

CAN EMRE KOKSAL

Associate Professor

Electrical and Computer Engineering The Ohio State University
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Personal

Born on 12/15/1975. Citizen of USA.

Education

MASSACHUSETTS INSTITUTE OF TECHNOLOGY Cambridge, MA
Ph.D. degree in Electrical Engineering and Computer Science, September 2002.
Thesis supervised by Professor Robert G. Gallager and Dr. Charles Rohrs. Thesis title:
“Providing Quality of Service over High Speed Switches and Optical Networks.”

MASSACHUSETTS INSTITUTE OF TECHNOLOGY Cambridge, MA
Certificate on Financial Technology, May 2001. Completed the Financial Technology
Option program which was developed by **Merrill Lynch - MIT partnership.**

MASSACHUSETTS INSTITUTE OF TECHNOLOGY Cambridge, MA
S.M. degree in Electrical Engineering and Computer Science, May 1998. Super-
vised by Dr. Richard A. Barry (CTO, Sycamore Networks) and Prof. Robert G. Gallager.
Thesis title: “Analysis of Coherent Crosstalk in WDM-AONs.”

MIDDLE EAST TECHNICAL UNIVERSITY Ankara, TURKEY
B.S. degree in Electrical Engineering, June 1996. Minor in mathematics.

Experience

ELECTRICAL AND COMPUTER ENGINEERING, THE OHIO STATE UNI-
VERSITY Columbus, OH
September 2013 – present
Associate Professor.

ELECTRICAL AND COMPUTER ENGINEERING, THE OHIO STATE UNI-
VERSITY Columbus, OH
October 2006 – September 2013
Assistant Professor.

SCHOOL OF COMPUTER AND COMMUNICATION SCIENCES, EPFL
Lausanne, SWITZERLAND
October 2004 – September 2006
Senior researcher. Supervisors: Professor Patrick Thiran and Professor Emre Telatar

CSAIL, MIT Cambridge, MA
October 2002 – September 2004
Postdoctorate Scholar. Supervisor: Professor Hari Balakrishnan

ARDEN ASSET MANAGEMENT New York, NY
May 2004
Worked as an independent consultant. Developed estimation and prediction tools to be
used to construct portfolios of hedge funds.

THE OHIO STATE UNIVERSITY
Department of Electrical and Computer Engineering
ECE 804: Probabilistic Signal Analysis

Columbus, OH
Au 2006–2008

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Department of Electrical Engineering and Computer Science
Part of the team building and developing the class 6.962, Graduate Seminar on Wireless Communication and Information Theory. Responsibilities included writing the proposal for the class and giving seminars on related topics.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Department of Electrical Engineering and Computer Science
Teaching Assistant for high-level graduate course, 6.262: Discrete Stochastic Processes.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Department of Electrical Engineering and Computer Science
Teaching Assistant for the the course, 6.917 (6.401/6.450): Introduction to Digital Communication.

**Students
and
Postdocs**

1. **Yin Sun**, co-Advisor (joint with Ness B. Shroff), Postdoctoral Fellow, Sep. 2011 - present.
2. **Rahul Srivastava**, Advisor, Doctoral Student, Oct. 2006 - Dec. 2010.
Thesis title: “Efficient Energy Management in Wireless Sensor Networks.”
Current position: R & D Engineer, Broadcom Inc., CA.
3. **Rohit Aggarwal**, co-Advisor (joint with Philip Schniter), Doctoral Student, Oct. 2007 - June 2012.
Thesis title: “Resource Allocation and Design Issues in Wireless Systems”
Current position: R & D Engineer, Qualcomm, Inc., San Diego, CA.
4. **Arun Sridharan**, Advisor, Doctoral Student, Oct. 2006 - Dec. 2012.
Thesis title: “Low Complexity Scheduling in Wireless Networks”
Current position: Network Optimization Architect, Akamai, Inc., Cambridge, MA.
5. **Zhoujia Mao**, co-Advisor (joint with Ness B. Shroff), Doctoral Student, Jan. 2008 - Aug. 2013.
Thesis title: “Approximation Algorithms Design for Resource Management in Communication Networks”
Current position: R & D Engineer, Oracle, Inc., Santa Clara, CA.
6. **Onur Gungor**, Advisor, Doctoral Student, Oct. 2008 - Oct. 2014.
Thesis title: “Information Theory Enabled Secure Wireless Communication, Key Generation and Authentication”
Current position: Data Scientist Walmart Labs, San Fransisco, CA.
7. **Fangzhou Chen**, Advisor, Doctoral Student, Oct. 2010 - present.
8. **Ozan Basciftci**, Advisor, Doctoral Student, Jan. 2012 - present.
9. **Amr Abdelaziz**, co-Advisor (joint with Hesham El Gamal), Doctoral Student, Jun. 2015 - present.
10. **Ghada Saleh**, co-Advisor (joint with Ness B. Shroff), MS Student, Aug. 2012 - Jun. 2015.
Thesis title: “Resource Allocation for Optimum Power Usage in Wireless Networks”
Current position: R & D Engineer, Mathworks Inc., Natick, MA.
11. **Nithin Sugavanam**, co-Advisor (joint with Atilla Eryilmaz), MS Student, Jan. 2011 - Jun. 2012.

12. **Tianyou Kou**, co-Advisor (joint with Eylem Ekici), MS Student, Aug. 2011 - May 2012.
Current position: Software Engineer, Huntington Bank.
13. **Ran Lin**, Advisor, MS Student, Aug. 2012 - Aug. 2013.
Current position: Software Engineer, SafeAuto Insurance.
14. **Ju Gao**, Advisor, MS Student, Aug. 2012 - Aug. 2013.
Current position: PhD student, OSU ECE.
15. **Boyi Gong**, Advisor, MS Student, Aug. 2013 - 2014.
16. **Jiawei Liu**, Advisor, MS Student, Sep. 2014 - Jun. 2016.
Current position: PhD student, UT Dallas.
17. **Yuhui Feng**, Advisor, MS Student, Aug. 2015 - Jun. 2016.
Thesis title: "Enhancing Efficiency of Beaconing in VANETs"
18. **Tom Jiang**, co-Advisor (joint with Atilla Eryilmaz), MS Student, May 2016 - present.
19. **Guochen Wang**, co-Advisor (joint with Atilla Eryilmaz), MS Student, May 2016 - present.
20. **Xingchi Su**, Advisor, MS Student, May 2016 - present.
21. **Haozhou Wu**, Advisor, MS Student, May 2016 - present.
22. **Elaine Song**, Advisor, BS Student, Jan. 2009-Jun. 2010.
Current position: MS Student, Princeton University.
23. **Ahmed Gashgash**, Advisor, BS Student, Jan. 2016 - present.

Research Topics

My research interests span a number of topics in communication theory and networking, with an emphasis on applying mathematical techniques to the design of efficient wireless communication systems and wireless networks. Some of my recent studies include:

1. **Wireless communication:** Adaptive communication systems with limited feedback, channel estimation, mmWave communication systems
2. **Information theory:** Information theoretic security, distributed source coding
3. **Cybersecurity:** Physical-layer security, security of vehicular communication systems
4. **Wireless networking:** Network control and resource allocation, Internet of Things
5. **Energy management:** Energy-efficient communication schemes, energy harvesting wireless networks, joint wireless energy and information transfer
6. **Nano communications and networking:** Carbon Nanotube Antennas, Nanoreceiver design
7. **Financial economics:** Detection and classification of crises, risk measurement

Patents

1. Gungor O. and Koksals C. E., "A System to Generate Reliable, Random and Secure Key Bits from Localization Information in Mobile Networks", *US Patent Pending*
2. Tallos R., Chen C., Koksals C. E., and Shroff N. B., "RF Energy Harvesting Wireless Mobile Device Charger," *Provisional US Patent Filed*

The idea that led to this technology has been generated jointly by C. E. Koksals and N. B. Shroff. It is being commercialized by Nikola Labs and is featured at various outlets including CNN, Forbes, Wired, Business Insider, Columbus Dispatch, and NPR.

Publications Book Chapters

1. Koksals C. E., "Quality-Aware Routing Metrics in Wireless Mesh Networks," *Chapter 8, Wireless Mesh Networks: Architectures and Protocols*, Eds. E. Hossain and K. K. Leung, Springer 2007 (ISBN: 978-0-387-68839-8)
2. Mao Z., Koksals C. E., and Shroff N. B., "Cross-Layer Resource Allocation in Energy Harvesting Sensor Networks," *Rechargeable Sensor Networks: Technology, Theory and Application*, Eds. J. Chen, S. He, and Y. Sun, World Scientific Publishing 2013

Journal Publications (published/in press)

1. Gungor O. and Koksals C. E. "On the Basic Limits of RF-Fingerprint Based Authentication," *IEEE/ACM Transactions on Information Theory - to appear*
2. Sarikaya Y., Ercetin O., and Koksals C. E., "Dynamic Network Control for Confidential Multi-hop Communications," *IEEE/ACM Transactions on Networking, Volume 24, Issue 2, Apr. 2016, Page: 1181-1195*
3. Mao Z., Koksals C. E., and Shroff N. B., "Optimal Online Scheduling with Arbitrary Hard Deadlines in Multihop Communication Networks," *IEEE/ACM Transactions on Networking, Volume 24, Issue 1, Feb. 2016, Page: 177-189*
4. Basciftci Y. O., Gungor O., Koksals C. E., and Ozguner F., "On the Secrecy Capacity of Block Fading Channels with a Hybrid Adversary," *IEEE Transactions on Information Theory, Volume 61, Issue 3, Mar. 2015, Page: 1325-1343*
5. Gungor O., Chen F., and Koksals C. E., "Secret Key Generation via Localization and Mobility," *IEEE Transactions on Vehicular Technology, Volume 64, Issue 6, Jun. 2015, Page: 2214-2230*
6. Sarikaya Y., Ercetin O., and Koksals C. E., "Confidentiality-Preserving Control of Uplink Cellular Wireless Networks Using Hybrid ARQ," *IEEE/ACM Transactions on Networking, Volume 23, Issue 5, Oct. 2015, Page: 1457-1470*
7. Liu H., Yang J., Wang Y., Chen Y., and Koksals C. E., "Group Secret Key Generation via Received Signal Strength: Protocols, Achievable Rates, and Implementation," *IEEE Transactions on Mobile Computing, Volume 13, Issue 12, Apr. 2014, Page: 2820-2835*
8. Sun Y., Koksals C. E., Shroff N. B., "Capacity of Compound MIMO Gaussian Channels With Additive Uncertainty," *IEEE Transactions on Information Theory, Volume 59, Issue 12, Dec. 2013, Page: 8267-8274*
9. Mao Z., Koksals C. E., and Shroff N. B., "Achieving Full Secrecy Rate with Low Delays: An Optimal Control Approach," *IEEE Journal on Selected Areas of Communication, Volume 31, Issue 9, Sep. 2013, Page: 1944-1956*
10. Gungor O., Tan J., Koksals C. E., El Gamal H., and Shroff N. B., "Secrecy Outage Capacity of Fading Channels," *IEEE Transactions on Information Theory, Volume 59, Issue 9, Sep. 2013, Page: 5379-5397*
11. Srivastava R. and Koksals C. E., "Basic Performance Limits and Tradeoffs in Energy Harvesting Sensor Nodes with Finite Data and Energy Storage," *IEEE/ACM Transactions on Networking, , Volume 21, Issue 4, Aug. 2013, Page: 1049-1062*
12. Aggarwal R., Koksals C. E., and Schniter P., "On the Design of Large Scale Wireless Systems," *IEEE Journal on Selected Areas of Communication, Volume 31, Issue 2, Feb. 2013, Page: 215-225*
13. Koksals C. E., Ercetin O., and Sarikaya Y. "Control of Wireless Networks with Secrecy," *IEEE/ACM Transactions on Networking, Volume 21, Issue 1, Feb. 2013, Page: 324-337*
14. Koksals C. E. and Ekici E., "High-Rate RF Nanoreceivers with CNT Antennas," *IEEE Wireless Communications Magazine, Volume 19, Issue 5, Oct. 2012, Page: 52-58*

15. Aggarwal R., Koksals C. E., and Schniter P., "Joint Scheduling and Resource Allocation in OFDMA Downlink Systems via ACK/NAK Feedback," *IEEE Transactions on Signal Processing*, Volume 60, Issue 6, June 2012, Page: 3217-3227
16. Koyluoglu O. O., Koksals C. E., and El Gamal H., "On Secrecy Capacity Scaling in Wireless Networks," *IEEE Transactions on Information Theory*, Volume 58, Issue 5, May 2012, Page: 3000-3015
17. Koksals C. E. and Schniter P., "Robust Rate-Adaptive Wireless Communication Using ACK/NAK-Feedback," *IEEE Transactions on Signal Processing*, Number 60, Issue 4, April 2012, Page: 1752-1765
18. Mao Z., Koksals C. E., and Shroff N. B., "Near Optimal Power and Rate Control of Multi-hop Sensor Networks with Energy Replenishment: Basic Limitations with Finite Energy and Data Storage," *IEEE Transactions on Automatic Control*, Volume 57, Issue 4, April 2012, Page: 815-829
19. Sridharan A., Koksals C. E., and Uysal-Biyikoglu E., "A Greedy Link Scheduler for Wireless Networks with Gaussian Multiple Access and Broadcast Channels," *IEEE/ACM Transactions on Networking* Volume 20, Issue 1, February 2012, Page: 100-113
20. Ablay G., Koksals C. E., and Aldemir T., "Chaotic Data Encryption for Long-Distance Monitoring of Nuclear Reactors," *Nuclear Science and Engineering*, Volume 170, Issue 1, January 2012, Page: 27-43
21. Aggarwal R., Assaad M., Koksals C. E., and Schniter P., "Joint Scheduling and Resource Allocation in the OFDMA Downlink: Utility Maximization under Imperfect Channel-State Information," *IEEE Transactions on Signal Processing*, Volume 59, Issue 11, November 2011, Page: 5569-5604
22. Koksals C. E., Ekici E., and Rajan S., "Design and Analysis of Systems Based on RF Receivers with Multiple Carbon Nanotube Antennas," *Nano Communication Networks*, Volume 1, Issue 3, September 2010, Page: 160-172
23. Koksals C. E. and Ekici E., "A Nanoradio Architecture for Interacting Nanonetworking Tasks," *Nano Communication Networks*, Volume 1, Issue 1, Mar. 2010, Page: 63-75
24. Koksals C. E., "Rate Quantization and the Speedup Required to Achieve 100% Throughput for Multicast over Crossbar Switches," *IEEE/ACM Transactions on Networking*, Volume 18, Issue 4, Aug. 2010, Page: 1207-1219
25. Srivastava R. and Koksals C. E., "Energy Optimal Transmission Scheduling in Wireless Sensor Networks," *IEEE Transactions on Wireless Communication*, Volume 9, Issue 5, May 2010, Page: 1550-1560
26. Aggarwal R., Schniter P., and Koksals C. E., "Rate Adaptation via Link-Layer Feedback for Goodput Maximization over a Time-Varying Channel," *IEEE Transactions on Wireless Communication*, Volume 8, Issue 8, Aug. 2009, Page: 4276-4285
27. Liu S., Srivastava R., Koksals C. E., and Sinha P., "A Hidden Markov Model Based Scheme for Energy Efficient Data Transmission in Sensor Networks," *Elsevier Ad Hoc Networks Journal*, Vol. 7, Issue 5, Jul. 2009, Page: 973 - 986
28. Miu A., Balakrishnan H. and Koksals C. E., "Multi-Radio Diversity in Wireless Networks," *Wireless Networks*, Volume 13, Issue 6, Dec. 2007, Pages: 779 - 798
29. Koksals C. E., "An Analysis of Blocking Switches Using Error Control Codes," *IEEE Transactions on Information Theory*, Volume 53, No 8, Aug. 2007
30. Koksals C. E., Balakrishnan H., "Quality Aware Routing Metrics for Time-Varying Wireless Mesh Networks," *IEEE Journal on Selected Areas of Communication Special Issue on Multi-Hop Wireless Mesh Networks*, Volume 24, Issue 11, Nov. 2006 Page: 1984-1994

Conference Publications (published/in press)

1. Bakshi A., Chen L., Srinivasan K., Koksals C. E., and Eryilmaz A., "EMIT: An Efficient MAC Paradigm for the Internet of Things," *Proceedings of IEEE INFOCOM 2016, San Francisco, CA*
2. Sun Y., Uysal-Biyikoglu E., Yates R., Koksals C. E., and Shroff N. B., "Update or Wait: How to Keep Your Data Fresh," *Proceedings of IEEE INFOCOM 2016, San Francisco, CA*
3. Basciftci Y. O., Koksals C. E., and Ashikmin A., "Securing massive MIMO at the Physical Layer," *Proceedings of IEEE Conference on Communications and Network Security, CNS 15, Florence, Italy*
4. Basciftci Y. O., Chen F., Weston J., Burton R., and Koksals C. E., "How vulnerable is vehicular communication to physical layer jamming attacks?," *Proceedings of IEEE Vehicular Technology Conference, VTC 15, Boston, MA*
5. Chen F., Li B., and Koksals C. E., "Low-Delay Distributed Source Coding for Time-Varying Sources with Unknown Statistics," *Proceedings of IEEE INFOCOM 2015, Hong Kong*
6. Sun Y., Zheng Z., Koksals C. E., Kim K. H., and Shroff N. B., "Provably Delay Efficient Data Retrieving in Storage Clouds," *Proceedings of IEEE INFOCOM 2015, Hong Kong*
7. Basciftci Y. O. and Koksals C. E., "Delay Optimal Secrecy in Two-Relay Network," *IEEE GlobalSIP Symposium on Network Theory, GlobalSIP 14, Atlanta, GA*
8. Gungor O. and Koksals C. E., "RF-Fingerprint Based Authentication: Exponents and Achievable Rates," *IEEE Conference on Communications and Network Security (CNS): Workshop on Physical-layer Methods for Wireless Security, PhySec 2014, San Francisco, CA*
9. Basciftci Y. O. and Koksals C. E., "Private Broadcasting with Probing Constraint," *IEEE International Workshop on Signal Processing Advances in Wireless Communications, SPAWC 2014, Toronto, Canada*
10. Sun Y., Koksals C. E., Kim K. H., and Shroff N. B., "Scheduling of Multicast and Unicast Services under Limited Feedback by using Rateless Codes," *Proceedings of IEEE INFOCOM 2014, Toronto, Canada*
11. Koksals C. E., "An Analysis of the Temporal Correlation of Interference in Extended Wireless Networks," *IEEE GlobalSIP Symposium on Network Theory, GlobalSIP 13, Austin, TX*
12. Mao Z., Koksals C. E., and Shroff N. B., "Fair Rate Allocation for Broadcast Channel with Confidential Messages," *IEEE GlobalSIP Symposium on Cyber-Security and Privacy, GlobalSIP 13, Austin, TX*
13. Saleh G., Koksals C. E., and Shroff N. B., "Optimal SINR Based Resource Allocation For Simultaneous Energy and Information Transfer," *IEEE GlobalSIP Symposium on Energy Harvesting and Green Wireless Communications, GlobalSIP 13, Austin, TX*
14. Gungor O., Koksals C. E., and El Gamal H., "An Information Theoretic Approach to RF Fingerprinting," *Proceedings of Asilomar Conference on Signals, Systems and Computers, 2013, Pacific Grove, CA*
15. Gungor O., Koksals C. E., and El Gamal H., "On Secrecy Outage Capacity of Fading Channels Under Relaxed Delay Constraints," *Proceedings of IEEE International Symposium on Information Theory, ISIT 2013, Istanbul, Turkey*
16. Basciftci Y. O., Koksals C. E., and OZguner F., "To Obtain or not to Obtain CSI in the Presence of Hybrid Adversary," *Proceedings of IEEE International Symposium on Information Theory, ISIT 2013, Istanbul, Turkey*

17. Sun Y., Koksalsal C. E., and Shroff N. B., "Capacity of Compound MIMO Gaussian Channels with Additive Uncertainty," *Proceedings of IEEE International Symposium on Information Theory, ISIT 2013, Istanbul, Turkey*
18. Sridharan A., Joo C., and Koksalsal C. E., "Energy Efficient Greedy Link Scheduling in Wireless Networks," *Proceedings of Black Sea Conference on Communications and Networking, BlackSeaCom 2013, Batumi, Georgia*
19. Sarikaya Y., Ercetin O., and Koksalsal C. E., "Dynamic Network Control for Confidential Multi-hop Communications," *Proceedings of WiOpt 2013, Tsukuba Science City, Japan*
20. Sun Y., Koksalsal C. E., Lee S. J., and Shroff N. B., "Network Control without CSI using Rateless Codes for Downlink Cellular Systems," *Proceedings of IEEE INFOCOM 2013, Turin, Italy*
21. Mao Z., Koksalsal C. E., and Shroff N. B., "Online Packet Scheduling with Hard Deadlines in Multihop Communication Networks," *Proceedings of IEEE INFOCOM 2013, Turin, Italy*
22. Sugavanam N., Eryilmaz A., and Koksalsal C. E., "Color of Interference and Joint Encoding and Random Access in Large Wireless Networks," *Proceedings of Asilomar Conference on Signals, Systems and Computers, 2012, Pacific Grove, CA*
23. Sridharan A., Joo C., and Koksalsal C. E., "Energy Efficient Greedy Link Scheduling and Power Control in Wireless Networks," *Proceedings of IEEE International Symposium on Information Theory, ISIT 2012, Cambridge, MA*
24. Sarikaya Y., Ercetin O., and Koksalsal C. E., "Wireless Network Control with Privacy Using Hybrid ARQ," *Proceedings of IEEE International Symposium on Information Theory, ISIT 2012, Cambridge, MA*
25. Kou T., Ekici E., and Koksalsal C. E., "Quality Control of CNT Forests via EM Probing," *Proceedings of NaNoNetworking Summit, N3Summit 2012, Barcelona, Spain*
26. Gungor O., Tan J., Koksalsal C. E., El Gamal H., and Shroff N. B., "Delay-Limited Wireless Communication with Secrecy," *Proceedings of Conference on Information Sciences and Systems, CISS 2012, Princeton, NJ*
27. Aggarwal R., Koksalsal C. E., and Schniter P., "Scaling Laws and Design Principles for Multi-Cellular Wireless OFDMA Systems," *Proceedings of IEEE INFOCOM 2012, Orlando, FL*
28. Gungor O., Chen F., and Koksalsal C. E., "Secret Key Generation from Mobility," *IEEE Globecom 2011, Workshop on Physical-Layer Security, Houston, TX*
29. Mao Z., Koksalsal C. E., and Shroff N. B., "Towards Achieving Full Secrecy Rate and Low Delays in Wireless Networks" *Proceedings of Allerton Conference on Communication, Control, and Computing, Allerton 2011, Monticello, IL*
30. Sridharan A. and Koksalsal C. E., "A Greedy Link Scheduler for Wireless Networks with Fading Channels," *Proceedings of Asilomar Conference on Signals, Systems and Computers, 2011, Pacific Grove, CA*
31. Mao Z., Koksalsal C. E., and Shroff N. B., "Queue and Power Control for Rechargeable Sensor Networks under the SINR Interference Model" *Proceedings of Asilomar Conference on Signals, Systems and Computers, 2011, Pacific Grove, CA*
32. Koksalsal C. E. and Ekici E., "High-Rate RF Nanoreceivers with CNT Antennas," *Proceedings of NaNoNetworking Summit, 2011, Barcelona, Spain*
33. Gungor O., Koyluoglu O. O., El Gamal H., and Koksalsal C. E., "Proactive Source Coding," *Proceedings of IEEE International Symposium on Information Theory, ISIT 2011, St. Petersburg, Russia*

34. Aggarwal R., Assad M., Koksals C. E., and Schniter P., "Optimal Resource Allocation in OFDMA Downlink Systems With Imperfect CSI," *Proceedings of IEEE International Workshop on Signal Processing Advances in Wireless Communications, SPAWC 2011, San Francisco, CA*
35. Mao Z., Koksals C. E., and Shroff N., "Towards achieving full secrecy rate in wireless networks: a control theoretic approach," *Information Theory and Applications Workshop, ITA 2011, San Diego, CA*
36. Koksals C. E and Ercetin O., "Control of Wireless Networks with Secrecy," *Proceedings of Asilomar Conference on Signals, Systems and Computers, 2010, Pacific Grove, CA*
37. Mao Z., Koksals C. E., and Shroff N. B., "Resource Allocation in Sensor Networks with Renewable Energy," *Proceedings of International Conference on Computer Communication Networks, ICCCN 2010, Zurich, Switzerland*
38. Koyluoglu O. O., Koksals C. E., and El Gamal H., "On the Effect of Colluding Eavesdroppers on Secrecy Scaling," *Proceedings of European Wireless Conference, EW 2010, Lucca, Italy*
39. Koyluoglu O. O., Koksals C. E., and El Gamal H., "On Secrecy Capacity Scaling in Wireless Networks," *Information Theory and Applications Workshop, ITA 2010, San Diego, CA*
40. Gungor O., Tan J., Koksals C. E., El Gamal H., and Shroff N. B., "Joint Power and Secret Key Queue Management for Delay Limited Secure Communication," *Proceedings of IEEE INFOCOM 2010, San Diego, CA*
41. Sridharan O., Koksals C. E., and Uysal-Biyikoglu E., "A Greedy Link Scheduler for Wireless Networks with Gaussian Multiple Access and Broadcast Channel," *Proceedings of IEEE INFOCOM 2010, San Diego, CA*
42. Liu R., Sinha P., and Koksals C. E., "Joint Energy Management and Resource Allocation in Rechargeable Sensor Networks," *Proceedings of IEEE INFOCOM 2010, San Diego, CA*
43. Aggarwal R., Assad M., Koksals C. E., and Schniter P., "OFDMA Downlink Resource Allocation via ARQ Feedback," *Proceedings of Asilomar Conference on Signals, Systems, and Computers 2009, Pacific Grove, CA*
44. Koksals C. E., "On the Speedup Required to Achieve 100% Throughput for Multicast over Crossbar Switches," *Proceedings of IEEE International Workshop on Quality of Service, IWQoS 2008, Enschede, Holland*
45. Liu S, Srivastava R., Koksals C. E. and Sinha P., "Achieving Energy Efficiency with Transmission Pushbacks in Sensor Networks," *Proceedings of IEEE International Workshop on Quality of Service, IWQoS 2008, Enschede, Holland*
46. Aggarwal R., Schniter P. and Koksals C. E., "Rate Adaptation via ARQ-Feedback for Goodput Maximization over Time-Varying Channels," *Proceedings of IEEE Conference on Information Sciences and Systems, CISS 2008, Princeton, NJ*
47. Koksals C. E., Thiran P., Telatar E. and Jamieson K., "Impacts of Channel Variability on Link-Level Throughput in Wireless Networks," *Proceedings of ACM SIGMETRICS/Performance 2006, San Melo, France*
48. Koksals C. E., "Analysis of Supportable Rates in Symmetric Blocking Wavelength Routers," *Proceedings of IEEE International Symposium on Information Theory, ISIT 2006, Seattle, WA*
49. Kannan J. K., Jung J., Paxson V. and Koksals C. E., "Semi-Automated Discovery of Application Session Structure," *Proceedings of ACM Internet Measurement Conference, IMC 2006, Rio de Janeiro, Brazil*

50. Miu A., Balakrishnan H. and Koksals C. E., "Improving Loss Resilience with Multi-Radio Diversity in Wireless Networks," *Proceedings of ACM MOBICOM 2005, Cologne, Germany*
51. Koksals C. E., Gallager R. G. and Rohrs C., "Rate Quantization and Service Quality over Single Crossbar Switches," *Proceedings of INFOCOM 2004, Hong Kong*
52. Koksals C. E., "An Analysis of Blocking Switches Using Error Control Codes," *Proceedings of IEEE International Symposium on Information Theory, ISIT 2004, Chicago, IL*
53. Koksals C. E., Kassab H. and Balakrishnan H., "An Analysis of Short-Term Fairness in Wireless Media Access Protocols," *Extended Abstract - Proceedings of ACM SIGMETRICS 2000, San Jose, CA*
54. Hemenway B. R., Stevens M., Barry R., Koksals C. E. and Swanson E., "Demonstration of a Reconfigurable Wavelength Routed Network," *Post-deadline Papers, OFC 1997, Dallas, TX*

**Research
Grants**

1. PI: Volakis J., Co-PI: Koksals C. E., Dupaux B., and Alwan E., "Ultra wideband and secure multiuser communication system with reduced hardware"
Agency: *Office of Naval Research (ONR)*
Amount: 500,000 USD, Jan. 2016 - Dec. 2018.
2. PI: Koksals C. E., "Replacing Cables: Silent Multi Audio and Data Broadcasting without Wireless RF Transmissions"
Agency: *Center for Automotive Research*
Amount: 46,000 USD, May 2016 - Dec. 2016
3. PI: Koksals C. E., Co-PI: Ozguner F., "An Efficient and Secure Communication Framework for Vehicular Communication Networks"
Agency: *Crash Imminent Safety - University Transportation Center, OSU*
Amount: 40,000 USD, Sep. 2015 - Jun. 2016
4. PI: Koksals C. E., , Co-PI: Sun Y., "Adaptive Modulation and Coding in LTE Networks"
Agency: *Huawei, Inc.*
Amount: 95,000 USD, Jan. 2016 - Dec. 2016
5. PI: Koksals C. E., Co-PI: Eryilmaz A. and Srinivasan K., "NeTS: Medium: Connecting the next billion: Rethinking wireless network design principles for the internet of everything"
Agency: *National Science Foundation, Division of Communications and Information Foundations*
Amount: 800,000 USD, Sep. 2015 - Sep. 2019.
6. PI: Koksals C. E., "Security of vehicular communication systems: A physical-layer approach"
Agency: *Transportation Research Center*
Amount: 90,000 USD, Aug. 2014 - Dec. 2016
7. PI: Koksals C. E., "Cooperative scheduling and power control in LTE networks"
Agency: *Huawei, Inc.*
Amount: 85,000 USD, Dec. 2013 - Dec. 2014
8. PI: Shroff N. B., Co-PI: Koksals C. E., "Enhancing the end-to-end efficiency of the mobile cloud"
Agency: *HP Labs*
Amount: 60,000 USD, Jun. 2015 - Jun. 2016

9. Lead-PI: Koksals C. E., Co-PIs: Shroff N. B., El Gamal H. (OSU), Lai L. (WPI), El-Fouly T. M., Khattab T. M., and Mohamed A. M. (Qatar U.), "Information Theory Enabled Secure Wireless Networking: Scaling Laws, Network Control, and Implementation"
Agency: *Qatar National Research Fund - National Priorities Research Program*
Amount: 1,045,000 USD (OSU portion: 276,000 USD), Aug. 2012 - Aug. 2015
10. PI: Ekici E., Co-PI: Koksals C. E., "CNIC: US-Spain Cooperation on Building Hybrid Nano-Communication Networks: RF Meets Molecules"
Agency: *National Science Foundation*
Amount: 23,485 USD, Aug. 2012 - Aug. 2013
11. PIs: Koksals C. E. and Ekici E., "Carbon Nano Tube - Based Communication Devices and Networks"
Agency: *OSU Office of International Affairs International Gateway Research Grant*
Amount: 10,000 USD, Jun. 2011 - Jun. 2012
12. PI: Shroff N. B., Co-PI: Koksals C. E., "Energy and Labor Efficient Sensor Networking for Underground Data Acquisition"
Agency: *HP Labs - Innovation Research Program*
Amount: 250,000 USD, Jun. 2011 - Jun. 2014
13. PI: Koksals C. E., "CAREER: Design and Control of Wireless Networks on Network-Information-Theoretic Foundations"
Agency: *National Science Foundation*
Amount: 400,000 USD, Jan. 2011 - Dec. 2015.
14. PI: Koksals C. E., Co-PI: Eryilmaz A., "CIF: Small: Cost and Value of Information for Resource Allocation in Wireless Networks"
Agency: *National Science Foundation, Division of Communications and Information Foundations*
Amount: 458,000 USD, Sep. 2009 - Sep. 2012.
15. PI: Shroff N., Co-PIs: Koksals C. E. and Sinha P., "NeTS-NECO: A New Resource Management Paradigm for Sensor Networks with Energy Replenishment"
Agency: *National Science Foundation, Division of Computer and Network Systems*
Amount: 500,000 USD, Aug. 2008 - Aug. 2012.
16. PI: Uysal-Biyikoglu E., Co-PI: Koksals C. E., "MIMO Networking: From Principles to Protocols"
Agency: *National Science Foundation, Division of Communications and Information Foundations.*
Amount: 175,000 USD, Oct. 2006 - Oct. 2010.

Academic Awards

- OSU College of Engineering Innovators Award, 2016
- Bell Labs Prize Finalist, 2014
- HP Labs - IRP Award, 2011
- OSU College of Engineering Lumley Research Award, 2011
- NSF CAREER Award, 2011
- Best Student Paper Candidate, ACM Mobicom 2005

Activities & Service

- Associate Editor for "IEEE Transactions on Information Theory," 2013–present
- Associate Editor for "IEEE Transactions on Wireless Communication," 2013–present
- Associate Editor for "Elsevier Computer Networks Journal," 2012–present

- Distinguished TPC Member (performance based), IEEE INFOCOM 2016
- Technical Program Committee Chair for Wireless Communication Track for “IEEE CCNC 2015”
- Technical Program Committee (TPC) member for “IEEE INFOCOM 2008–2015,” “ACM MobiHoc 2008, 2013,” “IEEE ICC 2013,” “IEEE BlackSeaCom 2013,” “ACM CoNext 2012,” “IEEE ICCCN 2012,” “IEEE GLOBECOM 2011 - Physical Layer Security Workshop,” “IEEE WCNC 2009,” “ACM MobiHoc 2008,” “GLOBECOM 2008,” “IFIP Networking” Conference, (Networking 2007), Symposium on “Next Generation Mobile Networks (NGMN 2006).”
- Session organizer for “Networking with Physical Layer Security” in *Asilomar 2013*.
- Session organizer for “Physical Layer Security” in *Informs 2011 Midwestern Conference*.
- Member of Proposal Review Panels for “NSF CRI, NeTS and CIF” Divisions (multiple times)
- Reviewer for three books published by Cambridge University Press and a number of journals and conferences including IEEE Transactions on Information Theory, IEEE/ACM Transactions on Networking, IEEE Transactions on Signal Processing, IEEE Transactions on Wireless Communications, IEEE Transactions on Mobile Computing, IEEE Signal Processing Letters, IEEE Network Magazine, IEEE Transactions on Parallel and Distributed Computing, Telecommunication Systems, Elsevier Computer Networks Journal, Elsevier Transportation Research Journal, INFOCOM, MOBICOM and ISIT.