Sennur Ulukus

Sennur Ulukus
Professor, and Distinguished Scholar-Teacher

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Research

- Wireless communications, information theory, signal processing, networks
- Information theoretic physical layer security
- Private information retrieval
- Energy harvesting communications
- Wireless energy and information transfer

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Biography

Sennur Ulukus is a Professor of Electrical and Computer Engineering at the University of Maryland at College Park, where she also holds a joint appointment with the Institute for Systems Research (ISR). Prior to joining UMD, she was a Senior Technical Staff Member at AT&T Labs-Research. She received her Ph.D. degree in Electrical and Computer Engineering from Wireless Information Network Laboratory (WINLAB), Rutgers University, and B.S. and M.S. degrees in Electrical and Electronics Engineering from Bilkent University. Her research interests are in wireless communications, information theory, signal processing, and networks, with recent focus on information theoretic physical layer security, private information retrieval, energy harvesting communications, and wireless energy and information transfer.

Dr. Ulukus is a fellow of the IEEE, and a Distinguished Scholar-Teacher of the University of Maryland. She received the 2003 IEEE Marconi Prize Paper Award in Wireless Communications, an 2005 NSF CAREER Award, the 2010-2011 ISR Outstanding Systems Engineering Faculty Award, and the 2012 ECE George Corcoran Education Award. Dr. Ulukus is on the Editorial Board of the IEEE Transactions on Green Communications and Networking (2016–). She was an Editor for the IEEE Journal on Selected Areas in Communications–Series on Green Communications and Networking (2015-2016), IEEE Transactions on Information Theory (2007-2010), and IEEE Transactions on Communications (2003-2007). She was a Guest Editor for the IEEE Journal on Selected Areas in Communications (2015 and 2008), Journal of Communications and Networks (2012), and IEEE Transactions on Information Theory (2011). She was a general TPC co-chair of 2017 IEEE ISIT, 2016 IEEE Globecom, 2014 IEEE PIMRC, and 2011 IEEE CTW.

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Submitted Journal Papers (Under Review)

1. Y.-P. Wei, K. Banawan and S. Ulukus, The Capacity of Private Information Retrieval with Partially Known Private Side Information, submitted October 2017.
2. A. Baknina, O. Ozel and S. Ulukus, Energy Harvesting Communications under Explicit and Implicit Temperature Constraints, submitted September 2017.
3. Y.-P. Wei, K. Banawan and S. Ulukus, Fundamental Limits of Cache-Aided Private Information Retrieval with Unknown and Uncoded Prefetching, *IEEE Trans. on Information Theory*, submitted September 2017.
4. K. Banawan and S. Ulukus, The Capacity of Private Information Retrieval from Byzantine and Colluding Databases, *IEEE Trans. on Information Theory*, submitted June 2017.
5. K. Banawan and S. Ulukus, Multi-Message Private Information Retrieval: Capacity Results and Near-Optimal Schemes, *IEEE Trans. on Information Theory*, submitted February 2017.
6. K. Banawan and S. Ulukus, The Capacity of Private Information Retrieval from Coded Databases, *IEEE Trans. on Information Theory*, submitted September 2016.
7. P. Mukherjee and S. Ulukus, Secure Degrees of Freedom of the Multiple Access Wiretap Channel with Multiple Antennas, *IEEE Trans. on Information Theory*, submitted February 2016.

Journal Papers (Published/To Appear)

1. P. Mukherjee and S. Ulukus, Secrecy in MIMO Networks with No Eavesdropper CSIT, *IEEE Trans. on Communications*, 65(10):4382-4391, October 2017.
2. A. Baknina and S. Ulukus, Online Scheduling for Energy Harvesting Channels with Processing Costs, *IEEE Trans. on Green Communications and Networking*, 1(3):281-293, September 2017.
3. K. Tutuncuoglu, O. Ozel, A. Yener and S. Ulukus, The Binary Energy Harvesting Channel with a Unit-Sized Battery, *IEEE Trans. on Information Theory*, 63(7):4240-4256, July 2017.
4. P. Mukherjee, R. Tandon and S. Ulukus, Secure Degrees of Freedom Region of the Two-User MISO Broadcast Channel with Alternating CSIT, *IEEE Trans. on Information Theory*, 63(6):3823-3853, June 2017.
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6. P. Mukherjee, J. Xie and S. Ulukus, Secure Degrees of Freedom of One-Hop Wireless Networks With No Eavesdropper CSIT, *IEEE Trans. on*

Information Theory, 63(3):1898-1922, March 2017.

7. A. Baknina and S. Ulukus, Optimal and Near-Optimal Online Strategies for Energy Harvesting Broadcast Channels, *IEEE Jour. on Selected Areas in Communications – Series on Green Communications and Networking*, 34(12):3696-3708, December 2016.
8. K. Banawan and S. Ulukus, MIMO Wiretap Channel under Receiver Side Power Constraints with Applications to Wireless Power Transfer and Cognitive Radio, *IEEE Trans. on Communications*, 64(9):3872-3885, September 2016.
9. O. Ozel, S. Ulukus and P. Grover, Energy Harvesting Transmitters that Heat Up: Throughput Maximization under Temperature Constraints, *IEEE Trans. on Wireless Communications*, 15(8):5440-5452, August 2016.
10. B. Gurakan and S. Ulukus, Cooperative Diamond Channel with Energy Harvesting Nodes, *IEEE Jour. on Selected Areas in Communications – Series on Green Communications and Networking*, 34(5):1604-1617, May 2016.
11. J. Xie and S. Ulukus, Secure Degrees of Freedom Regions of Multiple Access and Interference Channels: The Polytope Structure, *IEEE Trans. on Information Theory*, 62(4):2044-2069, April 2016.
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13. B. Gurakan, O. Ozel and S. Ulukus, Optimal Energy and Data Routing in Networks with Energy Cooperation, *IEEE Trans. on Wireless Communications*, 15(2):857-870, February 2016.
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15. A. Yener and S. Ulukus, Wireless Physical Layer Security: Lessons Learned from Information Theory, *Proceedings of the IEEE*, 103(10):1814-1825, October 2015.
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17. O. Ozel, E. Ekrem and S. Ulukus, Gaussian Wiretap Channel with Amplitude and Variance Constraints, *IEEE Trans. on Information Theory*, 61(10):5553-5563, October 2015.
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19. T-Y. Liu, P. Mukherjee, S. Ulukus, S-C. Lin and Y-W. P. Hong, Secure Degrees of Freedom of MIMO Rayleigh Block Fading Wiretap Channels with No CSI Anywhere, *IEEE Trans. on Wireless Communications*, 14(5):2655-2669, May 2015.

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24. O. Ozel, K. Shahzad and S. Ulukus, Optimal Energy Allocation for Energy Harvesting Transmitters with Hybrid Energy Storage and Processing Cost, *IEEE Trans. on Signal Processing*, 62(12):3232-3245, June 2014.
25. J. Xie and S. Ulukus, Secure Degrees of Freedom of One-hop Wireless Networks, *IEEE Trans. on Information Theory*, 60(6):3359-3378, June 2014.
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