

Ali Medi

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Courses Offered

Electronics I, II & III (Undergraduate)
Monolithic Microwave Integrated Circuit Design (Graduate)
Integrated Circuit Design CAD (Graduate)
Integrated Power Amplifier Design (Graduate)
Radio Frequency Circuits and Systems Design (Undergraduate)
Radio Frequency Circuits Laboratory (Undergraduate)
Analog Electronics (Undergraduate)
Principles of Electronics (Undergraduate)
Principles of Electrical Engineering (Undergraduate)

Education

Ph.D. Electrical Engineering **Univ. of Southern California (USC)** **Los Angeles, CA** **May 2003-Aug 2007**

- Research Topic: Design of CMOS Frequency Channelized UWB Transceiver.
- Emphasis in Analog and Wideband RF Integrated Circuit Design.

M.Sc. Electrical Engineering **Univ. of Southern California (USC)** **Los Angeles, CA** **Aug. 2001-May 2003**

- Emphasis in VLSI and Analog Integrated Circuit Design.

B.Sc. Electrical Engineering **Sharif Univ. of Technology (SUT)** **Tehran, Iran** **Sep. 1997-Jul. 2001**

- Emphasis in Telecommunications and Electronics.
- Ranked 87th out of 400,000 participants in Iran's University Entrance Exam (1997).

Experience

Professor	Sharif University of Technology	Tehran, Iran	Mar. 2020-Present
Associate Professor	Sharif University of Technology	Tehran, Iran	Feb. 2015-Mar. 2020
Assistant Professor	Sharif University of Technology	Tehran, Iran	Jun. 2007-Feb. 2015

- Teaching analog and RF circuit design courses to undergraduate and graduate students.
- Re-organizing undergraduate and graduate analog and RF courses and labs.
- Researching in design and implementation of high-speed analog and RF integrated circuits.

Patents

“Ultra Small-Step Switchable Capacitor,” *Filled Jointly with Mr. Hooman Darabi Through Broadcom Corporation Patent Department*, US Patent Office Number 7,566,994.

Publications

Journals

- “An X-Band Class-J Power Amplifier With Active Load Modulation to Boost Drain Efficiency”, *IEEE Transactions on Circuits and Systems I: Regular Papers*, May 2020.
- “A reconfigurable highly-linear CMOS transceiver core chip for X-band phased arrays”, *AEU-International Journal of Electronics and Communications*, Feb. 2020.
- “High Precision CMOS Integrated Delay Chain for X-Ku Band Applications”, *IEEE Transactions on Microwave Theory and Techniques*, Apr. 2020.
- “CMOS integrated delay chain for X-Ku band applications”, *Analog Integrated Circuits and Signal Processing*, Jan. 2020.
- “Novel Trombone Topology for Wideband True-Time-Delay Implementation”, *IEEE Transactions on Microwave Theory and Techniques*, Apr. 2019.
- “Implicit common-mode resonance by parasitic capacitances in LC oscillators for Ka-band satellite receiver”, *The Journal of Engineering*, Dec. 2019.
- “Class-J₂₃ Power Amplifiers”, *IEEE Transactions on Circuits and Systems I: Regular Papers*, Oct. 2019.
- “Integrated Output Matching Networks for Class-J/J-1 Power Amplifiers”, *IEEE Transactions on Circuits and Systems I: Regular Papers*, Aug. 2019.
- “Analysis and design of multi-stage wideband LNA using simultaneously noise and impedance matching method”, *Microelectronics Journal*, April 2019.
- “Design of a 2–12-GHz Bidirectional Distributed Amplifier in a 0.18- μ m CMOS Technology”, *IEEE Transaction on Microwave Theory and Technology*, Feb. 2019.
- “A 125ps 8-18GHz CMOS Integrated Delay Circuit”, *IEEE Transaction on Microwave Theory and Technology*, Jan. 2019.
- “Sub-nominal Operation of Class-E Nonlinear Shunt Capacitance PA at Any Duty Ratio and Grading Coefficient”, *IEEE Transactions on Industrial Electronics*, Oct. 2018.
- “A Highly-Linear Dual-Gain CMOS Low-Noise Amplifier for X-Band”, *IEEE Transaction on Circuits and Systems-II*, Nov. 2017.
- “A highly efficient class-EF₂ power amplifier in GaAs pHEMT technology”, *Analog Integrated Circuits and Signal Processing*, Feb. 2017.
- “A 40GHz Bandwidth Tapered Distributed LNA”, *IEEE Transaction on Circuits and Systems-II*, Nov. 2017.
- “Outside Nominal Operation Analysis and Design Considerations of Inverse-Class-E Power Amplifier”, *IEEE Journal of Emerging and Selected Topics in Power Electronics*, Jan. 2017.
- “Class-J₂ Power Amplifiers”, *IEEE Transaction on Circuits and Systems-I*, Aug. 2017.
- “Investigation of a Class-J Mode Power Amplifier in Presence of a Second-Harmonic Voltage at the Gate Node of the Transistor”, *IEEE Transaction on Microwave Theory and Technology*, 2017.
- “Waveform Engineering at Gate Node of Class-J Power Amplifiers”, *IEEE Transaction on Microwave Theory and Technology*, July 2017.
- “Distributed Class-J Power Amplifiers”, *IEEE Transaction on Microwave Theory and Technology*, February 2017.

“Investigation of Integrated Smooth Transistor's Switching Transition Power Amplifier-2.4-GHz Realization of Class-EM”, *IEEE Transaction on Microwave Theory and Technology*, 2017.

“Dual-Band Design of Integrated Class-J Power Amplifiers in GaAs pHEMT Technology”, *IEEE Transaction on Microwave Theory and Technology*, 2017.

“Design of 6–18-GHz High-Power Amplifier in GaAs pHEMT Technology”, *IEEE Transaction on Microwave Theory and Technology*, July 2017.

“Transformer-Feedback Dual-Band Neutralization Technique”, *IEEE Transaction on Circuits and Systems-II*, May 2017.

“Co-design of Ka-Band Integrated Limiter and Low Noise Amplifier”, *IEEE Transaction on Microwave Theory and Technology*, September 2016.

“Wideband 5 W Ka-Band GaAs Power Amplifier”, *IEEE Microwave and Wireless Component and Letters*, August 2016.

“Design, Analysis and Implementation of Class-E ZCS/ZCDS Power Amplifier for Any Duty Ratio with Nonlinear Output Parasitic Capacitance”, *Analog Integrated Circuits and Signal Processing*, July 2016.

“On Design of Wideband Compact-Size Ka/Q-Band High-Power Amplifiers”, *IEEE Transaction on Microwave Theory and Technology*, June 2016.

“A Broadband Integrated Class-J Power Amplifier in GaAs pHEMT Technology”, *IEEE Transaction on Microwave Theory and Technology*, June 2016.

“Highly reliable 10-W X/Ku-band pHEMT monolithic microwave integrated circuit power amplifier”, *IET Microwave Antennas & Propagation*, June 2016.

“A V-Band MMIC Doubler Using a 4th Harmonic Mixing Technique”, *IEEE Microwave and Wireless Component and Letters*, May 2016.

“Design of Low-Noise Transimpedance Amplifiers with Capacitive Feedback,” *Springer Journal of Analog Integrated Circuits and Signal Processing*, February 2016.

“Transformer-Feedback Inter-stage Bandwidth Enhancement for MMIC Multistage Amplifiers,” *IEEE Transactions on Microwave Theory and Techniques*, February 2015.

“Unilateralization of MMIC Distributed Amplifiers,” *IEEE Transactions on Microwave Theory and Techniques*, December 2014.

“Wide-band high-efficiency Ku-band power amplifier,” *IET Circuits, Devices & Systems*, December 2014.

“Stability Analysis of Broadband Cascode Amplifiers in the Presence of Inductive Parasitic Components,” *IET Circuits, Devices & Systems*, November 2014.

“Design and Analysis of Broadband Darlington Amplifiers with Bandwidth Enhancement in GaAs pHEMT Technology,” *IEEE Transactions on Microwave Theory and Techniques*, August 2014.

“A Harmonic Termination Technique for Single- and Multi-Band High-Efficiency Class-F MMIC Power Amplifiers,” *IEEE Transactions on Microwave Theory and Techniques*, May 2014.

“Analysis of Parametric Oscillations in High Power Amplifiers,” *Scientia Iranica*, September 2012.

“A Design Procedure for High-Efficiency and Compact-Size 5–10-W MMIC Power Amplifiers in GaAs pHEMT Technology,” *IEEE Transactions on Microwave Theory and Techniques*, August 2013.

“A Fully Integrated 0.18-um CMOS Transceiver Chip for X-band Phased-Array Systems,” *IEEE Transactions on Microwave Theory and Techniques*, June 2012.

- “Analysis of Integral Nonlinearity Errors in Two-Step ADCs,” *IET Circuits, Devices & Systems*, January 2012.
- “A Novel Voltage-to-Voltage Logarithmic Converter with High Accuracy,” *Przegląd Elektrotechniczny (Electrical Review)*, April 2011.
- “A Novel Voltage-to-Voltage Logarithmic Converter with High Accuracy,” *Journal of Selected Areas in Microelectronics (JSAM)*, January 2011.
- “A 6-bit CMOS Phase Shifter for S-Band,” *IEEE Transaction on Microwave Theory and Techniques*, December 2010.
- “Analog Waveform Design for Energy-Efficient UWB Pulse Generators,” *Journal of Telecommunication*, 2010.
- “Transmitter Development for Cellular Integrated Circuits,” *IEEE Communications Magazine*, September 2008.
- “A High Data-Rate Energy-Efficient Interference-Tolerant Fully Integrated CMOS Frequency Channelized UWB Transceiver for Impulse Radio,” *IEEE Journal of Solid-State Circuits*, April 2008.

Conferences

“Low-Noise Transimpedance Amplifier Design Procedure for Optical Communications,” *22nd Austrian Workshop on Microelectronics (Austrochip)*, October 2014.

“A Novel Design Methodology for Low-Noise and High-Gain Transimpedance Amplifiers,” *Argentine Conference on Micro-Nanoelectronics, Technology and Applications (EAMTA)*, July 2014.

“Analysis of Random Capacitor Mismatch Errors in Pipeline Analog-to-Digital Converters,” *IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2011.

“A 1.93 Pa/sqrt(Hz) Transimpedance Amplifier for 2.5 Gb/S Optical Communications,” *IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2011.

بررسی وابستگی موبیلیتی حاملین در لایه ی وارونگی ترانزیستور اثر میدانی به طول کانال ترانزیستور در محدوده ی دمایی دمای اتاق تا نیتروژن مایع، نوزدهمین کنفرانس مهندسی برق ایران، اردیبهشت ۹۱.

مطالعه و اندازه گیری تغییرات ولتاژ آستانه و موبیلیتی حاملین در مسافت افزایشی برای محدوده ی دمایی ۷۷ - ۳۰۰ کلوین، هجدهمین کنفرانس برق ایران، اردیبهشت ۹۰.

“An Analog Optimal Waveform design for UWB Communication,” *IEEE Asia Symposium on Quality Electronic Design, 2010*.

“A UHF Variable Gain Amplifier for Direct-Conversion DVB-H Receiver,” *IEEE 2009 RFIC Symposium*, June 2009.

“Transmitter development for cellular integrated circuits,” *IEEE Communications Magazine*, September 2008.

“A Fully Integrated Quad-Band GPRS/EDGE Radio in 0.13um CMOS,” *IEEE International Solid-State Circuits Conference, ISSCC 2008*, February 2008.

“A 108/98 pJ/b 1Gbps Fully Integrated Interference Tolerant Frequency Channelized UWB Transmitter/Receiver,” *2007 IEEE Symposium on VLSI Circuits*, June 2007.

“A Fully Integrated Low Cost Packaged CMOS Low Noise Amplifier for the UWB Radio.” *2006 IEEE Radio and Wireless Symposium*, January 2006.

“A Fully Integrated Multi-Output CMOS Frequency Synthesizer for Channelized Receivers,” *IEEE International SOC Conference [Systems-on-Chip]*, September 2003.