear Slot Array Antenna Based on Gap Waveguide," *IEEE European Conference on Antenna and Propagation (EuCAP 2019)*, 2019.

- A. Farahbakhsh, D. Zarifi and A. U. Zaman, "D-Band Slot Array Antenna Using Combined Ridge and Groove Gap Waveguide Feeding Network," *IEEE European Conference on Antenna and Propagation (EuCAP 2019)*, 2019.
- M Hamedani, H Oraizi, D Zarifi, A Amini, "Design of Ku-band Leaky-Wave Slot Array Antenna Based on Ridge Gap Waveguide," *IEEE European Conference on Antenna and Propagation (EuCAP 2019)*, 2019.
- M Hamedani, H Oraizi, D Zarifi, A Amini, "High Gain and Wideband Leaky Wave Holograms using Gap Waveguide Surface Wave Launchers," *IEEE European Conference on Antenna and Propagation (EuCAP 2019)*, 2019.
- D. Zarifi, A. Farahbakhsh and A. U. Zaman, "A V-band Branch Guide 3-dB Coupler Based on Gap Waveguide for Use in Antenna Array," *IEEE European Conference on Antenna and Propagation (EuCAP 2018)*, Accepted, April 2018.
- A. Farahbakhsh, D. Zarifi and A. U. Zaman, "A Wideband High-Gain and High-Efficiency Slot Array Antenna Based on Groove Gap Waveguide," *IEEE European Conference on Antenna and Propagation (EuCAP 2017)*, Accepted, London, April 2018.
- M Hamedani, H Oraizi, D Zarifi, A Amini, "Design of filter-horn antenna based on groove gap waveguide technology for V-band application," *IEEE European Conference on Antenna and Propagation (EuCAP 2018)*, 2018.
- D. Zarifi, A. Farahbakhsh and A. U. Zaman, "A Ridge Gap Waveguide fed aperture-coupled microstrip antenna array for 60 GHz applications," *IEEE European Conference on Antenna and Propagation (EuCAP 2017)*, Paris, March 2017
- A. Farahbakhsh, D. Zarifi and A. U. Zaman, "Ridge gap waveguide slot antenna array with 30% bandwidth for 60-GHz applications," *IEEE European Conference on Antenna and Propagation (EuCAP 2017)*, Paris, March 2017
- A. Farahbakhsh, D. Zarifi and A. U. Zaman, "Analysis and design of metallic parabolic anechoic chamber," *IEEE European Conference on Antenna and Propagation (EuCAP 2017)*, Paris, March 2017
- D. Zarifi and H. Oraizi, "A V-Band Microstrip Line Transition to Groove Gap Waveguide," *IEEE Mediterranean Microwave Symposium (MMS)*, Abu Dhabi, November 2016
- D. Zarifi, A. Farahbakhsh, A. U. Zaman, and P.-S. Kildal, "A High Gain Ridge Gap Waveguide Fed Slot Antenna Array for 60 GHz Applications," *IEEE European Conference on Antenna and Propagation (EuCAP)*, Switzerland, April 2016
- A. Farahbakhsh, D. Zarifi, A. U. Zaman, and P.-S. Kildal, "Corporate Distribution Networks for Slot Array Antenna Based on Groove Gap Waveguide Technology," *IEEE European Conference on Antenna and Propagation (EuCAP)*, Switzerland, April 2016
- D. Zarifi, M. Soleimani, "Analysis of Reflection and Transmission from Biaxial Chiral Slabs Using the State Space Approach," *IEEE Mediterranean Microwave Symposium*, Lebanon, September 2013.

- D. Zarifi, H. Oraizi, "Oblique Incidence of Plane Waves on PEC, PMC or PEMC Backed Inhomogeneous Chiral Slabs," *IEEE Mediterranean Microwave Symposium*, Turkey, September 2012.
- D. Zarifi, M. Soleimani "Analysis of Inhomogeneous Chiral Slab Using Taylor's Series Expansion," *IEEE Antenna and Propagation Symposium*, Canada, July 2012.
- D. Zarifi, M. Soleimani "Development of semi-planar chiral metamaterials," *IEEE International Microwave Symposium*, USA, June 2012.

Journal papers:

- P. Enayati, D. Zarifi, "Design of a Wideband Coaxial-to-Rectangular Waveguide Transition Based on Supershapes," *IEEE Access*, vol. 10, pp. 121924-121929, 2022.
- D. Zarifi, A. Farahbakhsh and A. U. Zaman, "Design and development of broadband gap waveguide-based 0-dB couplers for Ka-band applications," *IET Microwaves, Antennas & Propagation*, vol. 16, no. 11, pp. 718-724, 2022.
- M. J. Chashmi, P. Rezaei, A. H. Haghparast, D. Zarifi, "Dual circular polarization 2×2 slot array antenna based on printed ridge gap waveguide technology in Ka band," *AEU-International Journal of Electronics and Communications*, vol. 157, 154433, 2022.
- M. H. Gandomi, D. Zarifi, "Design and Development of Ultra-Wideband 3-D Monopole Antennas Based on Supercurves," *IEEE Transactions on Antennas and Propagation*, vol. 69, no. 12, pp. 8214-8220, 2021.
- M. Nasri, D. Zarifi, "A Broadband Gap Waveguide-Based Magic-T Junction for Millimeter-Wave Applications," *Journal of Infrared, Millimeter, and Terahertz Waves*, vol. 42, no. 7, pp. 793-801, 2021.
- A. J. Alazemi, D. Zarifi, A. Farahbakhsh, "A broadband contactless gap waveguide microwave switch for X-and Ku-bands applications," *AEU-International Journal of Electronics and Communications*, vol. 139, 2021.
- A. J. Alazemi, A. Farahbakhsh, D. Zarifi, "A 12-20 GHz Wideband High-Power SP2T Switch Based on Gap Waveguide Technology," *Sensors*, vol. 21 no. 16, 2021.
- A. Tayebi, D. Zarifi, "On the Miniaturization of Microstrip Ring-Hybrid Couplers Using Gielis Supershapes," *IETE Journal of Research*, 2020.
- A. Farahbakhsh and D. Zarifi, "Miniaturization of patch antennas by curved edges," *AEU: International Journal of Electronics and Communications*, vol. 117, 2020.
- D. Zarifi and A. Ahmadi, "A broadband slant polarized cavity backed microstrip-fed wide-slot antenna array," *International Journal of RF and Microwave Computer-Aided Engineering*, 2020.
- M. Hamedani, H. Oraizi, D. Zarifi and A. U. Zaman, "Planar H-plane Horn Antenna Based on Groove Gap Waveguide Technology," *IEEE*

Antenna and Wireless Propagation Letter, vol. 19, no. 2, pp. 302-306, 2020.

- A. Tayebi, D. Zarifi and M. Nasri, "Design of X-band Moreno cross-guide coupler based on superformula curves," *International Journal of RF and Microwave Computer-Aided Engineering*, 2020.
- M. Nasri, D. Zarifi and A. U. Zaman, "A Wideband 3-dB Directional Coupler in GGW for Use in V-Band Communication Systems," *IEEE Access*, vol. 8, pp. 17819-17823, 2020.
- D. Zarifi, A. Farahbakhsh and A. U. Zaman, "Design and Fabrication of Wideband Millimeter-wave Directional Couplers with Different Coupling Factors Based on Gap Waveguide Technology," *IEEE Access*, vol. 7, pp. 88822-88829, 2019.
- D. Zarifi, A. Shater, A. Ashrafi and M. Nasri, "Design of Ku-Band diplexer based on gap waveguide technology," *International Journal of RF and Microwave Computer-Aided Engineering*, 2018.
- A. Farahbakhsh, D. Zarifi, and A. U. Zaman, "A mmWave Wideband Slot Array Antenna Based on Ridge Gap Waveguide With 30% Bandwidth," *IEEE Transactions on Antennas and Propagation*, vol. 66, no. 2, pp. 1008-1013, Feb. 2018.
- D. Zarifi, A. Farahbakhsh and A. U. Zaman, "A Gap Waveguide-Fed Wideband Patch Antenna Array for 60-GHz Applications," *IEEE Transactions on Antenna and Propagation*, vol. 65, no. 9, September 2017.
- A. Farahbakhsh, D. Zarifi and A. U. Zaman, "60-GHz Groove Gap Waveguide Based Wideband H-Plane Power Dividers and Transitions: For Use in High-Gain Slot Array Antenna," *IEEE Transactions on Microwave Theory and Techniques*, vol. 65, no. 11, pp. 4111-4121, November 2017.
- D. Zarifi and A. R. Shater, "Design of a 3-dB directional coupler based on groove gap waveguide technology," *Microwave and Optical Technology Letter*, vol. 59, no. 7, pp. 1597-1600, 2017.
- M. Baharian, A. Abdolali and D. Zarifi, "Design of a Metallic Parabolic Anechoic Chamber for the Compact Range Measurement," *Applied Physics A*, vol. 123, no. 6, pp. 387, 2017.
- A. Farahbakhsh and D. Zarifi, "Design of a Metallic Parabolic Anechoic Chamber for the Compact Range Measurement," *IET Electronic Letter*, vol. 53, no. 5, pp. 294-296, 2017.
- A. R. Shater and D. Zarifi, "Radar Cross Section Reduction of Microstrip Antenna Using Dual-Band Metamaterial Absorber," *Applied Computational Electromagnetic Society (ACES)*, vol. 32, no. 2, pp. 135-140, Feb. 2017.
- D. Zarifi, A. Farahbakhsh, A. U. Zaman and P.-S. Kildal, "Design and Fabrication of A High-Gain 60 GHz Corrugated Slot Antenna Array with Ridge Gap Waveguide Distribution Layer," *IEEE Transactions on Antenna and Propagation*, vol. 64, no. 7, pp. 2904-29013, 2016.
- D. Zarifi, A. Farahbakhsh, and M. Soleimani, "Evaluation of profiles of an inhomogeneous chiral slab using state transition matrix method," *Applied Physics A*, vol. 121, no. 3, pp. 1115-1123, November 2015.
- D. Zarifi, M. Soleimani and A. Abdolali, "Parameter Reconstruction of Materials with Off-Diagonal Anisotropy Using the State Transition

Matrix Method,” *International Journal of Electronics and Communications*, accepted for publication, April 2014

- D. Zarifi, M. Soleimani, A. Abdolali and H. Oraizi, “A Robust Technique Based on the Transition Matrix Method to Electromagnetic Characterization of Anisotropic Material,” *IET Microwave Antenna and Propagation*, accepted for publication, January 2014.
- D. Zarifi, M. Soleimani, and A. Abdolali, “Electromagnetic Characterization of Biaxial Bianisotropic Media Using the State Space Approach,” *IEEE Transactions on Antenna and Propagation*, vol. 62, no. 3, pp. 1538-1542, March 2014.
- D. Zarifi, M. Soleimani, and A. Abdolali, “Electromagnetic Characterization of Uniaxial Chiral Composites Using State Transition Matrix Method,” *IEEE Transactions on Antenna and Propagation*, vol. 61, no. 11, pp. 5658-5665, November 2013.
- S. E. Hosseinienejad, N. Komjani, D. Zarifi and A. Abdolali, “Analysis of Line Source Radiation above Grounded Inhomogeneous Chiral Layer Using a Hybrid Method of Fourier Transform and Taylor’s Series Expansion,” *IEEE Transactions on Antenna and Propagation*, vol. 61, no. 10, pp. 5109-5116, Oct. 2013.
- D. Zarifi, M. Soleimani, and A. Abdolali, “Parameter Retrieval of Chiral Metamaterials Based on the State Space Approach,” *Physical Review E*, vol. 88, Iss. 2, August 2013.
- A. Farahbakhsh, D. Zarifi, M. Soleimani, and A. Abdolali “Technique for Inversion of an Inhomogeneous Bianisotropic Slab through an Optimization Approach,” *IET Microwave Antenna and Propagation*, vol. 7, Iss. 6, pp. 436-443, June 2013.
- A. Farahbakhsh, D. Zarifi, M. Soleimani, and A. Abdolali “Analysis of Electromagnetic Cylindrical Wave Interaction with Inhomogeneous Planar Media,” *Progress In Electromagnetic Research*, vol. 139, pp. 133-143, Apr. 2013.
- D. Zarifi, M. Soleimani, and A. Abdolali, “Parameter retrieval of chiral metamaterials based on the causality principle,” *International Journal of RF and Microwave Computer-Aided Engineering*, vol. 23, no. 5, pp. 610-618, Sep. 2013.
- K. Nikoeei, D. Zarifi, “Application of Chiral Layers and Metamaterials for the Reduction of Radar Cross Section,” *Progress In Electromagnetic Research*, vol. 137, pp. 759-773, Mar. 2013.
- D. Zarifi, H. Oraizi, and M. Soleimani, “Electromagnetic Scattering from Inhomogeneous Planar Layered Chiral Media Using the Finite Difference Method,” *Journal of Electromagnetic Waves and Applications*, vol. 27, no. 5, pp. 582-590, 2013.
- D. Zarifi, M. Soleimani, V. Nayyeri, “On the miniaturization of semi-planar chiral metamaterial structures,” *IEEE Transactions on Antenna and Propagation*, vol. 60, no. 12, pp. 5768-5776, Dec. 2012.
- D. Zarifi, M. Soleimani, A. Abdolali, “Analysis of different terminated inhomogeneous planar layered chiral media,” *Journal of Electromagnetic Waves and Applications*, vol. 26, nos.11-12, pp. 1658-1666, 2012.
- V. Nayyeri, D. Zarifi, “Electromagnetic scattering from inhomogeneous planar layered media using notation of propagators,” *Journal of Electromagnetic Waves and Applications*, vol. 25, pp. 875-884, 2012.

- D. Zarifi, M. Soleimani, A. Abdolali “Inhomogeneous planar layered chiral media: analysis of wave propagation and scattering using Taylor’s series expansion,” *Progress In Electromagnetic Research*, vol. 125, pp. 119-135, 2012.
- D. Zarifi, M. Soleimani, V. Nayyeri, “Dual- and multi-band chiral metamaterial structures with giant optical activity and negative refractive index,” *IEEE Antenna and Wireless Propagation Letter*, vol. 12, pp. 334-337, 2012.
- S. E. Hosseinienejad, D. Zarifi, “Directivity Enhancement of Circularly Polarized Microstrip Antenna By Chiral Metamaterial Covers,” *ELEX (IEICE Electronics Express)*, vol. 9, no. 2, pp. 117-121, 2012.
- D. Zarifi, M. Soleimani, A. Abdolali, “A novel dual-band chiral metamaterial with giant optical activity and negative refractive index,” *Journal of Electromagnetic Waves and Applications*, vol. 26, pp. 251-263, 2012.
- D. Zarifi, H. Oraizi, M. Soleimani, “Improved Performance of Circularly Polarized Antenna Using Semi-Planar Chiral Metamaterial Covers,” *Progress In Electromagnetic Research*, vol. 123, pp. 337-354, 2012.
- D. Zarifi, A. Farahbakhsh, “Reconstruction of Constitutive Parameters of Inhomogeneous Planar Layered Chiral Media Based on the Optimization Approach,” *Progress In Electromagnetic Research M*, vol. 29, pp. 29-39, Feb. 2013.

WORK EXPERIENCES

- **University of Kashan**, Assistant Professor of Electrical Engineering, from 2016.
- **Azad University of Kashan**, Lecturer (2012-2014).
- **Antenna Engineer**, from 2012

Review Experiences:

- IEEE Transactions on antennas and propagations
- IEEE Transactions on Microwave Theory and Techniques
- IEEE Antennas and Wireless Propagation Letters (AWPL)
- IET Microwaves, Antennas & propagation
- Applied Physics A
- International Journal of RF and Microwave Computer-Aided Engineering
- Microwave and Optical Technology Letters
- AEU: International Journal of Electronics and Communications
- Journal of Electromagnetic Waves and Applications

HONOR AND AWARDS

- Best researcher of electrical engineering group in University of Kashan, Iran, 2020.
- Best lecturer of electrical engineering group in University of Kashan, Iran, 2020.
- Best researcher of electrical engineering group in University of Kashan, Iran, 2017.
- Best lecturer of electrical engineering group in University of Kashan, Iran, 2017.
- Best antenna engineer silver award from antenna group in Chalmers University of Technology, Sweden, 2015.

COMPUTER SKILLS

- Programming Languages such as MATLAB and Mathematica
- Electrical Engineering Software
CST, ADS, HFSS, FEKO, Antenna Magus, Protel, PSPICE,

LANGUAGES

- Persian: Native
- English (Writing, Speaking and Listening)