# Prof. İbrahim Altunbaş

## Personal Information

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## Biography

İbrahim Altunbaş was born in Sütçüler, Isparta, Turkey, in 1967. He received the B.Sc., M.Sc. and Ph.D. degrees, all in electronics and communication engineering, from the Istanbul Technical University, Istanbul, Turkey, in 1988, 1992 and 1999, respectively. From 1992 to 1999, he was a Research Assistant, from 1999 to 2006, he was an Assistant Professor and from 2006 to 2011 he was an Associate Professor at the Istanbul Technical University. He is currently a Professor at the same university. Between January 2001 - November 2001, he was a Visiting Researcher at Texas A&M University, USA. Between November 2001 - September 2002 and June 2015 - August 2015, he was a Postdoctoral Fellow and a Visiting Researcher, respectively at the University of Ottawa, Canada. His research interests include digital communications, information theory, error control coding and modulation, turbo coding, LDPC coding, iterative decoding, MIMO systems, space-time coding, cooperative communication, network coding, spatial modulation, full-duplex communication and channel modulation.

## Education Information

Doctorate, Istanbul Technical University, Fen Bilimleri Enstitüsü, Elektronik Ve Haberleşme Mühendisliği Anabilim Dalı, Turkey 1992 - 1999
Postgraduate, Istanbul Technical University, Fen Bilimleri Enstitüsü, Elektronik Ve Haberleşme Mühendisliği Anabilim Dalı, Turkey 1989 - 1992
Undergraduate, Istanbul Technical University, Elektrik-Elektronik Fakültesi, Elektronik Ve Haberleşme Mühendisliği Bölümü, Turkey 1984 - 1988

## Foreign Languages

English

## Dissertations

Doctorate, Sürekli faz modülasyonunun çok düzeyli kodlanması, İstanbul Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Elektronik Ve Haberleşme Mühendisliği Anabilim Dalı, 1999

Postgraduate, Çok-düzeyli kodlama/çok-aşamalı kod çözme tekniğinin incelenmesi ve frekans/faz kaydırmalı anahtarlama modülasyonuna uygulanması, İstanbul Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Elektronik Ve Haberleşme Mühendisliği Anabilim Dalı, 1992

## Research Areas

Electrical and Electronics Engineering, Engineering and Technology

## Academic Titles / Tasks

Professor, Istanbul Technical University, Elektrik-Elektronik, Elektronik Ve Haberleşme Mühendisliği, 2011 - Continues
Associate Professor, Istanbul Technical University, Elektrik-Elektronik, Elektronik Ve Haberleşme Mühendisliği, 2006 - 2011
Assistant Professor, Istanbul Technical University, Elektrik-Elektronik, Elektronik Ve Haberleşme Mühendisliği, 1999 - 2006
Research Assistant, Istanbul Technical University, Elektrik-Elektronik, Elektronik Ve Haberleşme Mühendisliği, 1992 - 1999

## Published journal articles indexed by SCI, SSCI, and AHCI

I. **Outage Probability Analysis of Rate Splitting Multiple Access-Based Hybrid Satellite-Terrestrial Relay Network with Relay Selection**
Can M., Altunbaş İ.
IEEE Transactions on Aerospace and Electronic Systems, vol.59, no.5, pp.6508-6517, 2023 (SCI-Expanded)

II. **Data-Oriented Downlink RSMA Systems**
Can M., Ilter M. C., Altunbaş İ.
IEEE Communications Letters, vol.27, no.10, pp.2812-2816, 2023 (SCI-Expanded)

III. **Hybrid Reflection Modulation**
Yiğit Z., Basar E., Wen M., Altunbaş İ.
IEEE Transactions on Wireless Communications, vol.22, no.6, pp.4106-4116, 2023 (SCI-Expanded)

IV. **Comparative Performance Evaluation of LDPC Coded OFDM-IM Under Jamming Attack**
Kaplan A., Can M., Altunbaş İ., Kurt G. K., Kucukyavuz D.
IEEE Transactions on Vehicular Technology, vol.72, no.5, pp.6209-6224, 2023 (SCI-Expanded)

V. **Reactive jammer detection in OFDM with index modulation**
Altun U., Kaplan A., Kurt G. K., Altunbaş İ., Kucukyavuz D., Kesal M., Basar E.
Physical Communication, vol.55, 2022 (SCI-Expanded)

VI. **On the Performance of UAV Relaying With Reconfigurable Antenna and Media Based Modulation in the Presence of Shadowed Fading**
Büyükşar A. B., Erdogan E., Altunbaş İ.
IEEE Transactions on Aerospace and Electronic Systems, vol.58, no.6, pp.5982-5988, 2022 (SCI-Expanded)

VII. **MIMO Hybrid Satellite-Terrestrial Cooperative Systems With Spatial Modulation**
Ertürk O., Altunbaş İ.
IEEE SYSTEMS JOURNAL, vol.16, no.3, pp.4992-5000, 2022 (SCI-Expanded)

VIII. **Optical Satellite Eavesdropping**
Ben Yahia O., ERDOĞAN E., Kurt G. K., Altunbaş İ., Yanikomeroglu H.
IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY, vol.71, no.9, pp.10126-10131, 2022 (SCI-Expanded)

IX. **HAPS Selection for Hybrid RF/FSO Satellite Networks**
Ben Yahia O., ERDOĞAN E., Karabulut Kurt G. Z., Altunbaş İ., Yanikomeroglu H.

IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS, vol.58, no.4, pp.2855-2867, 2022 (SCI-Expanded)

X. **Cooperation in Space: HAPS-Aided Optical Inter-Satellite Connectivity With Opportunistic Scheduling**
ERDOĞAN E., Altunbaş İ., Kurt G. K., Yanikomeroglu H.
IEEE COMMUNICATIONS LETTERS, vol.26, no.4, pp.882-886, 2022 (SCI-Expanded)

XI. **A Weather-Dependent Hybrid RF/FSO Satellite Communication for Improved Power Efficiency**
Yahia O. B., ERDOĞAN E., Karabulut Kurt G. Z., Altunbaş İ., Yanikomeroglu H.
IEEE WIRELESS COMMUNICATIONS LETTERS, vol.11, no.3, pp.573-577, 2022 (SCI-Expanded)

XII. **The Secrecy Comparison of RF and FSO Eavesdropping Attacks in Mixed RF-FSO Relay Networks**
ERDOĞAN E., Altunbaş İ., Kurt G. K., Yanikomeroglu H.
IEEE PHOTONICS JOURNAL, vol.14, no.1, 2022 (SCI-Expanded)

XIII. **MBM-Aided Uplink Cooperative NOMA With Hardware Impairments and Imperfect CSI**
Can M., Altunbaş İ., Basar E.
IEEE COMMUNICATIONS LETTERS, vol.25, no.6, pp.1830-1834, 2021 (SCI-Expanded)

XIV. **Coordinate Interleaved Orthogonal Design With Media-Based Modulation**
Yıldırım İ., Basar E., Altunbaş İ.
IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY, vol.70, no.3, pp.2867-2871, 2021 (SCI-Expanded)

XV. **Site Diversity in Downlink Optical Satellite Networks Through Ground Station Selection**
ERDOĞAN E., Altunbaş İ., Karabulut Kurt G. Z., Bellemare M., Lamontagne G., Yanikomeroglu H.
IEEE ACCESS, vol.9, pp.31179-31190, 2021 (SCI-Expanded)

XVI. **Low Complexity Adaptation for Reconfigurable Intelligent Surface-Based MIMO Systems**
Yiğit Z., Basar E., Altunbaş İ.
IEEE COMMUNICATIONS LETTERS, vol.24, no.12, pp.2946-2950, 2020 (SCI-Expanded)

XVII. **NOMA-based downlink relaying with media -based modulation**
Can M., Altunbaş İ., Basar E.
PHYSICAL COMMUNICATION, vol.41, 2020 (SCI-Expanded)

XVIII. **Cooperative Space Shift Keying Media-Based Modulation With Hybrid Relaying**
Yarkın F., Altunbaş İ., Basar E.
IEEE SYSTEMS JOURNAL, vol.14, no.1, pp.500-509, 2020 (SCI-Expanded)

XIX. **On the Error Probability of Cognitive RF-FSO Relay Networks Over Rayleigh/EW Fading Channels With Primary-Secondary Interference**
Erdogan E., KABAOĞLU N., Altunbaş İ., Yanikomeroglu H.
IEEE PHOTONICS JOURNAL, vol.12, no.1, 2020 (SCI-Expanded)

XX. **STTC design for vehicular communication systems employing fixed-gain AF PLNC over cascaded fading channels**
ATA S. O., Altunbaş İ.
IET COMMUNICATIONS, vol.12, no.11, pp.1283-1289, 2018 (SCI-Expanded)

XXI. **Two-Way Full-Duplex Spatial Modulation Systems With Wireless Powered AF Relaying**
Koc A., Altunbaş İ., Basar E.
IEEE WIRELESS COMMUNICATIONS LETTERS, vol.7, no.3, pp.444-447, 2018 (SCI-Expanded)

XXII. **Space shift keying for multi-hop multi-branch networks**
Yarkın F., Altunbaş İ., Basar E.
PHYSICAL COMMUNICATION, vol.27, pp.161-169, 2018 (SCI-Expanded)

XXIII. **Relay selection in two-way full-duplex relay networks over Nakagami-m fading channels**
Koc A., Altunbaş İ., Yongacoglu A.
ANNALS OF TELECOMMUNICATIONS, vol.72, pp.731-742, 2017 (SCI-Expanded)

XXIV. **Quadrature Channel Modulation**
Yıldırım İ., Basar E., Altunbaş İ.
IEEE WIRELESS COMMUNICATIONS LETTERS, vol.6, no.6, pp.790-793, 2017 (SCI-Expanded)

XXV. **Performance analysis of space shift keying for AF relaying with relay selection**
Öztoprak Ö. C., Yarkın F., Altunbaş İ., Başar E.

AEU-INTERNATİONAL JOURNAL OF ELECTRONİCS AND COMMUNİCATİONS, vol.81, pp.74-82, 2017 (SCI-Expanded)

XXVI. **Space-Time Channel Modulation**
Basar E., Altunbaş İ.
IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY, vol.66, no.8, pp.7609-7614, 2017 (SCI-Expanded)

XXVII. **Outage performance of fixed-gain and variable-gain AF full-duplex relaying in non-identical Nakagami-m fading channels**
Koc A., Altunbaş İ., Yongacoglu A.
EURASIP JOURNAL ON WIRELESS COMMUNICATIONS AND NETWORKING, 2017 (SCI-Expanded)

XXVIII. **Source Transmit Antenna Selection for Space Shift Keying With Cooperative Relays**
Yarkin F., Altunbaş İ., Basar E.
IEEE COMMUNICATIONS LETTERS, vol.21, no.5, pp.1211-1214, 2017 (SCI-Expanded)

XXIX. **Joint Relay and Antenna Selection in MIMO PLNC Inter-vehicular Communication Systems over Cascaded Fading Channels**
ATA S. O., Altunbaş İ.
WIRELESS PERSONAL COMMUNICATIONS, vol.92, no.3, pp.901-923, 2017 (SCI-Expanded)

XXX. **Fixed-gain AF PLNC over cascaded Nakagami-m fading channels for vehicular communications**
Ata S. O., Altunbaş İ.
AEU-INTERNATIONAL JOURNAL OF ELECTRONICS AND COMMUNICATIONS, vol.70, no.4, pp.510-516, 2016 (SCI-Expanded)

XXXI. **A Tutorial on Network Coded Cooperation**
Basaran S. T., KURT G. K., Uysal M., Altunbaş İ.
IEEE COMMUNICATIONS SURVEYS AND TUTORIALS, vol.18, no.4, pp.2970-2990, 2016 (SCI-Expanded)

XXXII. **SER performance of cooperative systems with the Nth best path selection in generalized-K channels**
Karademir A., Altunbaş İ.
JOURNAL OF THE FRANKLIN INSTITUTE-ENGINEERING AND APPLIED MATHEMATICS, vol.352, no.11, pp.4682-4697, 2015 (SCI-Expanded)

XXXIII. **Non-orthogonal Amplify and Forward Relay Selection Systems with Distributed Space-Time Trellis Coded Continuous Phase Modulation**
Demiroglu A. S., Altunbaş İ., Çelebi M. E.
WIRELESS PERSONAL COMMUNICATIONS, vol.84, no.2, pp.1209-1225, 2015 (SCI-Expanded)

XXXIV. **Performance analysis of Alamouti scheme with transmit antenna selection in non-identical Nakagami-m fading channels**
Coskun A. F., Kucur O., Altunbaş İ.
WIRELESS COMMUNICATIONS & MOBILE COMPUTING, vol.13, no.7, pp.671-680, 2013 (SCI-Expanded)

XXXV. **Distributed space-time trellis codes with continuous phase modulation for amplify and forward relaying**
Demiroglu A. S., Altunbaş İ.
IET COMMUNICATIONS, vol.7, no.2, pp.110-118, 2013 (SCI-Expanded)

XXXVI. **Performance Analysis of Space-Time Block Codes with Transmit Antenna Selection in Nakagami-m Fading Channels**
Coskun A. F., Kucur O., Altunbaş İ.
WIRELESS PERSONAL COMMUNICATIONS, vol.67, no.3, pp.557-571, 2012 (SCI-Expanded)

XXXVII. **Analysis of cooperative MIMO transmission system with transmit antenna selection and selection combining**
Karaevli I. L., KURT G. K., Altunbaş İ.
WIRELESS COMMUNICATIONS & MOBILE COMPUTING, vol.12, no.14, pp.1266-1275, 2012 (SCI-Expanded)

XXXVIII. **Performance analysis of dual-hop fixed-gain AF relaying systems with OSTBC over Nakagami-m fading channels**
Altunbaş İ., Yilmaz A., Kucur S. S., Kucur O.
AEU-INTERNATIONAL JOURNAL OF ELECTRONICS AND COMMUNICATIONS, vol.66, no.10, pp.841-846, 2012 (SCI-

Expanded)

XXXIX. **Moment generating function-based performance evaluation of amplify-and-forward relaying in N\*Nakagami fading channels**
Ilhan H., Altunbaş İ., Uysal M.
IET COMMUNICATIONS, vol.5, no.3, pp.253-263, 2011 (SCI-Expanded)

XL. **Novel Distributed Space-Time Trellis Codes for Relay Systems over Cascaded Rayleigh Fading**
Ilhan H., Altunbaş İ., Uysal M.
IEEE COMMUNICATIONS LETTERS, vol.14, no.12, pp.1140-1142, 2010 (SCI-Expanded)

XLI. **Performance of super-orthogonal space-time trellis codes with transmit antenna selection**
Ozdemir O., Altunbaş İ., Bayrak M.
IET COMMUNICATIONS, vol.4, no.16, pp.1942-1951, 2010 (SCI-Expanded)

XLII. **Cooperative Diversity for Intervehicular Communication: Performance Analysis and Optimization**
Ilhan H., Uysal M., Altunbas I.
IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY, vol.58, no.7, pp.3301-3310, 2009 (SCI-Expanded)

XLIII. **Error performance of rotated phase shift keying modulation over fading channels**
Ozyurt S., Kucur O., Altunbaş İ.
WIRELESS PERSONAL COMMUNICATIONS, vol.43, no.4, pp.1453-1463, 2007 (SCI-Expanded)

XLIV. **Performance of serially concatenated coding schemes for MIMO systems**
Altunbas I.
AEU-INTERNATIONAL JOURNAL OF ELECTRONICS AND COMMUNICATIONS, vol.61, no.1, pp.1-9, 2007 (SCI-Expanded)

XLV. **Space-time trellis codes for MSK**
Altunbas I.
COMPUTERS & ELECTRICAL ENGINEERING, vol.31, pp.263-271, 2005 (SCI-Expanded)

XLVI. **Design of serial concatenated MSK schemes based on density evolution**
Narayanan K., Altunbas I., NARAYANASWAMI R.
IEEE TRANSACTIONS ON COMMUNICATIONS, vol.51, no.8, pp.1283-1295, 2003 (SCI-Expanded)

XLVII. **Error performance of serially concatenated space-time coding**
Altunbas I., Yongacoglu A.
JOURNAL OF COMMUNICATIONS AND NETWORKS, vol.5, no.2, pp.135-140, 2003 (SCI-Expanded)

XLVIII. **Serial concatenated coding scheme with minimum shift keying**
Altunbas I., NARAYANAN K.
ELECTRONICS LETTERS, vol.37, no.23, pp.1393-1395, 2001 (SCI-Expanded)

XLIX. **Multilevel coded CPFSK systems for AWGN and fading channels**
Altunbas I., AYGOLU U.
IEEE TRANSACTIONS ON COMMUNICATIONS, vol.48, no.5, pp.764-773, 2000 (SCI-Expanded)


## Articles Published in Other Journals

I. **Over-the-air beamforming with reconfigurable intelligent surfaces**
YİĞİT Z., BAŞAR E., ALTUNBAŞ İ.
Frontiers Media SA, vol.3, 2022 (Scopus)

II. **Implementation of Network Coding in Wireless Systems**
Tedik Başaran S., Heidarpour A. R., Gokceli S., Karabulut Kurt G. Z., UYSAL M., Altunbaş İ.
NETWORK CODING AND SUBSPACE DESIGNS, pp.295-317, 2018 (Peer-Reviewed Journal)

III. **Tam-Çift-Yönlü AF Röle Seçim Sistemlerinin Nakagami-m Kanallardaki Performansı**
KOÇ A., ALTUNBAŞ İ.
Deu Muhendislik Fakultesi Fen ve Muhendislik, vol.19, pp.790-807, 2017 (Peer-Reviewed Journal)

## Books & Book Chapters

I. **Implementation of network coding in wireless systems**
TEDİK S., HEİDARPOUR A. R., GOKCELI S., KARABULUT KURT G. Z., UYSAL M., ALTUNBAŞ İ.
in: Network Coding and Subspace Designs, M. Greferath, M. O. Pavcevic, N. Silberstein, M.A. Vazquez-Castro, Editor, Springer, pp.295-317, 2018

## Refereed Congress / Symposium Publications in Proceedings

I. **Rate splitting multiple access-based uplink satellite networks with receive antenna selection**
CAN M., ALTUNBAŞ İ.
IEEE Int. Black Sea Conf. on Commun.and Networking, IEEE BlackSeaCom 2023, İstanbul, Turkey, 4 - 07 July 2023

II. **Outage Probability Analysis of RIS-aided FSO under Exponentiated Weibull Distributed Turbulence**
**RIS-Destekli FSO Yapilarinda Üstel Weibull Dağilimli Türbülans Altinda Kesinti Olasiliği Analizi**
Yuksekdağ Y., Altunbaş İ., Hökelek I., Coşkun A. F.
31st IEEE Conference on Signal Processing and Communications Applications, SIU 2023, İstanbul, Turkey, 5 - 08 July 2023

III. **Outage Probability Analysis of Dual-Hop Multi-HAPS THz Satellite Communication Systems Iki**
**Atlamali Çok HAPS'li THz Uydu Haberleşme Sistemlerinin Kesinti Olasiliği Analizi**
Ahrazoğlu E. S., Can M., Erdoğan E., Altunbaş İ.
31st IEEE Conference on Signal Processing and Communications Applications, SIU 2023, İstanbul, Turkey, 5 - 08 July 2023

IV. **Bit interleaved polar code design for higher order modulations (In Turkish)**
Camcı B., Aydoğan O., PUSANE A. E., ALTUNBAŞ İ.
ELEKTRİK-ELEKTRONİK ve BİYOMEDİKAL MÜHENDİSLİĞİ KONFERANSI 2022 (ELECO 2022), 24 November 2022

V. **Physical layer security improvement of NOMA-based UAV-aided terrestrial networks via cooperative user selection (In Turkish)**
BÜYÜKŞAR A. B., CAN M., ALTUNBAŞ İ.
30th Signal Processing and Communication Applications Conf., SİU'22, Karabük, Turkey, 15 May 2022

VI. **Physical Layer Security Improvement of NOMA-Based UAV-Aided Terrestrial Networks via Cooperative User Selection**
BÜYÜKŞAR A. B., CAN M., ALTUNBAŞ İ.
2022 30th Signal Processing and Communications Applications Conference (SIU), Turkey, 15 May 2022

VII. **Distributed spatial modulation for unmanned aerial vehicle-base station to ground cooperative communication**
BÜYÜKŞAR A. B., CAN M., ALTUNBAŞ İ.
29th Telecommunications Forum TELFOR 2021, Belgrade, Serbia, 23 - 24 December 2021

VIII. **Error Performance Analysis of Distributed Spatial Modulation System with UAV Relays**
BÜYÜKŞAR A. B., CAN M., ALTUNBAŞ İ.
IEEE International Conference on Telecommunications and Photonics (ICTP), Dhaka, Bangladesh, 22 - 24 December 2021

IX. **SimMBM Channel Simulator for Media-Based Modulation Systems**
YİĞİT Z., BAŞAR E., ALTUNBAŞ İ.
IEEE International Symposium on Personal, Indoor and Mobile Radio Communications 2021, 13 - 16 September 2021

X. **NOMA-Based Two-Way MBM**
CAN M., ALTUNBAŞ İ.
2021 29th Signal Processing and Communications Applications Conference (SIU), Turkey, 09 June 2021

XI. **Physical Layer Security Framework for Optical Non-Terrestrial Networks (Invited paper)**
Ben Yahia O., ERDOĞAN E., Karabulut Kurt G. Z., Altunbaş İ., Yanikomeroglu H.

28th International Conference on Telecommunications (ICT), ELECTR NETWORK, 1 - 03 June 2021, pp.162-166

XII. **OFDM-IM performance evaluation under jamming attack**
KAPLAN A., ALTUNBAŞ İ., KARABULUT KURT G. Z., KESAL M., KÜÇÜKYAVUZ D.
International Telecomunication Networks and Applications Conference, ITNAC 2020, 25 - 27 November 2020

XIII. **LDPC Coded OFDM-IM Performance Evaluation Under Jamming Attack**
KAPLAN A., CAN M., ALTUNBAŞ İ., KARABULUT KURT G. Z., KÜÇÜKYAVUZ D.
2020 International Conference on Information and Communication Technology Convergence (ICTC), Jeju Island,
21 - 23 October 2020

XIV. **A media-based modulation communication system implementation using universal software radio peripheral**
ERTÜRK O., BÖLAT K., BAŞKAN A. D., ALTUNBAŞ İ.
27th Telecommunications Forum, TELFOR 2019, Belgrade, Serbia, 26 - 27 November 2019

XV. **Circular Space-Time Block Code Design for Ultra-Reliable Index Modulation Schemes**
YİĞİT Z., BAŞAR E., ALTUNBAŞ İ.
2019 IEEE 30th Annual International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC),
Istanbul, Turkey, Turkey, 8 - 11 September 2019

XVI. **Media-Based Modulation Assisted Non-Orthogonal Multiple Access**
CAN M., ALTUNBAŞ İ., BAŞAR E.
2019 27th Signal Processing and Communications Applications Conference (SIU), Sivas, Turkey, Turkey, 24 - 26
April 2019

XVII. **Fractional Media-Based Modulation with Golden Angle Modulation**
Yıldırım İ., Başar E., Altunbaş İ.
IEEE WCNC 2019, Advances 5G Radio Access Network Features and Performance (ARANFP) Workshop,
Marrakech, Morocco,, Marrakush, Morocco, 15 - 19 April 2019, pp.1-5

XVIII. **Multi-hop space shift keying with partial relay selection (In Turkish)**
YARKIN F., ALTUNBAŞ İ., BAŞAR E.
26th Signal Processing and Communication Applications Conf., SİU'18, İzmir, Turkey, 2 - 05 May 2018

XIX. **Multi-Hop Space Shift Keying with Partial Relay Selection**
Yarkin F., Altunbaş İ., Basar E.
26th IEEE Signal Processing and Communications Applications Conference (SIU), İzmir, Turkey, 2 - 05 May 2018

XX. **Two-way Space Shift Keying with Relay Selection**
Yarkın F., Altunbaş İ., Başar E.
25th Telecommunication Forum (TELFOR), Belgrade, Serbia And Montenegro, 21 - 22 November 2017, pp.314-
317

XXI. **Performance Analysis of Source Transmit Antenna Selection In Space Shift Keying With Cooperative Amplify-and-Forward Relaying**
Yarkın F., Altunbaş İ., Başar E.
Advances in Wireless and Optical Communications (RTUWO) Conference, Riga, Latvia, 2 - 03 November 2017,
pp.45-49

XXII. **Multi-Hop Space Shift Keying with Path Selection**
Yarkın F., Altunbaş İ., Başar E.
Advances in Wireless and Optical Communications (RTUWO) Conference, Riga, Latvia, 2 - 03 November 2017,
pp.40-44

XXIII. **Space Shift Keying with Full Duplex Amplify and Forward Relaying**
Koç A., Altunbaş İ., Başar E.
IEEE 5th International Black Sea Conference on Communications and Networking (BlackSeaCom), İstanbul, Turkey,
5 - 08 June 2017, pp.1-5

XXIV. **Channel coded complex field network coding in two-way relay networks**
KHAN R., Altunbaş İ., Karabulut Kurt G. Z.
IEEE 5th International Black Sea Conference on Communications and Networking (BlackSeaCom), İstanbul, Turkey,
5 - 08 June 2017, pp.1-5

XXV. **Performance analysis of full-duplex spatial-modulated communication systems**
Koç A., Altunbaş İ., Başar E.
Signal Processing and Communications Applications Conference (SIU), 2017 25th, Antalya, Turkey, 15 - 18 May 2017, pp.1-4

XXVI. **Error performance analysis of multi-hop space shift keying with transmit antenna selection**
Yarkın F., Altunbaş İ., Başar E.
Signal Processing and Communications Applications Conference (SIU), 2017 25th, Antalya, Turkey, 15 - 18 May 2017, pp.1-4

XXVII. **Performance analysis of full-duplex spatial-modulated communication systems Tam Çift Yönlü Uzaysal Modülasyonlu İletişim Sistemlerinin Performans Analizi**
Koc A., Altunbaş İ., Basar E.
25th Signal Processing and Communications Applications Conference, SIU 2017, Antalya, Turkey, 15 - 18 May 2017

XXVIII. **Error performance analysis of multi-hop space shift keying with transmit antenna selection Çok Atlamali Verici Anten Seçimli Uzay Kaydirmali Anahtarlama İçin Hata Performans Analizi**
Yarkin F., Altunbaş İ., Basar E.
25th Signal Processing and Communications Applications Conference, SIU 2017, Antalya, Turkey, 15 - 18 May 2017

XXIX. **Performance analysis of full-duplex spatial-modulated communication systems (In Turkish)**
KOÇ A., ALTUNBAŞ İ., BAŞAR E.
25th Signal Processing and Communication Applications Conf., SİU'17, Antalya, Turkey, 15 - 18 May 2017

XXX. **Error performance analysis of multi-hop space-shift keying with transmit antenna selection (In Turkish)**
YARKIN F., ALTUNBAŞ İ., BAŞAR E.
25th Signal Processing and Communication Applications Conf., SİU'17, Antalya, Turkey, 15 - 18 May 2017

XXXI. **Full-Duplex Spatial Modulation Systems Under Imperfect Channel State Information**
Koç A., Altunbaş İ., Başar E.
24th International Conference on Telecommunications (ICT), Limassol, Cyprus (Gkry), 3 - 05 May 2017, pp.1-5

XXXII. **Unified outage performance analysis of two-way/one-way full-duplex/half-duplex fixed-gain AF relay systems**
Koç A., Altunbaş İ., YAMAN B.
4th International Conference on Telecommunication, ICT 2017, Limassol, Cyprus (Gkry), 01 May 2017, pp.1-5

XXXIII. **Outage probability of full-duplex fixed-gain AF relaying in Rayleigh fading channels**
Altunbaş İ., Koç A., Yongacoglu A.
Wireless Days Conference 2016, Toulouse, France, 23 March 2016 - 25 March 2017, pp.1-5

XXXIV. **CFNC with OFDM in distributed wireless networks**
KHAN R., KARABULUT KURT G. Z., ALTUNBAŞ İ.
International Conference on Wireless Networks and Embedded Systems, WECON 2016, Rajpur, India, 15 - 16 October 2016

XXXV. **Enhanced XOR Network Coding Scheme with OFDM for Two-Way Relay Networks**
KHAN R., Altunbaş İ., Kurt G. K.
24th Telecommunications Forum (TELFOR), Belgrade, Serbia And Montenegro, 22 - 23 November 2016, pp.296-299

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## Scientific Research / Working Group Memberships

Telsiz Haberleşme Araştırma Laboratuvarı, İSTANBUL TEKNİK ÜNİVERSİTESİ, Turkey, http://www.thal.itu.edu.tr/, 2005 - Continues

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25th Signal Processing and Communication Applications Conf., SİU'17, Session Moderator, Antalya, Turkey, 2017
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25th Signal Processing and Communication Applications Conf., SİU'17, Attendee, Antalya, Turkey, 2017
24th Signal Processing and Communication Applications Conf., SİU'16, Session Moderator, Zonguldak, Turkey, 2016
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Electrical Engineering 5th National Conf., Attendee, Trabzon, Turkey, 1993

## Non Academic Experience

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