

# Birsen Sirkeci

One Washington Square  
Electrical Engineering  
ENGR359  
San Jose, CA, 95192

Phone: (408) 924 3913  
Fax: (408) 924-3925  
Email: [birsen.sirkeci@sjsu.edu](mailto:birsen.sirkeci@sjsu.edu)  
<http://www.sjsu.edu/faculty/birsen.sirkeci>

---

## AREAS OF INTEREST

Wireless communications with an emphasis on physical layer and signal processing algorithms.  
Design issues in large-scale wireless networks, medium access and distributed protocols.  
Cooperative communications; cognitive radios; distributed estimation in sensor networks.  
Biomedical image and signal processing. Statistical learning.

## EDUCATION

Ph.D in Electrical and Computer Engineering Cornell University, Ithaca, NY Advisor : Prof. Anna Scaglione	Aug. 2006 GPA : 4.00/4.00
M.Sc in Electrical and Computer Engineering Northeastern University, Boston, MA Advisor : Prof. David Brady	May 2001
B.S. in Electrical Engineering and Mathematics (double major) Middle East Technical University (METU) - Ankara, Turkey	May 1998

## WORK EXPERIENCE

Associate Professor, Electrical Engineering Department, San Jose State University, San Jose, CA	Aug. 2014- present
Assistant Professor, Electrical Engineering Department, San Jose State University, San Jose, CA	Aug. 2007 - July 2014
Postdoctoral Researcher, UC Berkeley, Berkeley, CA Studied fundamental limits of cooperative communication in large-scale networks. Joint work with Prof. Michael Gastpar.	Sep. 2006 - Aug. 2007
Research Intern, DoCoMo Communications Laboratories USA, Inc. Worked on the design of cooperative signaling strategies for distributed space-time codes.	June 2006 - Aug. 2006
Research/Teaching Assistant, Cornell University, Ithaca, NY Worked on Resolving Space-Time Codes for Distributed Space-Time P	Sep. 2006 - Oct. 2006



- [C19] S. Venkatesh, N. Phipps, B. Sirkeci-Mergen, M. Sridhar-Keralapura, "An Optimized Fast-ICA Implementation for Separating Twin Electrocardiograms from Abdominal Recordings for Detecting Congenital Heart Defects", CSU Biotechnology Symposium, Jan. 2010 (poster presentation).
- [C18] B. Sirkeci-Mergen, V. Sawant, R.H. Morelos-Zaragoza, "Trade-Off Analysis of Energy Detectors and Partitioned Search for Primary Detection", Proceedings of 18th International Conference on Computer Communications and Networks, ICCCN 2009, page(s) 1-4.
- [C17] G. Mergen, B. Sirkeci-Mergen, M. Gastpar, "Sufficient-Statistics Based Multiple Access over Wireless Fading Channels", GLOBECOM 2008, page(s) 1-5.
- [C16] B. Sirkeci-Mergen "Distributed Space-time Codes with Relay Preprocessing for Low SNR Source-Relay Links", Asilomar Conference on Signals, Systems and Computers, 2008.
- [C15] B. Sirkeci-Mergen, Michael Gastpar, "On The Scaling of the Broadcast Capacity of Extended Wireless Networks with Cooperative Relays", Asilomar Conference on Signals, Systems and Computers, 2007 (invited).
- [C14] B. Sirkeci-Mergen, Michael Gastpar, "On the Cooperative Broadcast Capacity of High Density Wireless Networks", The 2007 Information Theory and Applications Workshop, Jan 29-Feb 02, 2007, San Diego, CA (invited).
- [C13] B. Sirkeci-Mergen and A. Scaglione, "On the Optimal Power Allocation for Broadcasting in Dense Cooperative Networks", 2006 IEEE International Symposium on Information Theory (ISIT), July 9-14, 2006, Seattle, Washington.
- [C12] A. Scaglione, B. Sirkeci-Mergen, S. Geirhofer and L. Tong "Randomized Distributed Multi-antenna Systems in Multi-path channels", Proc. of 14th European Signal Processing Conference (EUSIPCO06), Sep. 2-8, 2006, Florence, Italy (Invited paper).
- [C11] B. Sirkeci-Mergen and A. Scaglione, "Randomized Space-Time Coding for Distributed Cooperative Communication", Proc. of IEEE International Conference on Communications (ICC), June 11-15, 2006, Istanbul, Turkey.
- [C10] B. Sirkeci-Mergen and A. Scaglione, "Randomized Space-Time Coding for Distributed Cooperative Communication: Fractional Diversity", Proc. of 2006 IEEE International conference on Acoustics, Speech, and Signal Processing (ICASSP), May 14-19, 2006, Toulouse, France.
- [C9] A. Scaglione, S. Kirti and B. Sirkeci-Mergen, "Error Propagation in Dense Wireless Networks with Cooperation", Proc. of Information Processing in Sensor Networks (IPSN), April 19-21, 2006, Nashville, TN.
- [C8] Y.W. Hong, A. Scaglione A., R. Manohar, B. Sirkeci-Mergen, "Dense Sensor Networks are also Energy Efficient: When more is less", Milcom 2005, Oct. 17-20, 2005, Atlantic City, NJ (received First Ellersick Award given to the best unclassified paper).
- [C7] B. Sirkeci-Mergen and A. Scaglione, "Randomized Distributed Space-Time coding for Cooperative Communication in Self-organized Networks", IEEE Workshop on Signal Processing Advances in Wireless Communications (SPAWC), June 5-8, 2005, New York, NY.
- [C6] B. Sirkeci-Mergen and A. Scaglione, "A Continuum Approach to Dense Wireless Networks with Cooperation", Proc. of IEEE INFOCOM, Miami, FL, March 13-17, 2005.
- [C5] B. Sirkeci-Mergen and A. Scaglione, "Message Propagation in a Cooperative Network with Asynchronous Receptions", Proceeding of the 2005 International Conference on Acoustics, Speech, and Signal Processing (ICASSP), March 19-23, 2005, Philadelphia, PA.
- [C4] B. Sirkeci-Mergen and A. Scaglione, "Coverage Analysis of Cooperative Broadcast in Wireless Networks", IEEE Workshop on Signal Processing Advances in Wireless Communications (SPAWC), July 11-14 2004, Lisbon, Portugal.
- [C3] B. Sirkeci-Mergen and A. Scaglione, "Signal Acquisition for Cooperative Transmissions in Multi-Hop Ad-Hoc Networks", Proceeding of the 2004 International Conference on Acoustics, Speech, and Signal Processing (ICASSP), May 2004, Montreal, Canada.
- [C2] Y.W. Hong, B. Sirkeci and A. Scaglione, "Swarming Activities to Distribute Information in Large Sensor Networks", in Proc. MILCOM Conference, October 13-16, 2003, Boston, MA.
- [C1] B. Sirkeci, D. Brady and J. Burman, "Restricted Total Least Squares Solutions for Hyperspectral Imagery", 2000 International Conference on Acoustics, Speech, and Signal Processing (ICASSP), June 5-9 2000, Istanbul, Turkey.

## THESES

- [T2] B. Sirkeci, "Distributed Cooperative Communication in Large-Scale Wireless Networks", PhD Thesis, Cornell University, Ithaca, NY, 2006.
- [T1] B. Sirkeci, "Total least squares approaches for spectral unmixing of hyperspectral imagery", Master Thesis, Northeastern University, Boston, MA, 2001.

## BOOK CHAPTERS

- [B3] B. Sirkeci-Mergen, A. Scaglione, and M. Gastpar " Cooperative Broadcast in Large-Scale Wireless Networks", published in "Cooperative Communications for Improved Wireless Network Transmission: Framework for Virtual Antenna Array Applications", M. Uysal, 2010.
- [B2] A. Scaglione, Y.-W. Hong and B. Sirkeci-Mergen, "Cooperative strategies in dense sensor networks" published in "Sensor Networks: Where Theory Meets Practice", G. Ferrari, Springer, 2009.
- [B1] B. Sirkeci-Mergen and A. Scaglione, "Randomized cooperative transmission in large scale sensor networks", published in "Wireless Sensor Networks: Signal Processing and Communications Perspectives", A. Swami, Y]TJ 96(Joint873 -11(C0 -J -80.ntSensor)-with",)-250(M.)-250(UA]TJ -8e)-211(scale)-10(gor[T1])Tj /TResearch43 0 T