



## Andrea Goldsmith

Stephen Harris Professor in the School of Engineering

Electrical Engineering

 Curriculum Vitae available Online

### Bio

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#### BIO

Andrea Goldsmith is the Stephen Harris professor in the School of Engineering and professor of Electrical Engineering at Stanford University. Her research interests are in information theory, communication theory, and signal processing, and their application to wireless communications, interconnected systems, and neuroscience. She co-founded and served as Chief Technical Officer and Board member of Plume WiFi and of Quantenna (QTNA), and she currently serves on the Board of Directors for Medtronic (MDT) and Crown Castle Inc. (CCI). She has also been a member or chair of the technical advisory boards for Quantenna (QTNA), Sequans (SQNS), Interdigital (IDCC) and Cohere. Goldsmith has launched and led several multi-university research projects including DARPA's ITMANET program, and she is currently a Principle Investigator in the NSF Center on the Science of Information. Prior to Stanford she held positions at Caltech, Maxim Technologies, Memorylink Corporation, and AT&T Bell Laboratories. Dr. Goldsmith is a member of the National Academy of Engineering and the American Academy of Arts and Sciences, a Fellow of the IEEE and of Stanford, and has received several awards for her work, including the IEEE Eric E. Sumner Technical Field Award in Communications Technology, the ComSoc Edwin H. Armstrong Achievement Award as well as Technical Achievement Awards in Communications Theory and in Wireless Communications, the National Academy of Engineering Gilbreth Lecture Award, and the Silicon Valley/San Jose Business Journal's Women of Influence Award. She is author of the book "Wireless Communications" and co-author of the books "MIMO Wireless Communications" and "Principles of Cognitive Radio," all published by Cambridge University Press, as well as an inventor on 29 patents. She has served in various leadership roles in the IEEE and in industrial groups aimed at diversifying STEM fields, and is currently the founding chair of the IEEE Committee on Diversity, Inclusion, and Professional Ethics. At Stanford she has served as chair and a member of the Faculty Senate and on the Planning and Policy Board, Committee on Research, Commissions on Graduate Education and on Undergraduate Education, Task Force on Women and Leadership, and the Faculty Women's Forum Steering Committee. She currently serves on Stanford's Budget Group, Advisory Board, and in the Faculty Senate.

#### ACADEMIC APPOINTMENTS

- Professor, Electrical Engineering
- Affiliate, Stanford Woods Institute for the Environment
- Member, Wu Tsai Neurosciences Institute

#### HONORS AND AWARDS

- Eric E. Sumner Technical Field Award in Communications Technology, IEEE Communications Society (2018)
- Member, National Academy of Engineering (2017)
- Member, American Academy of Arts and Sciences (2017)
- Highly Cited Researcher, Thomson-Reuters (2014,2015,2016, 2017)
- Edwin H. Armstrong Achievement Award, IEEE Communications Society (2014)

- Best Tutorial Paper Award, IEEE Communications Society (2013)
- Silicon Valley Women of Influence Award, Silicon Valley Business Journal (2013)
- Technical Achievement Award in Communication Theory, IEEE Communications Society (2013)
- Tsinghua Distinguished Chair Professorship, Tsinghua University (2013)
- Innovation Award, Interdigital (2012)
- Technical Achievement Award in Wireless Communications, IEEE Communications Society (2009)
- Fellow, IEEE (2005)
- IEEE Information Theory Society and Communication Society Joint Paper Award, IEEE (2004)
- Gilbreth Lectureship, National Academy of Engineering (2002)
- Alfred P. Sloan Fellowship, Alfred P. Sloan Foundation (2001)
- Young Investigator Award, The Office of Naval Research (1999)
- CAREER Development Award, National Science Foundation (1995)

### **BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS**

- President, IEEE Information Theory Society (2009 - 2009)
- Distinguished Lecturer, IEEE Information Theory Society and Comsoc (2007 - 2009)

### **PROGRAM AFFILIATIONS**

- Stanford SystemX Alliance

### **PROFESSIONAL EDUCATION**

- PhD, University of California, Berkeley , Electrical Engineering and Computer Science (1994)

### **LINKS**

- <http://ee.stanford.edu/~andrea>: <http://ee.stanford.edu/~andrea>

## **Teaching**

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### **COURSES**

#### **2019-20**

- Signal Processing and Linear Systems II: EE 102B (Spr)
- Wireless Communications: EE 359 (Win)

#### **2018-19**

- The Art and Science of Engineering Design: EE 15N (Win)

#### **2017-18**

- Signal Processing and Linear Systems II: EE 102B (Spr)
- Wireless Communications: EE 359 (Aut)

#### **2016-17**

- The Art and Science of Engineering Design: EE 15N (Win)
- Wireless Communications: EE 359 (Aut)

### **STANFORD ADVISEES**

**Doctoral Dissertation Reader (AC)**

Jonathan Fisher, Raejoon Jung, Eric Kauderer-Abrams, Ariana Mann, Lisa Yamada

#### Postdoctoral Faculty Sponsor

Ali Hashemi, Anusha Lalitha, Michal Yemini

#### Master's Program Advisor

DIPIKA BADRI, Katherine Huang, Jose Luquin

#### Doctoral (Program)

Charles Chen, Colleen Josephson, Yun Liao, Ariana Mann, Rajarshi Saha, Vatsal Sharan, Sahaana Suri, Siyi Tang, Jayant Thatte

## Publications

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### PUBLICATIONS

- **Estimating the Memory Order of Electrocorticography Recordings** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*  
Murin, Y., Goldsmith, A., Aazhang, B.  
2019; 66 (10): 2809–22
- **The Compress-and-Estimate Coding Scheme for Gaussian Sources** *IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS*  
Rini, S., Kipnis, A., Song, R., Goldsmith, A. J.  
2019; 18 (9): 4344–56
- **Fast Blind MIMO Decoding Through Vertex Hopping** *IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS*  
Dean, T. R., Perlstein, J. R., Wootters, M., Goldsmith, A. J.  
2019; 18 (7): 3669–82
- **Blind Joint MIMO Channel Estimation and Decoding** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Dean, T. R., Wootters, M., Goldsmith, A. J.  
2019; 65 (4): 2507–24
- **Retail and Wholesale Electricity Pricing Considering Electric Vehicle Mobility** *IEEE TRANSACTIONS ON CONTROL OF NETWORK SYSTEMS*  
Alizadeh, M., Wai, H., Goldsmith, A., Scaglione, A.  
2019; 6 (1): 249–60
- **The Distortion-Rate Function of Sampled Wiener Processes** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Kipnis, A., Goldsmith, A. J., Eldar, Y. C.  
2019; 65 (1): 482–99
- **DISTRIBUTED CONVEX OPTIMIZATION WITH LIMITED COMMUNICATIONS**  
Rao, M., Rini, S., Goldsmith, A., IEEE  
IEEE.2019: 4604–8
- **Neural Network Detection of Data Sequences in Communication Systems** *IEEE TRANSACTIONS ON SIGNAL PROCESSING*  
Farsad, N., Goldsmith, A.  
2018; 66 (21): 5663–78
- **Non-Coherent Detection for Diffusive Molecular Communication Systems**  
Jamali, V., Farsad, N., Schober, R., Goldsmith, A.  
IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC.2018: 2515–31
- **Analog-to-Digital Compression A new paradigm for converting signals to bits** *IEEE SIGNAL PROCESSING MAGAZINE*  
Kipnis, A., Eldar, Y. C., Goldsmith, A. J.  
2018; 35 (3): 16–39
- **The Distortion Rate Function of Cyclostationary Gaussian Processes**  
Kipnis, A., Goldsmith, A. J., Eldar, Y. C.  
IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC.2018: 3810–24

- **Outage Detection Using Load and Line Flow Measurements in Power Distribution Systems** *IEEE TRANSACTIONS ON POWER SYSTEMS*  
Sevlian, R., Zhao, Y., Rajagopal, R., Goldsmith, A., Poor, H.  
2018; 33 (2): 2053–69
- **Variable Length Joint Source-Channel Coding of Text Using Deep Neural Networks**  
Rao, M., Farsad, N., Goldsmith, A., IEEE  
IEEE.2018: 81–85
- **The Future of Wireless and What it will Enable**  
Goldsmith, A., ACM  
ASSOC COMPUTING MACHINERY.2018: 223
- **MobiCom'18 Panel Discussion: Hammer & Nail vis-a-vis AI / ML Applications to Networked Systems**  
Bhagwat, P., Goldsmith, A., Gupta, M., Rastogi, R., Shroff, G., ACM  
ASSOC COMPUTING MACHINERY.2018: 653–54
- **Two Way Molecular Communications**  
Kwack, J., Yilmaz, H., Farsad, N., Chae, C., Goldsmith, A., ACM  
ASSOC COMPUTING MACHINERY.2018
- **SLIDING BIDIRECTIONAL RECURRENT NEURAL NETWORKS FOR SEQUENCE DETECTION IN COMMUNICATION SYSTEMS**  
Farsad, N., Goldsmith, A., IEEE  
IEEE.2018: 2331–35
- **DEEP LEARNING FOR JOINT SOURCE-CHANNEL CODING OF TEXT**  
Farsad, N., Rao, M., Goldsmith, A., IEEE  
IEEE.2018: 2326–30
- **Detection Over Rapidly Changing Communication Channels Using Deep Learning**  
Farsad, N., Goldsmith, A., Matthews, M. B.  
IEEE.2018: 604–8
- **Using Markov Properties of ECoG Signals to Infer Neuron Connectivity**  
Murin, Y., Goldsmith, A., Matthews, M. B.  
IEEE.2018: 671–75
- **Fast Blind MIMO Decoding through Vertex Hopping**  
Perlstein, J., Dean, T., Wootters, M., Goldsmith, A., Matthews, M. B.  
IEEE.2018: 148–49
- **Robustness of FDM-FDCP Modulation to Phase Noise in Millimeter Wave Systems**  
Grimwood, N., Dean, T., Goldsmith, A., Matthews, M. B.  
IEEE.2018: 264–68
- **SozRank: A new approach for localizing the epileptic seizure onset zone** *PLOS COMPUTATIONAL BIOLOGY*  
Murin, Y., Kim, J., Parvizi, J., Goldsmith, A.  
2018; 14 (1): e1005953
- **Ranking Causal Influence of Financial Markets via Directed Information Graphs**  
Diamandis, T., Murin, Y., Goldsmith, A., IEEE  
IEEE.2018
- **Lossy Compression of Decimated Gaussian Random Walks**  
Murray, G., Kipnis, A., Goldsmith, A. J., IEEE  
IEEE.2018
- **A CCA-Secure Cryptosystem Using Massive MIMO Channels**  
Dean, T., Goldsmith, A., Baldi, M., Quaglia, E. A., Tomasin, S.  
SPRINGER.2018: 65–77

- **Neural Network Detectors for Molecular Communication Systems**  
Farsad, N., Goldsmith, A., IEEE  
IEEE.2018: 506–10
- **Zero-Padded FDM-FDCP: Real-Time Signal Processing for Underwater Channels**  
Dean, T., Chowdhury, M., Goldsmith, A., IEEE  
IEEE.2018: 186–90
- **Optimal Pricing to Manage Electric Vehicles in Coupled Power and Transportation Networks** *IEEE TRANSACTIONS ON CONTROL OF NETWORK SYSTEMS*  
Alizadeh, M., Wai, H., Chowdhury, M., Goldsmith, A., Scaglione, A., Javidi, T.  
2017; 4 (4): 863–75
- **Directed Information Between Connected Leaky Integrate-and-Fire Neurons**  
Soltani, N., Goldsmith, A. J.  
IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC.2017: 5954–67
- **Physical-Layer Cryptography Through Massive MIMO** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Dean, T. R., Goldsmith, A. J.  
2017; 63 (8): 5419–36
- **The Fluctuating Two-Ray Fading Model: Statistical Characterization and Performance Analysis** *IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS*  
Romero-Jerez, J. M., Javier Lopez-Martinez, F., Paris, J. F., Goldsmith, A. J.  
2017; 16 (7): 4420–32
- **Minimum Sparsity of Unobservable Power Network Attacks** *IEEE TRANSACTIONS ON AUTOMATIC CONTROL*  
Zhao, Y., Goldsmith, A., Poor, H.  
2017; 62 (7): 3354–68
- **Time-slotted transmission over molecular timing channels** *NANO COMMUNICATION NETWORKS*  
Murin, Y., Farsad, N., Chowdhury, M., Goldsmith, A.  
2017; 12: 12–24
- **On the Minimax Capacity Loss Under Sub-Nyquist Universal Sampling** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Chen, Y., Goldsmith, A. J., Eldar, Y. C.  
2017; 63 (6): 3348–67
- **Mean Field Limit Theorems for CDMA Systems**  
Holliday, T., Glynn, P., Goldsmith, A.
- **An Achievable Region for a General Multi-terminal Network**  
Rini, S., Goldsmith, A.
- **Resource Allocation Algorithms for OFDMA Downlink**  
Lai, E., Goldsmith, A.
- **Outage Probability Analysis in Wireless Networks**  
Kaynia, M., Øien, G. E., Goldsmith, A. J., Jindal, N.
- **JI Concha and HV Poor Multiaccess Quantum Channels 725 L.-L. Xie and PR Kumar A Network Information Theory for Wireless Communication: Scaling Laws and Optimal Operation 748 N. Jindal, S. Vishwanath, and Goldsmith, A., Hranilovic, S., Kschischang, F. R., Valembois, A., Fossorier, M., Dumer ..., I**
- **Eleftheriou, Evangelos**  
Goldsmith, A., Erez, U., Eriksson, T., Erkip, E., Eryilmaz, A., Eshima, N.
- **EE360 Project Progress Report: Channel Allocation in OFDMA to ensure fixed BER for SIC**  
Singla, A., Goldsmith, A.

- **Combining Network Utility Maximization and Adaptive Modulation**  
O'Neill, D., Zymnis, A., Goldsmith, A. J., Boyd, S.
- **Transmitter Optimization and Optimality of Beamforming for Multiple Antenna Systems with Imperfect Feedback**  
Jafar, S. A., Goldsmith, A.
- **Reliable Uncoded Communication in the SIMO MAC via Low-Complexity Decoding**  
Chowdhury, M., Goldsmith, A., Weissman, T.
- **Prediction-Based Techniques for Hand-Off Prioritization in Channel Assignment Schemes**  
Mehta, N. B., Goldsmith, A.
- **Minimax Universal Sampling for Compound Multiband Channels**  
Chen, Y., Goldsmith, A. J., Eldar, Y. C.
- **Foundations and Trends™ in Communications and Information Theory**  
Goldsmith, A., Anantharam, V., Lapidot, A., Biglieri, E., McEliece, B., Caire, G.
- **Diversity-Multiplexing Tradeoff for the Interference Channel With a Relay**  
Zahavi, D., Zhang, L., Maric, I., Dabora, R., Goldsmith, A. J., Cui, S.
- **SHANNON THEORY**  
Goldsmith, A., Permuter, H. H., Kim, Y. H., Weissman, T., Lapidot, A., Shapiro, J. H.
- **Pasadena, California 91125, USA**  
Alouini, M. S., Goldsmith, A.
- **H. Cai, SR Kulkarni, and S. Verdú Universal Divergence Estimation for Finite-Alphabet Sources 3456 GM Gemelos, S. Sigurjónsson, and T. Weissman**  
Goldsmith, A., Arnold, D. M., Loeliger, H. A., Vontobel, P. O., Kavcic, A., Zeng, W.
- **General Co chairs**  
Gamal, H. E., Goldsmith, A., Gamal, A. E., Viswanath, P., Jafar, S. A., Kountouris, M.
- **Extending Network Utility Maximization to Random, Time Varying Environments in Mobile Ad Hoc Networks**  
O'Neill, D., Goldsmith, A. J., Boyd, S.
- **WIRELESS COMMUNICATIONS**  
Goldsmith, A., Hsu, C. Y., Wu, W. R., Kraidy, G. M., Boutros, J. J., Farahmand, S.
- **TPC Co0Chairs**  
Goldsmith, A., Caire, G., Effros, M., Vardy, A., Alouini, M. S., Andrews, J.
- **IEEE INFORMATION THEORY SOCIETY**  
Goldsmith, A., VAISHAMPAYAN, V. A., EFFROS, M., SEROUSSI, G., MCLAUGHLIN, S. W., BARTLETT, P.
- **IEEE INFORMATION THEORY SOCIETY**  
Goldsmith, A., ANDERSON, J. B., BOCHE, H., BERRY, R., BÖLCSKEI, H., CANTEAUT, A.
- **David Packard Electrical Engineering, Stanford University, Stanford, CA 94305, USA**  
Vishwanath, S., Jafar, S. A., Goldsmith, A.
- **CODING THEORY AND TECHNIQUES**  
Goldsmith, A., Ahlswede, R., Aydinian, H., Zanko, A., Leshem, A., Zehavi, E.
- **Towards an Information Theory for Wireless Ad-Hoc Networks**  
Goldsmith, A., Effros, M., Koetter, R., Médard, M., Ozdaglar, A., Zheng, L.
- **Reliable Uncoded Communication in the Underdetermined SIMO MAC with Low-Complexity Decoding**

Chowdhury, M., Goldsmith, A., Weissman, T.

- **Rate Optimization for Relay-Assisted Downlink Cellular Systems Using Superposition Coding**  
Rini, S., Ghaghanidze, L., Kurniawan, E., Goldsmith, A.
- **Optimum resource allocation for multiple access fading channels** *Preprint*  
Vishwanath, S., Goldsmith, A.
- **Fundamental Limits of Cyber-Physical Security in Smart Power Grids**  
Zhao, Y., Goldsmith, A., Poor, H. V.
- **Executive Editorial Board**  
Goldsmith, A., Forney Jr, G., Shamai, S., Verdú, S., Vardy, A., Méasson, C.
- **Energy Efficiency of MIMO systems**  
Gowda, A. S., Goldsmith, A.
- **Effect of Fixed and Interference-Induced Packet Error Probability on PRMA1**  
Mehta, N. B., Goldsmith, A.
- **DAWN: Dynamic Ad-hoc Wireless Networks**  
Pi, J. J., Bagrodia, R., Ephremides, A., Gerla, M., Goldsmith, A., Medard, M.
- **Communra frons**  
Goldsmith, A., Ahmadi, H., Cox, D., Goodman, D., Rappaport, T., Liu, M.
- **COGNITIVE RADIO PART 2: FUNDAMENTAL ISSUES**  
Goldsmith, A., Molisch, A. F., Goldsmith, L. J., Shafi, M., Ma, J., Li, G. Y.
- **2000 INFORMATION THEORY SOCIETY PAPER AWARD 857**  
Goldsmith, A., Eldar, Y. C., Forney Jr, G. D., Grant, A. J., Rimoldi, B., Urbanke, R. L.
- **Optimal Joint Detection and Estimation in Linear Models**  
Chen, J., Zhao, Y., Goldsmith, A., Poor, H. V.
- **1. SPACE DIVERSITY**  
Goldsmith, A.
- **SHANNON THEORY**  
Goldsmith, A., Nomura, R., Han, T. S., Csiszár, I., Narayan, P., Lapidath, A.
- **SHANNON THEORY**  
Goldsmith, A., Bustin, R., Shamai, S., Oohama, Y., Naiss, I., Permuter, H. H.
- **R. Koetter and A. Vardy Algebraic Soft-Decision Decoding of Reed–Solomon Codes 2809 V. Guruswami List Decoding From Erasures: Bounds and Code Constructions 2826 J. Borges, KT Phelps, J. Rifa, and VA Zinoviev**  
Goldsmith, A., Merhav, N., Shamai, S., Koulgi, P., Tuncel, E., Regunathan, S. L.
- **On the Existence of a General Multiple-Access/Broadcast Channel Duality**  
Jindal, N., Vishwanath, S., Goldsmith, A.
- **Evaluation of Constrained Wireless Nodes: A Cross Layer Approach**  
Srinivasan, K., Levis, P., Goldsmith, A.
- **A Critical Survey of Deconvolution Methods for Separating Cell Types in Complex Tissues** *PROCEEDINGS OF THE IEEE*  
Mohammadi, S., Zuckerman, N., Goldsmith, A., Grama, A.  
2017; 105 (2): 340-366
- **Joint Optimization of Power and Data Transfer in Multiuser MIMO Systems** *IEEE TRANSACTIONS ON SIGNAL PROCESSING*

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- Rubio, J., Pascual-Iserte, A., Palomar, D. P., Goldsmith, A.  
2017; 65 (1): 212-227
- **Multiplexing and Diversity Gains in Noncoherent Massive MIMO Systems** *IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS*  
Chowdhury, M., Manolagos, A., Goldsmith, A.  
2017; 16 (1): 265-277
  - **Coherence time of wireless channels with large antenna arrays**  
Chowdhury, M., Nam, J., Goldsmith, A. J., IEEE  
IEEE.2017
  - **Resource Pooling via Dynamic Spectrum-level Slicing across Heterogeneous Networks**  
Gebremariam, A. A., Chowdhury, M., Goldsmith, A., Granelli, F., IEEE  
IEEE.2017: 818-23
  - **An OpenAirInterface based Implementation of Dynamic Spectrum-level Slicing across Heterogeneous Networks**  
Gebremariam, A. A., Chowdhury, M., Goldsmith, A., Granelli, F., IEEE  
IEEE.2017: 609-10
  - **The Life and Work of Marvin Kenneth Simon** *IEEE COMMUNICATIONS SURVEYS AND TUTORIALS*  
Alouini, M., Biglieri, E., Divsalar, D., Dolinar, S., Goldsmith, A. J., Milstein, L. B.  
2017; 19 (3): 1551-66
  - **Direction Finding Using Non-coherent Measurements in Large Antenna Arrays**  
Chowdhury, M., Rao, M., Goldsmith, A., Matthews, M. B.  
IEEE COMPUTER SOC.2017: 1231-36
  - **Compressed Sensing under Optimal Quantization**  
Kipnis, A., Reeves, G., Eldar, Y. C., Goldsmith, A. J., IEEE  
IEEE.2017: 2148-52
  - **Compress-and-Estimate Source Coding for a Vector Gaussian Source**  
Song, R., Rini, S., Kipnis, A., Goldsmith, A. J., IEEE  
IEEE.2017: 539-43
  - **Marginal Charging Station Pricing in an Intelligent Electric Transportation System**  
Alizadeh, M., Wai, H., Goldsmith, A., Scaglione, A., IEEE  
IEEE.2017: 3438-44
  - **Capacity of Molecular Channels with Imperfect Particle-Intensity Modulation and Detection**  
Farsad, N., Rose, C., Medard, M., Goldsmith, A., IEEE  
IEEE.2017: 2468-72
  - **ESTIMATION IN AUTOREGRESSIVE PROCESSES WITH PARTIAL OBSERVATIONS**  
Rao, M., Javidi, T., Eldar, Y. C., Goldsmith, A., IEEE  
IEEE.2017: 4212-16
  - **Blind Joint MIMO Channel Estimation and Decoding**  
Dean, T., Wootters, M., Goldsmith, A., IEEE  
IEEE.2017
  - **A Novel Experimental Platform for In-Vessel Multi-Chemical Molecular Communications**  
Farsad, N., Pan, D., Goldsmith, A., IEEE  
IEEE.2017
  - **Coding Theorems for the Compress and Estimate Source Coding Problem**  
Kipnis, A., Rini, S., Goldsmith, A. J., IEEE  
IEEE.2017: 2568-72
  - **Fundamental Estimation Limits in Autoregressive Processes with Compressive Measurements**  
Rao, M., Javidi, T., Eldar, Y. C., Goldsmith, A., IEEE



IEEE.2017: 2895–99

- **Machine Learning based Channel Modeling for Molecular MIMO Communications**  
Lee, C., Yilmaz, H., Chae, C., Farsad, N., Goldsmith, A., IEEE  
IEEE.2017
- **A New Modulation Technique for Doppler Compensation in Frequency-Dispersive Channels**  
Dean, T., Chowdhury, M., Goldsmith, A., IEEE  
IEEE.2017
- **Diversity Gain of One-shot Communication over Molecular Timing Channels**  
Murin, Y., Chowdhury, M., Farsad, N., Goldsmith, A., IEEE  
IEEE.2017
- **Energy-Based Modulation for Noncoherent Massive SIMO Systems** *IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS*  
Manolakos, A., Chowdhury, M., Goldsmith, A.  
2016; 15 (11): 7831-7846
- **Information Recovery From Pairwise Measurements** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Chen, Y., Suh, C., Goldsmith, A. J.  
2016; 62 (10): 5881-5905
- **Benefits of Storage Control for Wind Power Producers in Power Markets** *IEEE TRANSACTIONS ON SUSTAINABLE ENERGY*  
Chowdhury, M., Rao, M., Zhao, Y., Javidi, T., Goldsmith, A.  
2016; 7 (4): 1492-1505
- **Achieving Full DoF in Heterogeneous Parallel Broadcast Channels With Outdated CSIT** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Chen, J., Yang, S., Ozgur, A., Goldsmith, A.  
2016; 62 (7): 4154-4171
- **Scaling Laws for Noncoherent Energy-Based Communications in the SIMO MAC** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Chowdhury, M., Manolakos, A., Goldsmith, A.  
2016; 62 (4): 1980-1992
- **On the Total Power Capacity of Regular-LDPC Codes With Iterative Message-Passing Decoders** *IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS*  
Ganesan, K., Grover, P., Rabaey, J., Goldsmith, A.  
2016; 34 (2): 375-396
- **A Unified Graphical Approach to Random Coding for Single-Hop Networks** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Rini, S., Goldsmith, A.  
2016; 62 (1): 56-88
- **A Polynomial-Time Method to Find the Sparsest Unobservable Attacks in Power Networks**  
Zhao, Y., Goldsmith, A., Poor, H., IEEE  
IEEE.2016: 276–82
- **Capacity of Block Rayleigh Fading Channels Without CSI**  
Chowdhury, M., Goldsmith, A., IEEE  
IEEE.2016: 1884–88
- **On the Capacity of Diffusion-Based Molecular Timing Channels**  
Farsad, N., Murin, Y., Eckfordt, A., Goldsmith, A., IEEE  
IEEE.2016: 1023–27
- **Multiterminal Compress-and-Estimate Source Coding**  
Kipnis, A., Rini, S., Goldsmith, A. J., IEEE  
IEEE.2016: 540–44
- **A Molecular Communication System Using Acids, Bases and Hydrogen Ions**  
Farsad, N., Goldsmith, A., IEEE

IEEE.2016

- **Optimal Rate Allocation in Multiterminal Compress-and-Estimate Source Coding**  
Song, R., Rini, S., Kipnis, A., Goldsmith, A. J., IEEE  
IEEE.2016
- **Energy Model for Vesicle-Based Active Transport Molecular Communication**  
Farsad, N., Yilmaz, H., Chae, C., Goldsmith, A., IEEE  
IEEE.2016
- **System Identification from Partial Samples: Non-Asymptotic Analysis**  
Rao, M., Kipnis, A., Javidi, T., Eldar, Y. C., Goldsmith, A., IEEE  
IEEE.2016: 2938–44
- **SWIPT Techniques for Multiuser MIMO Broadcast Systems**  
Rubio, J., Pascual-Iserte, A., Palomar, D. P., Goldsmith, A., IEEE  
IEEE.2016: 499–504
- **On the Capacity of Diffusion-Based Molecular Timing Channels With Diversity**  
Farsad, N., Murin, Y., Rao, M., Goldsmith, A., Matthews, M. B.  
IEEE COMPUTER SOC.2016: 1117–21
- **Tracking Epileptic Seizure Activity via Information Theoretic Graphs**  
Murin, Y., Kim, J., Goldsmith, A., Matthews, M. B.  
IEEE COMPUTER SOC.2016: 583–87
- **The Fluctuating Two-Ray Fading Model for mmWave Communications**  
Romero-Jerez, J. M., Javier Lopez-Martinez, F., Paris, J. F., Goldsmith, A., IEEE  
IEEE.2016
- **Communication over Diffusion-Based Molecular Timing Channels**  
Murin, Y., Farsad, N., Chowdhury, M., Goldsmith, A., IEEE  
IEEE.2016
- **Distortion Rate Function of Sub-Nyquist Sampled Gaussian Sources** *IEEE TRANSACTIONS ON INFORMATION THEORY*  
Kipnis, A., Goldsmith, A. J., Eldar, Y. C., Weissman, T.  
2016; 62 (1): 401-429
- **Average Fade Duration for Amplify-and-Forward Relay Networks in Fading Channels** *IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS*  
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