

ONUR KAYA

CONTACT INFORMATION

Mailing Address: Isik University, Electrical and Electronics Engineering Department
Kumbaba Mevki, Sile Istanbul, Turkey.
Email: onur.kaya@isikun.edu.tr
Phone: +90 216 528 7135
Fax: +90 216 712 1468
Web: www.isikun.edu.tr/~onurkaya

PROFESSIONAL EXPERIENCE

Vice Dean February 2015 - Present
Isik University, Faculty of Engineering, Istanbul, Turkey.

Associate Professor November 2012 - Present
Isik University, Department of Electronics Engineering, Istanbul, Turkey.

Assistant Professor October 2005 - November 2012
Isik University, Department of Electronics Engineering, Istanbul, Turkey.

Research Assistant May 2002 - August 2005
University of Maryland, College Park, Department of Electrical and Computer Engineering.

Teaching Assistant August 2000 - May 2002
University of Maryland, Collage Park, Department of Electrical and Computer Engineering.

Summer Intern, Summer, 1999
ASELSAN, Communications Division, Ankara, TURKEY.

Summer Intern, Summer, 1998
Siemens AG, Ankara, TURKEY.

EDUCATION

Ph.D. in Electrical Engineering
University of Maryland, College Park, USA, August 2005.
Thesis topic: Achievable Rates, Optimal Signalling Schemes and Resource Allocation for Fading Wireless Channels. Advisor: Prof. Sennur Ulukus.

M.S. in Electrical Engineering
University of Maryland, College Park, USA, May 2002.
Major: Communications and Signal Processing, Minor: Controls.

B.S. in Electrical and Electronics Engineering
Bilkent University, Ankara, Turkey, May 2000.

RESEARCH INTERESTS

Information theory and communication theory, with particular focus on wireless communication theory.

Specific topics of interest: multi-user information theory, diversity techniques for wireless networks, physical, MAC and cross layer protocol design for wireless networks, energy harvesting, cognitive radio, resource allocation, CDMA, OFDMA and MIMO systems, non-linear optimization, iterative algorithms, signal processing for communications.

AWARDS AND HONOURS

Işık University Outstanding Achievement in Teaching Award, 2010.

Best Paper Award, IEEE Wireless Communications and Networking Conference, 2008.

RESEARCH PROJECTS AND GRANTS

User cooperation and resource allocation in energy harvesting wireless networks. Principal Investigator, TUBITAK 1001 grant. Collaborator: Sennur Ulukus, UMD. April 2014 - September 2016.

Encoding and Decoding Strategies, Achievable Rates and Resource Allocation for Cooperative Cognitive Radio Systems. Principal Investigator, TUBITAK 1001 grant. April 2011 - September 2013.

Orthogonal Frequency Division Multiplexing (OFDM)-Based Resource Allocation in Cooperative Wireless Communications. Researcher, TUBITAK 1001 grant. Collaborators: Tolga Girici and Melda Yuksel, TOBB ETU. February 2009 - July 2011.

Optimum Resource Allocation and Transmit Strategies for Cooperative Wireless Communication Networks. Principal Investigator, TUBITAK 1001 grant. July 2006 - January 2009.

THESIS SUPERVISION

Nuğman Su (Co-advisor: Dr. Mutlu Koca), "Optimum Cooperative Communication Strategies over Multi-Hop Visible Light Channels", PhD Thesis, in progress.

Çağatay Edemen, "Design and optimization of multiuser cooperative protocols for wireless networks," PhD Thesis, October 2014.

İsmail Sezi Bakım, "Cooperative Strategies, Achievable Rates and Resource Allocation for OFDMA Channels," PhD Thesis, July 2011.

Berrak Şişman, "Energy and Data Cooperation in Energy Harvesting Multiple Access Channels", MSc. Thesis, February 2016.

Saygın Bakşi, "Partner Selection and Resource Allocation in Single-Cell, Multi-cell and Cognitive Cooperative Multiple Access Channels", MSc. Thesis, June 2013.

Murat İşleyen, "A cooperative communication approach to cognitive radio," MSc. Thesis, October 2011.

Mehmet Güneş, "Compress and forward based cooperation strategies in wireless networks," MSc. Thesis, October 2011.

Can Yiğit (Co-advisor: Dr. Mutlu Koca), "Implementation of cooperative diversity in space frequency coded OFDM systems," MSc. Thesis, September 2007.

Çağatay Edemen, "Channel Adaptive User Cooperation Strategies for Fading Wireless Channels," MSc. Thesis, June 2006.

PUBLICATIONS

BOOK CHAPTER

O. Kaya and S. Ulukus, Power Allocation for Cooperative Communications, In Cooperative Communications for Improved Wireless Network Transmission: Frameworks for Virtual Antenna Array Applications, M. Uysal, Ed., IGI-Global, 2009.

JOURNAL

B. Gurakan, O. Kaya and S. Ulukus. Energy and Data Cooperative Multiple Access Channel with Intermittent

Data Arrivals, *IEEE Transactions on Wireless Communications*, submitted October 2016.

C. Edemen and O. Kaya, Cognitive Cooperative MAC With One Primary and Two Secondary Users: Achievable Rates and Optimal Power Control, *IEEE Communications Letters*, 18(11):1895-1898, November 2014.

S. Bakım and O. Kaya, Power Control for Two User Cooperative OFDMA Channels, *IEEE Trans. on Wireless Communications*, 12(1):258-267, January 2013.

S. Bakım and O. Kaya, Cooperative Strategies and Achievable Rates for Two User OFDMA Channels, *IEEE Trans. on Wireless Communications*, 10(12):4029 - 4034, December 2011.

O. Kaya and S. Ulukus, Power Control for Fading Cooperative Multiple Access Channels, *IEEE Trans. on Wireless Communications*, 6(8):2915-2923, August 2007.

O. Kaya and S. Ulukus, Achieving the Capacity Region Boundary of Fading CDMA Channels via Generalized Iterative Waterfilling, *IEEE Trans. on Wireless Communications*, 5(11):3215-3223, November 2006.

O. Kaya and S. Ulukus, Ergodic Sum Capacity Maximization for CDMA: Optimum Resource Allocation, *IEEE Trans. on Information Theory*, 51(5):1831-1836, May 2005.

O. Kaya and S. Ulukus, Optimum Power Control for CDMA with Deterministic Sequences in Fading Channels, *IEEE Trans. on Information Theory*, 50(10):2449-2458, October 2004.

CONFERENCE

A. Arafa, O. Kaya and S. Ulukus, Energy Harvesting Cooperative Multiple Access Channel with Decoding Costs, *European Signal Processing Conference*, Budapest, Hungary, Aug 2016.

B. Gurakan, O. Kaya and S. Ulukus, Energy Harvesting Cooperative Multiple Access Channel with Data Arrivals, *IEEE International Conference on Communications*, Kuala Lumpur, Malaysia, May 2016.

B. Gurakan, B. Sisman, O. Kaya and S. Ulukus, Energy and Data Cooperation in Energy Harvesting Multiple Access Channel. *IEEE Wireless Communications and Networking Conference, WPCNets Workshop*, Doha, Qatar, April 2016.

O. Kaya, N. Su, S. Ulukus and M. Koca, Delay Tolerant Cooperation in the Energy Harvesting Multiple Access Channel, *UCSD ITA*, San Diego, CA, February 2016.

N. Su, O. Kaya, S. Ulukus, M. Koca, Cooperative Multiple Access under Energy Harvesting Constraints, *IEEE Global Communications Conference*, San Diego, CA, December 2015.

S. Bakşı and O. Kaya, Optimal Primary-Secondary user Pairing and Power Allocation in Cognitive Cooperative Multiple Access Channels. *IEEE ICNC 2014*, Honolulu, HI, Feb. 2014.

S. Bakşı, O. Kaya and T. Bıyıkoğlu, Enabling Cooperation, Resource Allocation and Receiver Selection Across Cells: Complementary Fractional Frequency Reuse. *IEEE PIMRC 2013*, London, UK, Sept. 2013.

C. Edemen and O. Kaya, A New Block Markov Coding Strategy for Pairwise and Collective Cooperation in the Three User MAC, *International Black Sea Conference on Communications and Networking*, Batumi, Georgia, July 2013.

T. Mert, O. Kaya, H. A. Çırpan, Jointly Optimal Chunk and Power Allocation in Uplink SC-FDMA, *IEEE International Conference on Communications*, Budapest, Hungary, June 2013.

O. Kaya and M. İşleyen, Power control in the cognitive cooperative multiple access channel, *Conference on Information Sciences and Systems*, Princeton, NJ, March 2012.

S. Bakşı, O. Kaya and T. Bıyıkoğlu, Optimal and Near-Optimal Partner Selection Algorithms in Cooperative OFDMA, *IEEE Wireless Communications and Networking Conference*, Paris, France, April 2012.

S. Bakim and O. Kaya, Optimum Power Control for Transmitter Cooperation in OFDMA Based Wireless Networks, IEEE Global Communications Conference, Workshop on Multicell Cooperation, Houston, TX, December 2011.

S. Bakim and O. Kaya, Achievable Rates for Two User Cooperative OFDMA, IEEE Global Communications Conference, Miami, FL, December 2010.

C. Edemen and O. Kaya, Channel Adaptive Encoding and Decoding Strategies and Rate Regions for the Three User Cooperative Multiple Access Channel. IEEE Global Communications Conference, New Orleans, LA, November-December 2008.

C. Edemen and O. Kaya, Achievable Rates for the Three User Cooperative Multiple Access Channel, IEEE Wireless Communications and Networking Conference, Las Vegas, NV, March 2008. (IEEE WCNC 2008 Best Paper Award.)

O. Kaya, Window and Backwards Decoding Achieve the Same Sum Rate for the Fading Cooperative Gaussian Multiple Access Channel, IEEE Global Communications Conference, San Francisco, CA, November 2006.

O. Kaya and S. Ulukus, Power Control for Fading Multiple Access Channels with User Cooperation, IEEE International Conference on Wireless Networks, Communications, and Mobile Computing, Maui, HI, June 2005.

O. Kaya and S. Ulukus, Capacity Region of Power Controlled Fading CDMA: Transmit Strategies and Convexity Issues, IEEE International Symposium on Information Theory, Chicago, IL June 2004.

O. Kaya and S. Ulukus, Power Control and Achievable Rates for Fading CDMA: Generalized Iterative Waterfilling, Conference on Information Sciences and Systems, Princeton, NJ, March 2004.

O. Kaya and S. Ulukus, Jointly Optimal Power and Signature Sequence Allocation for Fading CDMA, IEEE Global Communications Conference, San Francisco, CA, December 2003.

O. Kaya and S. Ulukus, Optimum Power Control for Fading CDMA with Deterministic Sequences, 40th Annual Allerton Conference on Communication, Control and Computing, Monticello, IL, October 2002.

POSTER PRESENTATIONS

Power Control for Fading Multiple Access Channels with User Cooperation, WICAT Workshop on Cooperative Communications, Polytechnic University, Brooklyn, New York, October 2005.

Jointly optimum power and signature sequence allocation in fading CDMA, TECH 2004, University of Maryland, College Park.

Capacity region of power controlled fading CDMA: generalized iterative waterfilling, TECH 2004, University of Maryland, College Park.

Optimum power control for CDMA in fading channels, Collaborative Technology Alliances Conference, College Park, MD April-May 2003.

Optimum power control for fading CDMA, Research Review Day 2003, University of Maryland, College Park.

TEACHING

Spring 2017: EE 222 Circuit Theory II , EE 370 Introduction to Communication Systems.

Fall 2016: MATH 230.02 Probability, MATH 230.03 Probability.

Spring 2016: EE 222 Circuit Theory II, EE 370 Introduction to Communication Systems.

Fall 2015: EE 225 Electrical Circuits, EE 370 Introduction to Communication Systems.

Spring 2015: EE 222 Circuit Theory II, EE 370 Introduction to Communication Systems, EE 570 Digital Communications.

Fall 2014: EE 225 Electrical Circuits, EE470 Digital Communication Systems, EE 572 Wireless Communications.

Spring 2014: EE 222 Circuit Theory II, EE 370 Introduction to Communication Systems, EE 505 Information Theory and Coding.

Fall 2013: EE 225.01 Electrical Circuits, EE 225.02 Electrical Circuits, EE 470.01 Digital Communication Systems, CEE 311 Analog Communication (Dogus University)

Summer 2013: EE 222 Circuit Theory II.

Spring 2013: EE 222 Circuit Theory II, EE 370 Introduction to Communication Systems.

Fall 2012: EE 225 Electrical Circuits, EE 501 Probability and Stochastic Processes.

Spring 2012: EE 370 Introduction to Communication Systems, EE 222 Circuit Theory II, EE 572 Wireless Communication.

Fall 2011: EE 470 Digital Communication Systems, EE 474 Communication Simulation Techniques & Lab, EE 505 Information Theory and Coding.

Spring 2011: EE370 Introduction to Communication Systems, EE 222 Circuit Theory II.

Fall 2010: EE 476 Wireless Communications, EE 471 Communication Engineering I, EE 225 Electrical Circuits.

Summer 2010: EE 221 Circuit Theory I, EE 471 Communication Engineering I

Spring 2010: EE 470 Digital Communication Systems, EE 505 Information Theory and Coding

Fall 2009: EE 471 Communication Engineering I, EE 221 Circuit Theory I, MATH 230 Probability

Spring 2009: EE 472 Communication Engineering II, EE 572 Wireless Communications.

Fall 2008: EE 471 Communication Engineering I, EE 505 Information Theory and Coding

Summer 2008: EE 471 Communication Engineering I, EE 472 Communication Engineering II

Spring 2008: EE 472 Communication Engineering II, EE 222 Circuit Theory II.

Fall 2007: EE 221 Circuit Theory I, EE 471 Communication Engineering I

Summer 2007: EE 472 Communication Engineering II

Spring 2007: EE 472 Communication Engineering II, EE 505 Information Theory and Coding

Fall 2006: EE 471 Communication Engineering I, EE 570 Digital Communications.

Summer 2006: EE 472 Communication Engineering II.

Spring 2006: EE 472 Communication Engineering II, EE 222 Circuit Theory II.

Fall 2005: EE 221.01 Circuit Theory I, EE 221.02 Circuit Theory I.

PROFESSIONAL AFFILIATIONS

Member, IEEE (S'02, M'06)

Member, IEEE Communications Society

Member, IEEE Information Theory Society

Member, IEEE Communications Society Technical Committee

Volunteer / Evaluator, Association for Evaluation and Accreditation of Engineering Programs (MUDEK)

PROFESSIONAL SERVICE

EDITORSHIP

Associate Editor, Turkish Journal of Electrical Engineering and Computer Sciences

CONFERENCE ORGANIZATION / CHAIRING

IEEE PIMRC 2018 Tutorials Co-Chair

IEEE ICECS 2017 Tutorials Co-Chair, Communication Track Chair.

IEEE SIU 2017 Special Session Organizer - Energy Harvesting Communication Systems

IEEE WCNC 2014 Tutorials Co-Chair

IEEE PIMRC 2014 PHY Track Co-Chair

REVIEWERSHIP

IEEE Communications Magazine

IEEE Transactions on Information Theory

IEEE Transactions on Wireless Communications

IEEE Transactions on Communications

IEEE Journal on Selected Areas in Communications

IEEE Transactions on Vehicular Technology

IEEE Transactions on Signal Processing

IEEE Communications Letters

IEEE Wireless Communication Letters

IEEE Signal Processing Letters

Elsevier Physical Communication

Annals of Telecommunications

Journal of Communications and Networks

EURASIP Journal on Advances in Signal Processing

EURASIP Journal on Wireless Communications and Networking

Book Chapter: Cooperative Communications for Improved Wireless Network Transmission

TUBITAK research projects, (panelist/reviewer/observer/external reviewer),

TUBITAK TEYDEB project evaluations (reviewer/observer),

TTGV Technology Awards (reviewer)

Science Heroes Association 2016 Young Scientist of the Year Award selection committee

CONFERENCE TECHNICAL PROGRAM COMMITTEE MEMBERSHIPS

IEEE Wireless Communications and Networking Conference

- 2015 MAC and Cross Layer Design ve Services Applications and Business symposia,
- 2014 MAC symposium,
- 2013 PHY symposium,
- 2012 MAC ve PHY symposia,
- 2011 MAC ve PHY symposia
- 2010 MAC ve PHY symposia,
- 2009 PHY symposium,
- 2008 MAC symposium.

IEEE Global Communications Conference

- 2007 Communication Theory symposium,
- 2008 Wireles Communication symposium,
- 2009 Wireles Communication symposium,
- 2010 Wireles Communication symposium,
- 2011 Cognitive Radio Networks ve Wireless Communication symposia,
- 2012 Cognitive Radio Networks symposium,
- 2013 Cognitive Radio Networks ve Wireles Communication symposia,
- 2014 Communication Theory ve Wireless Communication symposia,
- 2015 Communication Theory ve Wireless Communication symposia,
- 2016 Communication Theory ve Wireless Communication symposia.

IEEE International Conference on Communications

- 2008 Wireless Communication symposium,
- 2009 Communication Theory ve Wireless Communication symposia,
- 2010 Communication Theory ve Wireless Communication symposia,
- 2011 Cognitive Radio Networks ve Wireless Communication symposia,
- 2012 Ad-Hoc and Sensor Networks ve Wireless Communication symposia,
- 2013 Communication Theory ve Wireless Communication symposia,
- 2014 Wireless Communication symposium,
- 2015 Communication Theory, Cognitive Radio Networks ve Wireless Communication symposia,
- 2016 Communication Theory ve Wireless Communication symposia,
- 2018 Communication Theory ve Wireless Communication symposia.

IEEE International Symposium on Personal, Indoor and Mobile Radio Communications

- 2016 Fundamentals and PHY track
- 2014 Fundamentals and PHY track
- 2013 Fundamentals and PHY track
- 2011 WACC and CRSM tracks
- 2010 PHY track

International Conference on Wireless Communications and Signal Processing 2013

International Wireless Communications & Mobile Computing Conference 2011

IEEE Infocom 2011 Cognitive and Cooperative Networks symposium,

WiMob 2011, 2012, 2013

IEEE SIU 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2017

UNIVERSITY SERVICE

CURRENT

Vice Dean, Faculty of Engineering

Member, Işık University Strategic Plan Committee

Member, Işık University Rules and Procedures Committee

Member, Işık University International Affairs Academic Advisory Board

Member, Işık University Publications Committee

Member, Işık University Engineering Faculty Quality Committee

Işık University Engineering Faculty Erasmus Coordinator

Işık University Electrical and Electronics Engineering Department Erasmus Coordinator

Member, Işık University Engineering Faculty Board

Member, Electrical and Electronics Engineering Department PhD Qualifier Committee

PAST

Member, Işık University Engineering Faculty Executive Board

Member, Işık University Web Committee

Member, Işık University English Education Committee

Member, Işık University New Employee Orientation Committee