

دکتر محمد دانائی

بیوگرافی

محمد دانایی مدرک کارشناسی و کارشناسی ارشد خود را از دانشگاه فردوسی مشهد در سالهای ۱۳۸۴ و ۱۳۸۶ و مدرک دکترای خود از دانشگاه صنعتی امیر کبیر همگی با درجه عالی دریافت کرد و از سال ۱۳۹۱ استادیار رشته مهندسی برق، گروه الکترونیک در دانشگاه سمنان شد. وی نویسنده و همکار نویسنده دو کتاب و بیش از ۳۰ مقاله در مجلات معتبر انگلیسی است. زمینه های پژوهشی فعلی او شامل ادوات نانوفوتونی، پلاسمونیک، اپتیک مجتمع، بلور فوتونی، دروازه های منطقی نوری و حافظه نوری می شود.

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تحصیلات:

کارشناسی مهندسی برق-الکترونیک از دانشگاه فردوسی مشهد.
کارشناسی ارشد مهندسی برق-الکترونیک از دانشگاه فردوسی مشهد.
دکتری مهندسی برق از دانشگاه صنعتی امیر کبیر تهران.

زمینه های تحقیقاتی

بلورهای فوتونی
مدارات مجتمع نوری
ادوات گرافنی
پلاسمونیک

Books

1. Mohammad Danaie, Behdad Barahimi, Basics of theoretical and numerical analysis of photonic crystals, Publisher: Semnan University Press, ISBN: 978-600-8424-66-6, June 2018. (In Persian language)
2. Hamed Aminzadeh, Mohmmad Danaie, Analog Electronics, Publisher: Payame Noor University Press, ISBN: 978-964-14-0300-5, May 2016. (In Persian language)
3. Mohammad Danaie, Hassan Kaatuzian, "Employing Optical Nonlinearity in Photonic Crystals: A Step Towards All-Optical Logic Gates," Chapter 8, pp. 123-142, in the book "Photonic Crystals - Innovative Systems, Lasers and Waveguides" edited by Alessandro Massaro, ISBN 978-953-51-0416-2, InTech, March 3, 2012. ([PDF](#))

[Employing Optical Nonlinearity in Photonic Crystals: A Step Towards All-Optical Logic Gate](#)

Journal papers

1. Danaie M, Geravand A. Design of low-cross-talk metal–insulator–metal plasmonic waveguide intersections based on proposed cross-shaped resonators. *Journal of Nanophotonics*. 2018 Oct;12(4):046009.
2. Khani S, Danaie M, Rezaei P. Double and triple-wavelength plasmonic demultiplexers based on improved circular nanodisk resonators. *Optical Engineering*. 2018 Oct;57(10):107102.
3. Danaee E, Geravand A, Danaie M. Wide-band low cross-talk photonic crystal waveguide intersections using self-collimation phenomenon. *Optics Communications*. 2019 Jan 15; 431:216-228.
4. Geravand A, Danaie M, Mohammadi S. All-optical photonic crystal memory cells based on cavities with a dual-argument hysteresis feature. *Optics Communications*. 2019 Jan 1; 430:323-335.
5. Danaie M, Kiani B. Design of a label-free photonic crystal refractive index sensor for biomedical applications. *Photonics and Nanostructures-Fundamentals and Applications*. 2018 Sep 1;31:89-98.
6. Moradi M, Danaie M, Orouji AA. Design and analysis of an optical full-adder based on nonlinear photonic crystal ring resonators. *Optik*. 2018 Jul 5.
7. Khani S, Danaie M, Rezaei P. Miniaturized microstrip dual-band bandpass filter with wide upper stop-band bandwidth. *Analog Integrated Circuits and Signal Processing*. 2018:1-10.
8. Khani S, Danaie M, Rezaei P. Design of a Single-Mode Plasmonic Bandpass Filter Using a Hexagonal Resonator Coupled to Graded-Stub Waveguides. *Plasmonics*. 2018:1-10.
9. Khani S, Danaie M, Rezaei P. Realization of single-mode plasmonic bandpass filters using improved nanodisk resonators. *Optics Communications*. 2018 Aug 1;420:147-56.
10. Danaie M, Ranjbar E, Khanesar MA. MOSCAP compensation of three-stage operational amplifiers: Sensitivity and robustness, modeling and analysis. *Integration*. 2018 May 18.
11. Khani S, Mousavi SM, Danaie M, Rezaei P. Tunable compact microstrip dual-band bandpass filter with tapered resonators. *Microwave and Optical Technology Letters*. 2018 May;60(5):1256-61.
12. Danaie M, Geravand A, Mohammadi S. Photonic crystal double-coupled cavity waveguides and their application in design of slow-light delay lines. *Photonics and Nanostructures-Fundamentals and Applications*. 2018 Feb 28;28:61-9.
13. Khalili S, Danaie M. Interface analysis of indium antimonide and passive layer in infrared detector and presenting a new structure to improve dark current. *Superlattices and Microstructures*. 2018 Feb 3.
14. Danaie M, Nasiri Far R, Dideban A. Design of a High-Bandwidth Y-Shaped Photonic Crystal Power Splitter for TE Modes. *International Journal of Optics and Photonics*. 2018 Jan 15;12(1):33-42.
15. Khani S, Makki SV, Mousavi SM, Danaie M, Rezaei P. Adjustable compact dual-band microstrip bandpass filter using T-shaped resonators. *Microwave and Optical Technology Letters*. 2017 Dec 1;59(12):2970-5.

16. Danaie M, Nasirifar R, Dideban A. Design of adjustable T-shaped and Y-shaped photonic crystal power splitters for TM and TE polarizations. *Turkish Journal of Electrical Engineering & Computer Sciences*. 2017 Oct 6;25(5):4398-408.
17. Ranjbar E, Danaie M. Frequency compensation of three-stage operational amplifiers: Sensitivity and robustness analysis. *Microelectronics Journal*. 2017 Aug 1;66:155-66.
18. Hajshahvaladi L, Kaatuzian H, Danaie M. Analysis and Design of Semiconductor Photonic Crystal Double Bandpass Filter for CWDM Systems. *International Journal of Optics and Applications*. 2017;7(3):49-54.
19. Dadras M, Rezaei P, Danaie M. Planar Double-Band Monopole Antenna with Photonic Crystal Structure. *Indian Journal of Science and Technology*. 2016 Dec 3;8(36).
20. Ghomashi M, Kaatuzian H, Danaie M. Design and simulation of normally open and normally closed all-optical switches based on photonic crystal triple-waveguide directional coupler. *Optical and Quantum Electronics*. 2016 Jan 1;48(1):35.
21. Pilehvar E, Kaatuzian H, Danaie M. Design of a high-transmission waveguide bend for Kagome photonic crystal lattice. *Optik-International Journal for Light and Electron Optics*. 2015 Oct 1;126(19):1914-7.
22. Aminzadeh H, Danaie M, Serdijn WA. Hybrid cascode feedforward compensation for nano-scale low-power ultra-area-efficient three-stage amplifiers. *Microelectronics Journal*. 2013 Dec 1;44(12):1201-7.
23. Pilehvar E, Kaatuzian H, Danaie M. Simulation and Design of a Low Crosstalk Hexagonal Photonic Crystal Crossover Waveguide. *Optics and Photonics Journal*. 2013 Jun 28;3(02):209.
24. Danaie M, Kaatuzian H. Design and simulation of an all-optical photonic crystal AND gate using nonlinear Kerr effect. *Optical and Quantum Electronics*. 2012 May 1;44(1-2):27-34.
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31. Aminzadeh H, Danaie M, Lotfi R. Design of high-speed two-stage cascode-compensated operational amplifiers based on settling time and open-loop parameters. *INTEGRATION, the VLSI journal*. 2008 Feb 1;41(2):183-92.

Conference Papers

1. Hassan Kaatuzian, **Mohammad Danaie**, Shaghayegh Foghani, " Design of a High Efficiency Wide-Band 60 Degree Y-Branch for TE Polarization," OECC 2009, Hong Kong, 14th Volume , Issue , 13-17 July 2009 Page(s)1 - 2.
2. Hamed Aminzadeh, **Mohammad Danaie**, and Reza Lotfi, "Design of Two-Stage Miller-Compensated Amplifiers Based on an Optimized Settling Model," In Proceedings of 20th international conference on VLSI Design (IEEE VLSID'07), Bangalore-India, Jan. 6-10, 2007.
3. Hamed Aminzadeh, **Mohammad Danaie**, and Reza Lotfi, "Design of Cascode-Compensated Opamps Based on Settling Time and Open-Loop Parameters," In proceedings of 24th NORCHIP IEEE conference, Linkoping-Sweden, Nov. 20-21, pp. 111-116, 2006.
4. **Mohammad Danaie** and Reza Lotfi, "A Low-Voltage High-PSRR CMOS PTAT & Constant-Gm Reference Circuit," In Proceedings of the 48th IEEE International Midwest symposium on Circuit and Systems, (IEEE MWSCAS'05), Cincinnati-Ohio-USA, Aug. 7-10, vol. 2, pp.1807-1810, 2005.

5. Hamed Aminzadeh, **Mohammad Danaie**, and Reza Lotfi, "A Low-Power Design Methodology for Single-Stage Operational Amplifiers," In Proceedings of 1st International Conference on Design & Test of Integrated Systems in Nano-Scale Technology (IEEE DTIS'06), Gammarth-Tunisia, Sept. 5-7, pp.62-67, 2006.
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7. Hamed Aminzadeh, **Mohammad Danaie**, and Reza Lotfi, "High-Resolution MOSFET-Only Pipelined ADCs with Digital Calibration," In Proceedings of Design, Automation & Test Conference in Europe and Exhibition (DATE07), Nice-France, Apr. 16-20, pp.1-6, 2007.
8. **Mohammad Danaie**, Hamed Aminzadeh, Sasan Naseh, "On the Linearization of MOSFET Capacitors," In Proceedings of IEEE International Symposium on Circuits & Systems (IEEE ISCAS'07), Lafayette-New Orleans-USA, May. 27-30, pp.1943-1946, 2007.
9. Hamed Aminzadeh, **Mohammad Danaie**, and Reza Lotfi, "Design of Two-Stage MOSFET-Only Operational Amplifiers", In proceedings of 2^{5th} NORCHIP IEEE conference, Nov. 19-20, Aalborg-Denmark, 2007.
10. **Mohammad Danaie**, Amir reza Attari, Mir Mojtaba Mirsalehi, Sasan Naseh, "Optimization of two dimensional photonic crystal waveguides for TM polarization," In Proceedings of IEEE International Conference on Computer as a Tool (IEEE EUROCON'07), Warsaw-Poland, Sep. 9-11, pp.1218-1222. 2007.
11. **Mohammad Danaie**, Amir reza Attari, Mir Mojtaba Mirsalehi, Sasan Naseh, "Neuro-Fuzzy Optimization of Photonic Crystal Structures," In Proceedings of IEEE International Conference on Computer as a Tool (IEEE EUROCON'07), Warsaw-Poland, Sep. 9-11, pp.1223-1226, 2007.
12. **Mohammad Danaie**, Mohammad Sharifi , Hamidreza Rezaee-D., "The Efficiency of Using Multi-Step Genetic Algorithms for Optimization of Bandgap Reference Circuits," In Proceedings of 14th Iranian Conference on Electrical Engineering (ICEE'06), Amirkabir Univ., Tehran, pp. 117-121 2006.
13. Hamidreza Rezaee-D. , Amin Ibrahimy-K. , **Mohammad Danaie**, "Design of a CMOS Gilbert Cell Mixer Using Differential Evolutionary Algorithm," In Proceedings of 9th Iranian Student conference on electrical engineering, Tehran Univ., Tehran, 2006.
14. Mahnaz Arvaneh, **Mohammad Danaie**, "On the Optimality of Fuzzy PID Neuro-Gain-Scheduling Controller for Nonlinear Systems," In Proceedings of 15th Iranian conference on Electrical Engineering, (ICEE'07), Iran Tele-Communications Research Center, Tehran, pp. 80-85, 2007.
15. **Mohammad Danaie**, Amir reza Attari, Mir Mojtaba Mirsalehi, Sasan Naseh, "Optimization of photonic crystal structures using neuro-fuzzy networks," In Proceedings of 13th Iranian optics and photonics conference (ICOP'07), Iran Tele-Communications Research Center, Tehran, pp. 411-416, 2007.
16. Maliheh Khatibi Moghadam, Amir Reza Attari, Mir Mojtaba Mirsalehi, **Mohammad Danaie** "Design and optimization of a single-mode photonic crystal waveguide," In Proceedings of 15th Iranian conference on Electrical Engineering, (ICEE'07), Iran Tele-Communications Research Center, Tehran, pp. 146-151, 2007.
17. **Mohammad Danaie**, Amir reza Attari, Mir Mojtaba Mirsalehi, Sasan Naseh, " Increasing Complete Photonic bandgap in photonic crystal slabs," In Proceedings of 16th Iranian conference on Electrical Engineering, (ICEE'08), Tarbiat Modares Univ., Tehran., pp. 39-43, 2008.

Current PhD Students:

- Ruhollah Nasirifar (2014-now) Supervisor
- Shiva Khani (2016-now) Supervisor
- Marziyeh Moradi (2016-now) Supervisor
- Majid Malek (2018-now) Supervisor
- Mohammadreza Nikpay (2018-now) Supervisor
- Sara Gholinezhad Shafagh (2016-now) Advisor
- Leila Hajshahvaladi (2017-now) Advisor

Current MSc Students:

- Mahdiye Rahmatiyar (Supervisor)
- Mohsen Vahdani (Supervisor)
- Mohammad Saber Akhoondi (Supervisor)
- Maryam Babaei (Advisor)
- Heidar Ghavami (Advisor)
- Alireza Mazdarani (Supervisor)
- Fatemeh Rahman Zadeh (Advisor)

Former MSc Students:

- Akram Nasiri (Advisor)
- Ebrahim Danaee (Supervisor)
- Mohammad Hossein Meftahi (Supervisor)
- Sahar Armaghani (Supervisor)
- Fatemeh Mazloun Tehrani (Supervisor)
- Behnam Kiani (Supervisor)
- Alireza Geravand (Supervisor)
- Sajjad Khalili (Supervisor)
- Esmael Ranjbar (Supervisor)
- Behdad Barahimi (Supervisor)
- Meysam Ordikhani (Advisor)
- Mehrdad Pourjahed (Supervisor)
- Reza Ghorban Ebrahimi (Supervisor)
- Nasser Hasanzadeh (Supervisor)
- Mahmoudreza Dadras (Advisor)
- Mohammadamin Ghomashi (Advisor)
- Leila Hajshahvaladi (Advisor)
- Elnaz Pilehvar (Advisor)
- Leila Sadat Rahimifard (Advisor)
- Shaghayegh Foghani (Advisor)