

Resume

Forouhar Farzaneh

Professor

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WORK EXPERIENCE

Professor, School of Electrical Engineering, Sharif University of Technology, 2002- to date

Associate Professor, School of Electrical Engineering, Sharif University of Technology, 1997-2002

Visiting Professor, Microwave Communications Department (EMIC), Universite Catholique de Louvain, Belgium, 1996-1997

Assistant Professor, School of Electrical Engineering, Sharif University of Technology, 1989-1996

Assistant Professor, Department of Electrical Engineering, Tehran Polytechnic University 1985-1989

Academic Positions

Advisor to the University President, Sharif University of Technology, 2014 to date

Secretary of the University Council, Sharif University of Technology, 2012 to date

Director, Brilliant Talents Office, Sharif University of Technology, 2011- 2013

Director, Communication Systems Group, School of Electrical Engineering, Sharif University of Technology, 2005-2010

Plenipotentiary representative of the University for the Development of the School of Electrical Engineering Building/East Wing 1998-2001
(Supervised the financing, commissioning and construction of 6300 square meters East Wing Extension Building of the School of Electrical Engineering)

Director, Microwave and Optical Communications Group, 1997- 2014

Vice-chairman for Graduate Studies, School of Electrical Engineering, Sharif University of Technology, 1997-2003

Chairman, School of Electrical Engineering, Sharif University of Technology, 1992-1995

Director, Electronic Research Center, Sharif University of Technology, 1990-1992

Vice-chairman, Department of Electrical Engineering, Tehran Polytechnic University 1986-1988

EDUCATION

Doctorate, Electronic Engineering (Microwave and Optical Communications)
University of Limoges, France 1985.

DEA Electronic Engineering
University of Limoges, France 1982.

Master degree, Microwave and Satellite Communications
E.N.S.T., Paris, France 1981.

B.S. Electrical Engineering (5 years Program)
University of Shiraz, Iran 1980.

HONORS/Awards

Recipient of IEEE Iran Section Hakkak award (in recognition of tremendous and life-time contribution to national development and propagation of research in communications engineering), 2015

Co-recipient of Mojtahedi Innovation Award by SUTA, 2010

Recipient of THE MAXWELL PREMIUM, IEE, Microwaves Antennas and Propagation, 2001

Co-recipient of the Microwave Prize, European Microwave Conference, 1985

Top DEA graduating student from University of Limoges (Electronics), 1982

Top graduating EE student from University of Shiraz (Electrical Engineering), 1980

SOCIETY MEMBERSHIP

- Senior Member, IEEE
 - Founding Member, Iranian Association of Electrical and Electronic Engineers (IAEEE)
 - Scientific Committee Member, Iranian Conference of Electrical Engineering (ICEE 1996-2016)
 - Member of Electrical Engineering Educational Programming Committee, Ministry of Science, Research and Technology of Iran (1996 to date)
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COURSES TAUGHT

- RF Communication Circuits
- Microwaves
- Antennas
- Microwave Semiconductor Devices
- Microwave Active Circuits
- Satellite Communications
- Radio-wave Propagation for Wireless Communications

Selected Journal Papers

- [1] M. Salarpour, F. Farzaneh, R.B. Staszewski " A Low Cost-Low Loss Broadband Integration of a CMOS Transmitter and its Antenna for mm-wave FMCW Radar Applications", *International Journal of Electronics and Communications AEU*, No. 95, 2018, pp. 313-325.
- [2] M. Salarpour, F. Farzaneh, "Design and Calibration Procedure of a Proposed V-band Antenna Array on Fused Silica Technology Intended For MIMO Application", *International Journal of Microwave and Optical Technology*, vol. 13, No. 4, July 2018, pp.317-329.
- [3] M. Samizadeh Nikoo, S.M.A. Hashemi, F. Farzaneh, "Theory of RF Pulse Generation Through Nonlinear Transmission Lines", *IEEE Transactions on Microwave Theory and Techniques*, vol. 66, No. 7, July 2018, pp.3234-3244.
- [4] M. Samizadeh Nikoo, S.M.A. Hashemi, F. Farzaneh, "A Two-Stage DSRD-Based High Power Nanosecond Pulse Generator", *IEEE Transactions on Plasma Science*, vol. 46, No. 2, February 2018, pp. 427-433.
- [5] M. Samizadeh Nikoo, S.M.A. Hashemi, F. Farzaneh, "Theory of Terminated Nonlinear Transmission Lines", *IEEE Transactions on Microwave theory and Techniques*, vol. 66 No.1, January 2018, pp. 91-99.

- [6] S. Mollai, F. Farzaneh, "Compact Cross Form Antenna Arrays Intended for Wideband Two Dimensional Interferometric Direction Finding Including the Channel Phase Tracking error", *International Journal of Electronics and Communications AEU*, No. 83, 2018, pp. 558-565.
- [7] S. Poormohammad, F. Farzaneh, "Precision of Direction of Arrival (DOA) Estimation Using Novel Three Dimensional Array Geometries", *International Journal of Electronics and Communications AEU*, No. 75, 2017, pp. 35-45.
- [8] A. Salehi Barzegar, A. Banai, F. Farzaneh, "Sensitivity Improvement of Phase Noise Measurement of Microwave Oscillators Using IF Delay Line Based Discriminator", *IEEE Microwave and Wireless Component Letters*, vol. 26, No. 7, July 2016, pp. 546-548.
- [9] S.M.H. Javadzadeh, A. Bruno, F. Farzaneh, M. Fardmanesh, "Non-linearity in Superconducting Coplanar Waveguide Rectangular-Spiral Resonators" *IET Microwaves, Antennas and Propagation*, vol.9, Issue 3, March 2015, pp. 230-236.
- [10] S. Jahanbakht, F. Farzaneh, "Phase Noise Characterization of Oscillators through Ito Calculus" *International Journal of Circuit Theory and Applications*, September 2014.
- [11] S.M.H. Javadzadeh, F. Farzaneh, M. Fardmanesh, "Analytical Distributed non-linear Model for Symmetric and Asymmetric Superconducting Parallel-Coupled Microstrip lines" *IET Microwaves Antennas and Propagation*, vol.8, Issue 6, April 2014, pp. 429-436.
- [12] S.M.H. Javadzadeh, A. Bruno, F. Farzaneh, M. Fardmanesh, "Superconducting Compact CPW Filters Based on Quarter-Wavelength Spiral Resonators with Suppressed Slot-Line Mode" *Electromagnetics* Vol. 34 No.1, pp.1-7, Jan. 2014.
- [13] M.R. Modarresi, A. Banai, F. Farzaneh, "Vibration Sensitivity Reduction of two Microwave Oscillators using Inter-injection Locking Technique" *IET Microwaves Antennas and Propagation*, vol.7, Issue 10, October 2013, pp. 1102-1112.
- [14] M. Eslami Rasekh, F. Farzaneh, "Interference Analysis in Urban Mesh Network Operating in 60 GHz Band" *ETRI Journal*, vol. 35, No.5, October 2013.
- [15] S.M.H. Javadzadeh, F. Farzaneh, M. Fardmanesh, "Current Distribution and Nonlinearity of Open-Ends and Gaps in Superconducting Microstrip Structures" *Journal of Superconductivity and Novel Magnetism* Vol.26 No.5, pp. 1821-1825, August 2013.
- [16] S. Mollai, S.M.H. Javadzadeh, A.A. Shishegar, A. Banai, F. Farzaneh, M. Fardmanesh, "Analysis of Nonlinearities in Superconducting Microstrip Bends; FDTD Method in Comparison with Nonlinear Circuit Modeling" *Journal of Superconductivity and Novel Magnetism* Vol. 26 No.5, pp. 1827-1830, August 2013.
- [17] M. Atamanesh, F. Farzaneh, "A Proposed Equivalent Channel Power Delay Profile for a Millimeter Wave Wireless OFDM System and Optimum Guard Interval

Evaluation in a Built-up Area Propagation Scenario” *Wireless and Personal Communications*, Vol.69, No.4, pp. 1-17, August 2013.

[18] S.M.H. Javadzadeh, F. Farzaneh, M. Fardmanesh, “Nonlinear Circuit Model for Discontinuity of Step in Width in Superconducting Microstrip Structures and Its Impact on Nonlinear Effect” *IEEE Trans. On Applied Superconductivity*, Vol. 23, No.2 April 2013.

[19] S.M.H. Javadzadeh, F. Farzaneh, M. Fardmanesh, “Modeling of unusual nonlinear behaviors in superconducting microstrip transmission lines” *Physica C* 486 pp. 37-42 2013.

[20] S.M.H. Javadzadeh, Z. Mardy, K. Mehrany, F. Farzaneh, M. Fardmanesh, “Fast and Efficient Analysis of Transmission lines with Arbitrary Nonuniformities of Sub-wavelength Scale” *IEEE Transactions on Microwave Theory and Techniques* Vol. 60 No.8 , pp. 2378-2384, August 2012.

[21] S.M.H. Javadzadeh, Z. Mardy, F. Farzaneh, K. Mehrany, M. Fardmanesh, “Quasi Static Modeling of Weak Nonlinearity in Superconducting Transmission Lines with Sub-wavelength Non-Uniformity” *Physics Procedia* Vol. 36 pp. 421-424, January 2012.

[22] S.M.H. Javadzadeh, Z. Mardy, F. Farzaneh, M. Fardmanesh, “Closed Form Formulas for Distributed Circuit Model of Discontinuities in HTS Microstrip Transmission Lines” *Physics Procedia* Vol. 36 pp. 183-186, January 2012.

[23] S.M.H. Javadzadeh, M.S. Majedi, F. Farzaneh, “Broadside Coupler Channels 1to 10 GHz” *Microwaves and RF*, Vol. 50 No. 1, pp. 68-76, January 2012.

[24] M. Atamanesh, F. Farzaneh, “Microwave Wireless Orthogonal Frequency Division Multiplexing System Optimum Guard Interval Evaluation in an Urban Scenario around 5 GHz,” *IET Communications*, Vol.5, Issue 8, August 2011, pp.1113-1122.

[25] S. Jahanbakht, F. Farzaneh, “Computing all the Floquet Eigenfunctions of Oscillators Using Harmonic Balance Jacobian Matrices” *IET Circuits, Devices and Systems* Vol. 5, Issue 4, July 2011, pp. 257-266.

[26] S. Tooni, A. Banai, F. Farzaneh, “Evaluation of Beam Steering in Circular Planar Array of Microwave Oscillators,” *International Journal of RF and Microwave Computer-Aided Engineering* Vol. 21, No.4, April 2011, pp.383-391.

[27] S. Jahanbakht, F. Farzaneh, “Computation of the Phase and Amplitude Noise in Microwave Oscillators and a Simplified Calculation Method for far enough from the Carrier Offsets,” *IET Microwaves, Antennas and Propagations*, Vol. 4 Issue 12 December 2010, pp.2031-2041.

- [28] A. Ahmadi, A. Banai, F. Farzaneh, "Phase Noise Degradation of Varactor and BJT Frequency Multipliers in the Presence of Parametric Instability," *IET Microwaves, Antennas and Propagation*, Vol. 4(3), pp. 408-419, 2010.
- [29] M. Atamanesh, F. Farzaneh, "Precision Enhancement in ETSI-Hata Propagation Model Tuning Using Experimental Data in a Dense Urban Area." *International Journal of Communication Systems*, Vol. 23(1), pp. 101-108.
- [30] Ali Kheirdoost, Ali Banai, Forouhar Farzaneh, "An Analytical Approach in Analysis of Local Oscillator Near-the-Carrier AM Noise Suppression in Microwave Balanced Mixers", *IEEE Transactions on Microwave Theory and Techniques*, VOL. 57, No. 4, April 2009, pp. 760-766.
- [31] M.H. Akbarpour, A. Banai, F. Farzaneh, "Analytical Mode Distribution and Resonant Frequencies in Ladder Networks Used in Power Combining Oscillator Arrays", *Scientia Iranica*, Vol. 15, No.2, April 2008, pp. 175-181
- [32] H. Hajian, A. Banai, F. Farzaneh, "Statistical Definition of Locking Bandwidth in an Array of synchronized Microwave Oscillators" *IET Proceedings on Microwaves, Antennas and Propagation*, VOL. 2, No. 1, February 2008, pp. 74-81.
- [33] A.M. Afshin Hemmatyar and Forouhar Farzaneh, "A new analytical approach in modeling of multi-loop feed-forward linearized microwave power amplifiers", *AEU - International Journal of Electronics and Communications*, Vol. 61, August 2007.
- [34] A.M. Afshin Hemmatyar and Forouhar Farzaneh, "Prediction of Inter-modulation rejection values for the first and second adjacent channels in feed-forward linearised microwave amplifiers using closed-form expressions", *IET Proc. Microwaves, Antennas and Propagation*, Volume 1, Issue 3, June 2007 Pages: 782-789.
- [35] M. Nick, A. Banai, F. Farzaneh, "Phase-Noise Measurement Using Two Inter-Injection Locked Microwave Oscillators", *IEEE Trans. Microwave Theory and Techniques*, Vol. 54, No.7, July 2006.
- [36] A. Banai, F. Farzaneh and M.Ayazian, "Investigation of Locking Bandwidth in Linear and Circular Arrays of Mutually Coupled Oscillators, Intended for Microwave Power Combining", *IEE Proc. Microwaves, Antennas and Propagation* Vol.152, No.6, December 2005.
- [37] A. Banai, F. Farzaneh, "Output Power Variations in Two Mutually Coupled Microwave Oscillators and the Effect of Nonlinear Reactance on the Locking Bandwidth" *IEE Proc. Microwaves, Antennas and Propagation*, Vol. 150, No. 2, April 2003.
- [38] M. Bigeush, S. Valaee, B. Champagne, M. Bastani, F. Farzaneh, "A Robust Side lobe Canceller for Reflector Antennas Using Signal Subspace Eigenvectors", *Belgian Journal of Electronics and Communications, Revue HF* Vol. XXV, No.3, 2001.

- [39] E. Mehrshahi, F. Farzaneh, "An analytical Approach in Calculation of Noise Spectrum in Microwave Oscillators Based on Harmonic Balance", *IEEE Trans. Microwave Theory and Techniques*, Vol. 48, No.5, May 2000.
- [40] A. Banai, F. Farzaneh, "Locked and Unlocked Behaviour of Mutually Coupled Microwave Oscillators", *IEE Proc. Microwaves, Antennas and Propagation*, Vol.147, No.1, February 2000.
- [41] F. Farzaneh, E. Mehrshahi, "A New Quasi-Newton Method in Harmonic Balance Analysis of a Microwave Oscillator", *Belgian Journal of Electronics & Communications, Revue HF* Vol. XXI, No.4, 1997.
- [42] J. Obregon, F. Farzaneh, "Definition of Nonlinear Reflection Coefficient of a Microwave Device Using Describing Function Formalism", *IEEE Transactions on Microwave Theory and Techniques* VOL. 32, No. 4, April 1984, pp.452-455.
- [43] Correa de Albuquerque M., Farzaneh F., Obregon J., "Definition Theorique des Parametres En Fort Niveau d'un Multi-pole Actif Non-lineaire" *Annales des Telecommunications*, Vol.40, No. 3-4, pp. 106-110.
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Selected Conference Papers

- [1] M. Salarpour, R.B. Staszewski, F. Farzaneh, "A mm-Wave MIMO Transmitter with Digital Beam Steering Capability Using CMOS All-Digital Phase Locked Loop Chips" IMWS-5G, IEEE MTT-S Conference, Dublin, Ireland 2018.
- [2] M. Salarpour, Farzaneh, R.B. Staszewski, "Design Procedure for a U-Slot Patch Antenna Array for 60 GHz MIMO Application" TCSET Conference, Lvov, Ukraine February 2018.
- [3] M. Ranjbar Naeini, M. Fakharzadeh, F. Farzaneh, "Travelling Wave Ka-band Frequency Scanning Antennas for Millimeter-wave Imaging Applications" International Symposium on Telecommunications (IST 2016), ITRC, Tehran, September 2016.
- [4] Atamanesh, F. Farzaneh, "Space Diversity Evaluation in Millimeter band Wireless Communication Systems" Progress in Electromagnetics research Symposium pp. 608-612, 2011.
- [5] A.A. Tarkhan, F. Farzaneh, B.H. Khalaj, "Mutual Coupling and Correlation Based Suboptimal Antenna Subset Selection in MIMO Systems," *2011 International Symposium on Computer Networks and Distributed Systems*, CNDS2011, art. No.5764558, pp. 12-16. IEEE CNF.
- [6] A.A. Tarkhan, F. Farzaneh, B.H. Khalaj, "Efficient Suboptimal Transmit Antenna Selection for MIMO Relay Channels," *2011 International Symposium on Computer Networks and Distributed Systems*, CNDS2011, art. No.5764583, pp. 45-48. IEEE CNF.

- [7] H. Sadeghi, F. Farzaneh, "A simplified Method for Computation of Scattered Fields by the Lamp-posts Along a Boulevard Used for Wireless Communications in 2-GHz Band," *Mediterranean Microwave Symposium 2010*, 25-27 August 2010, Cyprus.
- [8] M.E. Rasekh, F. Farzaneh, A.A. Shishegar, "A Street Canyon Approximation Model for the 60 GHz Propagation Channel in an Urban Environment with Rough Surfaces" *2010 5th International Symposium on Telecommunications, IST2010*, art. No. 5734012, pp. 132-137.
- [9] M.E. Rasekh, A.A. Shishegar, F. Farzaneh, "A Study of Effect of Diffraction and Rough Surface Scatter Modeling on Ray Tracing Results in an Urban Environment at 60 GHz" *MMaTT 2009- 1st Conference on Millimeter-wave and Terahertz Technologies*, art. No. 5450459, pp. 27-31.
- [10] S.M.S. Majedi, F. Farzaneh, "A New Empirical-Physical Method for Calculation of Path Loss for Fixed Wireless Access in Suburban Areas", *International Symposium on Telecommunications, IST 2008*, 27-28 August 2008, pp. 92-96. IEEE CNF
- [11] M. Atamanesh, F. Farzaneh, "Frequency Planning of GSM cellular Communication Network in Urban Areas Including Traffic Distribution, A Practical Implementation", *Electromagnetic Compatibility and 19th International Zurich Symposium on Electromagnetic Compatibility, 2008, APEMC 2008*, 19-23 May 2008, pp. 891-894. IEEE CNF
- [12] M.H. Ostovarzadeh, F. Farzaneh, "A Proposed Multi-beam Ka-band Satellite for Providing High-Speed Internet Service for Iranian Universities and Educational Institutions", *Telecommunications and Malaysia International Conference on Communications, 2007. ICT-MICC 2007*, 14-17 May 2007, Pages 283-288. IEEE CNF
- [13] A.M.A. Hemmatyar, F. Farzaneh, "Estimation of Practical Inter-modulation Rejection Values in a Multi-loop Feed-forward Microwave Power Amplifier using Monte-Carlo Method", *Telecommunication and Malaysia International Conference on Communications, 2007, ICT-MICC 2007*, 14-17 May 2007, Pages 632-637. IEEE CNF
- [14] I. Mostafanezhad, A. Banai, F. Farzaneh, "Investigating the Instabilities of the TLM Method Using a State Space Approach", *Workshop on Computational Electromagnetics in Time-Domain 2007, CEM-TD 2007*, 15-17 Oct. 2007, Pages 1-4. IEEE CNF
- [15] S. Taheri and F. Farzaneh, "New Methods of Reducing the Phase Quantization Error Effects on Beam Pointing and Parasitic Side Lobe Level of The Phased Array Antennas", *Asia-Pacific Microwave Conference, APMC2006*, 12-15 Dec. 2006 Yokohama, Japan, pp. 2114-2117. IEEE CNF
- [16] A. Izadi, Z. Ghatan, B.V. Vahdat, F. Farzaneh, "Design and Simulation of a Life Detection System Based on Detection of Heart Beat Using Doppler Frequency", 2006

IEEE International Symposium on Signal Processing and Information Technology, August 2006, Pages 685-690.

[17] A.M. Afshin Hemmatyar and Forouhar Farzaneh, "Monte-Carlo Analysis for Estimation of Practical Inter-modulation Rejection Values in Feed-forward Microwave Amplifiers" Proc. 13th International Conference on Telecommunications, ICT 2006, 9-12 May 2006, Madeira Island, Portugal.

[18] A. Banai, F. Farzaneh, "Theoretical Investigation of Stability of Modes in an Array of Coupled Oscillators for Linear and Circular Arrangements" Proc. European Conference on Circuit Theory and Design, Cork, Ireland, 28 Aug.-2 Sept. 2005. Pages II/23-II/26. vol. 2. IEEE CNF

[19] S. Jahanbakht, F. Farzaneh, "Nonlinear Microwave Circuits Analysis by Spectral Balance Method Based on Small Signal Measurements" Proc. 13th Iranian Conference on Electrical Engineering, Vol. 2 Communications, May 2005.

[20] B. Faraji, S. Noghanian, F. Farzaneh, "Slot Antenna for Short Pulse Radiation", 10th International Symposium on Antenna Technology and Applied Electromagnetics, ANTEM 2004/ URSI, July 2004.

[21] B. Faraji, S. Noghanian, F. Farzaneh, "Patch Antennas Feed Modeling for Method of Moments" 10th International Symposium on Antenna Technology and Applied Electromagnetics, ANTEM 2004/ URSI, Canada, July 2004.

[22] G. Moradi, A. Abdipour, F. Farzaneh, "Signal and Noise Improvement of a Distributed FET Mixer", the 10th IEEE International Symposium on Electron Devices for Microwave and Optoelectronic Applications, EDMO 2002. 18-19 Nov. 2002. Pages: 284-288. IEEE CNF

[23] G. Moradi, A. Abdipour, F. Farzaneh, A. Ghorbani, "Signal and Noise Improvement of Travelling Wave FET Mixers", 2nd International Conference on Microwave and Millimeter Wave Technology, ICMMT 2000, 14-16 Sept 2000. Pages: 76-79. IEEE CNF

[24] G. Moradi, A. Abdipour, A. Ghorbani, F. Farzaneh, "Signal and Noise Analysis in Sliced Model of a FET Mixer" 2nd International Conference on Microwave and Millimeter Wave Technology, ICMMT 2000, 14-16 Sept. 2000, Pages 5-8. IEEE CNF

[25] F. Farzaneh, E. Mehrshahi, "A Novel Noise Analysis Method in Microwave Oscillators Based on Harmonic Balance", 28th European Microwave Conference, 1998, Vol. 2 Oct. 1998, Pages 255-260. IEEE CNF

[26] N. Mamodaly, F. Farzaneh, A. Bert, J. Obregon, P. Guillon, "A Fundamental Mode InP Gunn Dielectric Resonator Oscillator at 94 GHz" 15th European Microwave Conference 1985, Pages 170-176. IEEE CNF

[27] F. Farzaneh, P. Guillon, Y. Garault, "Coupling between a Dielectric Image Guide and a Dielectric Resonator", MTT-S International Microwave Symposium Volume 84, No. 1 May 1984, Pages 115-117. IEEE CNF

BOOKS

Introduction to Wireless Communication Circuits

F. Farzaneh, A. Fotowat, M. Kamarei, A. Nikoofard, M. Elmi
River Publishers, Netherlands 2018

Technical English for Electrical Engineers

Minoo Alemi, Forouhar Farzaneh
Sharif University Press 2016

RF Communication Circuits (in Persian)

Forouhar Farzaneh
Sharif University Press 2005

English Letter Composition, Electronic mail and Internet Chat

Mehrzad Biguesh and Forouhar Farzaneh
Sharif University Press 2003