



Amirkabir University of Technology  
(Tehran Polytechnic)



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### Mohammad Javad Emadi

Assistant Professor  
Department of Electrical Engineering  
Communications

h-index (Scopus):  
7

Citations (Scopus):  
195



#### Educational Records

#	Degree/Major	University	City	Country	Graduation Date
1	B.Sc., Electrical Engineering	Amirkabir University of Technology (Tehran Polytechnic)	Tehran	Iran	2006
2	M.Sc., Electrical Engineering, Communication Systems	Sharif University of Technology	Tehran	Iran	2008
3	Ph.D., Visiting Scholar	Royal Institute of Technology (KTH)	Stockholm	Sweden	2012
4	Ph.D., Electrical Engineering, Communication Systems	Sharif University of Technology	Tehran	Iran	2013

#### Research Interests

#	Title	Start date
1	Wireless communications and multi-user information theory	
2	Massive MIMO systems	
3	Intelligent reflecting surface (IRS)	
4	Simultaneous Wireless Information and Power Transfer (SWIPT)	

- 5 Energy harvesting (EH) communications systems
- 6 Age of Information (AoI)
- 7 Drone/UAV communications
- 8 Optical communications
- 9 Machine learning applications in wireless networks
- 10 Software defined radio (SDR)

### Workshops Contributed

#	Workshops & Courses Titles	Functional Organization	Place	Date
1	Intelligent Reflecting Surfaces for 6G Wireless Networks	10th International Symposium of Telecommunications (IST 2020)	Tehran	2020

### Supervised MSc Theses

#	Thesis title	By	Date
1	On Hybrid AI-Based Anti-Jamming Scheme to Defeat Smart Jammers	Mohammad Sadegh Jafari & Mohammad Javad Emadi	September 2021
2	Optimal Resource Allocation In MIMO Visible Light Communication Systems	Parisa Ghorbaniankaleybar & Mohammad Javad Emadi	April 2021
3	Analysis and optimization of achievable sum-rate of distributed MIMO systems with optical fronthaul links	Pouya Agheli & Mohammad Javad Emadi	April 2021
4	Optimal Resource Allocations in IRS-based wirelessCommunication Systems	Mohammad Amin Saeidi & Mohammad Javad Emadi	March 2021
5	Fresh data analysis in communication systems	Yasaman Khorsandmanesh & Mohammad Javad Emadi	November 2020
6	Achievable Rate Improvement of UAV-Based Single User Communication System	Arefe Mehrabi & Mohammad Javad Emadi	February 2020
7	Resource allocation in 5G access networks with limited backhaul capacity using machine learning	Babak Azkayee & Mohammad Javad Emadi	February 2020
8	Resource Allocation in Wireless communication Systems to Simultaneously Manage Achievable Rate and Harvested Energy	Pouria Nezhadmohammad & Mohammad Javad Emadi	February 2020
9	Resource and user management in cell-free massive mimo systems to improve area throughput	Siminfar Samakoush Galougah & Mohammad Javad Emadi	February 2020
10	utilizing relaying scheme to improve performance of satellite broadcast communication	Reyhaneh Khabir & Mohammad Javad Emadi	February 2018
11	Power and data transmission management in relay channel with energy	Farrokh Hejri & Mohammad Javad Emadi	February 2018
12	optical DWDM transceiver design and simulation in optisystem	Fatemeh Momeni & Mohammad Javad Emadi	January 2018

13	Distributed cooperation to enhance performance of C-RAN	Mojdeh Karbalaee Motalleb & Mohammad Javad Emadi	October 2017
14	Improvement of Massive MIMO Spectral efficiency	Amirreza Kabiri & Mohammad Javad Emadi	January 2017

## Journal Papers

### Portal Records

- 1 Pouria Nezhadmohammad, Mohsen Abedi, Mohammad Javad Emadi, Risto Wichman, "SWIPT-Enabled Multiple Access Channel: Effects of Decoding Cost and Non-linear EH Model", IEEE TRANSACTIONS ON COMMUNICATIONS, October 2021 Vol. 0, Num. 0, Page 1-11, October 2021,
- 2 Syed Muhammadhashir, Arefe Mehrabi, Mohammad Robot Mili, Mohammad Javad Emadi, Derrick Wing Kwan Ng, Ioannis Krikidis, "Performance Trade-off in UAV-Aided Wireless-Powered Communication Networks via Multi-objective Optimization", IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY, October 2021 Vol. 0, Num. 0, Page 1-6, October 2021,
- 3 Hamed Masoumi, Mohammad Javad Emadi, Stefano Buzzi, "Coexistence of D2D Communications and Cell-Free Massive MIMO Systems with Low Resolution ADC for Improved Throughput in Beyond-5G Networks", IEEE TRANSACTIONS ON COMMUNICATIONS, September 2021 Vol. 0, Num. 0, Page 1-15, September 2021,
- 4 Pouya Agheli, Hamzeh Beiranvand, Mohammad Javad Emadi, "UAV-Assisted Underwater Sensor Networks using RF and Optical Wireless Links", JOURNAL OF LIGHTWAVE TECHNOLOGY, April 2021 Vol. 39, Num. 22, Page 7070-7082, April 2021,
- 5 Mahdieh Mehrabi, Hamzeh Beiranvand, Mohammad Javad Emadi, "Multi-Band Elastic Optical Networks: Inter-Channel Stimulated Raman Scattering-aware Routing, Modulation Level and Spectrum Assignment", JOURNAL OF LIGHTWAVE TECHNOLOGY, March 2021 Vol. 0, Num. 0, Page 1-10, March 2021,
- 6 Mohammad Amin Saeidi, Mohammad Javad Emadi, Hamed Masoumi, Mohammad Robot Mili, Derrick Wing Kwan Ng, Ioannis Krikidis, "Weighted Sum-Rate Maximization for Multi-IRS-assisted Full-Duplex Systems with Hardware Impairments", IEEE Transactions on Cognitive Communications and Networking, March 2021 Vol. 0, Num. 0, Page 1-16, March 2021,
- 7 Abolfazl Changizi, Mohammad Javad Emadi, "Age-Optimal Path Planning for Finite-Battery UAV-Assisted Data Dissemination in IoT Networks", IET COMMUNICATIONS, February 2021 Vol. 0, Num. 0, Page 1-10, February 2021,
- 8 Pouya Agheli, Mohammad Javad Emadi, Hamzeh Beiranvand, "Designing Cost- and Energy-Efficient Cell-Free Massive MIMO Network with Fiber and FSO Fronthaul Links", AUT Journal of Electrical Engineering, January 2021 Vol. 0, Num. 0, Page 0-0, January 2021,
- 9 Mohammad Javad Emadi, Yasaman Khorsandmanesh, Ioannis Krikidis, "Average Peak Age of Information Analysis for Wireless Powered Cooperative Networks", IEEE Transactions on Cognitive Communications and Networking, December 2020 Vol. 0, Num. 0, Page 1-14, December 2020,
- 10 Majid N. Khormuji, Mohammad Javad Emadi, Peng Wang, Branislav M. Popovic, "On the Achievable Rate of MISO Fading Channels with Instantaneous CSI only at the Transmitter", IEEE COMMUNICATIONS LETTERS, June 2020 Vol. 0, Num. 0, Page 0-0, June 2020,
- 11 Maryam Oshaghi, Mohammad Javad Emadi, "Throughput Maximization of a Hybrid EH-SWIPT Relay System under Temperature Constraints", IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY, December 2019 Vol. 0, Num. 0, Page 0-0, December 2019,
- 12 Arefe Mehrabi, Mohammad Javad Emadi, "Throughput Maximization for Multi-Slot Data Transmission via Two-Hop DF SWIPT-Based UAV System", AUT Journal of Electrical Engineering, September 2019 Vol. 0, Num. 0, Page 0-0, September 2019,
- 13 Hamed Masoumi, Mohammad Javad Emadi, "Performance Analysis of Cell-Free Massive MIMO System with Limited Fronthaul Capacity and Hardware Impairments", IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS, September 2019 Vol. 0, Num. 0, Page 0-0, September 2019,

- 14 Hamed Masoumi, Mohammad Javad Emadi, "Optimal Pilot and Data Power Allocation in Massive MIMO System with Hardware Impairment", Journal of Iranian Association of Electrical and Electronics Engineers, September 2019 Vol. 0, Num. 0, Page 0-0, September 2019,
- 15 Hamed Masoumi, Mohammad Javad Emadi, "Performance Analysis of cooperative SWIPT System: Intelligent Reflecting Surface versus Decode-and-Forward", Amirkabir International Journal of Modeling, Identification, Simulation & Control, August 2019 Vol. 0, Num. 0, Page 0-0, August 2019,
- 16 Mohsen Abedi, Hamed Masoumi, Mohammad Javad Emadi, "Power Splitting-based SWIPT Systems with Decoding Cost", IEEE Wireless Communications Letters, April 2019 Vol. 8, Num. 2, Page 432-435, April 2019,
- 17 Mohammad Javad Emadi, Mohsen Abedi, "Cooperative Power Management in Energy Harvesting Communication Systems in Presence of a Helper", IEEE Transactions on Green Communications and Networking, March 2019 Vol. 3, Num. 1, Page 147-158, March 2019,
- 18 Mohsen Abedi, Mohammad Javad Emadi, "Optimal Power Management to Minimize SER in Amplify and-Forward Relay Networks", AUT Journal of Electrical Engineering, April 2018 Vol. 50, Num. 1, Page 33-42, April 2018,
- 19 Amirreza Kabiri, Mohammad Javad Emadi, Majid Nasiri Khormuji, "Optimal Design of Semi-Orthogonal Multiple-Access Massive MIMO Systems", IEEE COMMUNICATIONS LETTERS, May 2017 Vol. 0, Num. 0, Page 0-0, May 2017,
- 20 Ali Kuhestani, Abbas Mohammadi, Mohammad Javad Emadi, "Performance Study of Untrusted Relay Network Utilizing Cooperative Jammer", Amirkabir International Journal of Science & Research (Electrical & Electronics Engineering), December 2016 Vol. 48, Num. 2, Page 93-99, December 2016,
- 21 Behzad Abdolmaleki, Karim Bagheri, Mohammad Javad Emadi, "HMAC-Based Authentication Protocol: Attacks and Improvements", Amirkabir International Journal of Science & Research (Electrical & Electronics Engineering), September 2016 Vol. 48, Num. 2, Page 71-79, September 2016,
- 22 Karim Bagheri, Behzad Abdolmaleki, Mohammad Javad Emadi, "Game-Based Cryptanalysis of a Lightweight CRC-Based Authentication Protocol for EPC Tags", Amirkabir International Journal of Electrical and Electronics Engineering, September 2015 Vol. 46, Num. 1, Page 27-36, September 2015,
- 23 Mohammad Javad Emadi, Majid Nasiri Khormuji, Mikael Skoglund, Mohammad Reza Aref, "Multi-layer Gelfand-Pinsker Strategies for the Generalized Multiple-Access Channel", IET COMMUNICATIONS, May 2014 Vol. 8, Num. 8, Page 1296-1309, May 2014,

## Conference Papers

### Portal Records



- 1 Yasaman Khorsandmanesh, Mohammad Javad Emadi, "Peak Age of Information Analysis for Virtual Reality in Terahertz Communications", Iran Workshop on Communication and Information Theory (IWCIT 2020), May 2020
- 2 Mohammad Amin Saeidi, Mohammad Javad Emadi, "IRS-based Secrecy Rate Analysis in Presence of an Energy Harvesting Eavesdropper", Iran Workshop on Communication and Information Theory (IWCIT 2020), May 2020
- 3 Hamzeh Beiranvand, Mohammad Javad Emadi, Shahryar Sabouri, Kambiz Jamshidi, Frank H.P. Fitzek, "Converged 5G and Fiber-Wireless Access Networks Enhanced with Visible Light Communications and Steerable Infrared Beam", 2019 2nd West Asian Colloquium on Optical Wireless Communications (WACOWC), August 2019
- 4 Fariba Jamali, Mohammad Javad Emadi, Hamid Saeedi, "Performance Analysis of All-Optical Multi-Hop FSO Systems over Gamma-Gamma Fading Channels", Iran Workshop on Communication and Information Theory (IWCIT), May 2019
- 5 Hamzeh Beiranvand, Mohammad Javad Emadi, Shahryar Sabouri, Kambiz Jamshidi, Frank H.P. Fitzek, "Converged 5G and fiber-wireless access networks enhanced with visible light communications and steerable infrared beam", 2nd West Asian Colloquium on Optical Wireless Communications, WACOWC 2019, April 2019
- 6 Hamed Masoumi, Mohammad Javad Emadi, "Joint Pilot and Data Power Control in Cell-Free Massive MIMO System", The Fifth International Conference on Millimeter Wave & Terahertz Technologies, December 2018



- 7 Milad Dabiri, Mohammad Javad Emadi, "Average Age of Information Minimization in an Energy Harvesting Wireless Sensor Node ", International Symposium on Telecommunications (IST2018), December 2018
- 8 Amirreza Kabiri, Mohammad Javad Emadi, Majid Nasiri Khormuji, "On the Performance of the SOMA-Massive MIMO System with Multi-User Detection ", 2017 IEEE 22nd International Workshop on Computer Aided Modeling and Design of Communication Links and Networks (CAMAD), June 2017
- 9 Hadi Mirfarshbafan, Mahdi Shabany, Alireza Nezam-Alhosseini, Mohammad Javad Emadi, "A High-Throughput Low-Complexity VLSI Architecture for ZF Precoding in Massive MIMO ", 2017 IEEE 22nd International Workshop on Computer Aided Modeling and Design of Communication Links and Networks (CAMAD), June 2017
- 10 Farrokh Hejri, Reyhaneh Khabir, Mohammad Javad Emadi, "Optimal power allocation for parallel relay network with/without energy-harvesting relays ", 2017 Iranian Conference on Electrical Engineering (ICEE), May 2017
- 11 Mojdeh Karbalaee Motalleb, Amirreza Kabiri, Mohammad Javad Emadi, "Optimal Power Allocation for Distributed MIMO C-RAN with Limited Fronthaul Capacity ", 2017 Iranian Conference on Electrical Engineering (ICEE), May 2017
- 12 Mohsen Abedi, Mohammad Javad Emadi, "Optimal Energy Management for Energy Harvesting Transmitter and Receiver with Helper ", 2016 International Symposium on Information Theory and its Applications, October 2016
- 13 Mohsen Abedi, Mohammad Javad Emadi, "Symbol Error Rate Analysis in Cooperative Transmission: AF Relaying Scenarios and Optimal Power Allocations ", Electrical Engineering (ICEE), 2016 24rd Iranian Conference on, May 2016
- 14 Somayeh Bazin, Mohammad Javad Emadi, Mohammad Hoseyn Abbasi, "Iterative Symbol Synchronization for Bandwidth Efficient Burst Transmission ", Electrical Engineering (ICEE), 2016 24rd Iranian Conference on, May 2016
- 15 Majid Nasiri Khormuji, Mohammad Javad Emadi, "On the capacity of the relay channel with known state at the source ", Iran Workshop on Communication and Information Theory 2015, May 2015
- 16 Ali Pirsivash, Mohammad Javad Emadi, "Rician channel characterization in OFDM systems ", Electrical Engineering (ICEE), 2015 23rd Iranian Conference on, May 2015
- 17 Ali Pirsivash, Mohammad Javad Emadi, "A simple channel estimation via biasing OFDM symbols ", Electrical Engineering (ICEE), 2015 23rd Iranian Conference on, May 2015
- 18 Mohammad Javad Emadi, Majid Nasiri Khormuji, Mikael Skoglund, Mohammad Reza Aref, "The Generalized MAC with Partial State and Message Cooperation ", Iran Workshop on Communication and Information Theory, May 2014

## Executive Activities

#	Executive Activities Titles	Name of Organization / comment	Starting Date	Termination Date
1	Head of Communications department	EE department of Amirkabir University of Technology	2018	2022

## Taught Courses

#	Course title	Description	Headlines	Date
1	Information Theory	Learning fundamentals of information theory such as information measures and applications in communication theory, e.g. source coding, channel capacity, and multi-user information theory		Fall 2021
2	Communication Systems (II)	digital communications blocks, Digital Modulations, and BER analysis, Analog to Digital conversion, information measure and source coding, channel capacity, and channel coding and communications channel modelling		Fall 2021

3	Communication Systems (I)	Principles of communication theory applied to the representation and transmission of information. Topics include analysis of deterministic and random signals, amplitude modulation, angle modulation, analysis of noise, basics of digital communication		Fall 2020
4	Information Theory	Learning fundamentals of information theory such as information measures and applications in communication theory, e.g. source coding, channel capacity, and multi-user information theory		Fall 2020