# Curriculum Vitae

## SHLOMO SHAMAI (SHITZ)

**Date:** November 2020

**Personal Data:**

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| Date and place of birth: | USSR, November 4, 1953 |
| Date of immigration: | 1960 |
| Citizenship: | Israeli |
| Family status: | Married, one child |

**Academic Degrees:**

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|---|---|---|
| B.Sc. | 1975 | Department of Electrical Engineering, Technion (with distinction) |
| M.Sc. | 1981 | Department of Electrical Engineering, Technion (with distinction) |
| D.Sc. | 1986 | Department of Electrical Engineering, Technion |

**Academic Appointments:**

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| 1975 | Teaching Assistant, Department of Electrical Engineering, Technion. |
| Oct–Nov 1984 | Invited Visiting Scientist, M.I.T. |
| 1986–1989 | Senior Lecturer, Department of Electrical Engineering, Technion. |
| July–Oct 1986 | Visiting research scientist at AT&T Information Systems, Middletown, N.J. |
| July–Aug 1987,8, 9, 1990,1,2,3,4,5 | Visiting research scientist at AT&T Bell Laboratories, Communication Analysis Research Dept., Murray-Hill, N.J. |
| 1989–1994 | Associate Professor (with tenure), Department of Electrical Engineering, Technion. |
| July–Aug 1990–97 | Visiting Fellow at the Electrical Engineering Department, Princeton University, Princeton, NJ. |
| July 93–Jan. 1994<br>Aug.–Sept. 1994 | Visiting research scientist at AT&T Bell Laboratories, Communication and Information Theory Group, Murray-Hill, N.J. (Sabbatical). |
| Feb.–Aug. 94 | Dept. of Electrical and Computer Eng., Northeastern University, Boston, MA. (Sabbatical). |

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| Aug. 1996– | Visiting research scientist at Bell-Laboratories, (Alcatel-Lucent), Communication Analysis Research Dept., Murray-Hill, N.J. |
| 1994–1999<br>2004–2009 | Graduate Studies Coordinator at the Department of Electrical Engineering, Technion. |
| 1994–1999 | Full Professor (with tenure), Department of Electrical Engineering, Technion. |
| 1999– | The William Fondiller Professor of Telecommunications (with tenure), Department of Electrical Engineering, Technion. |
| 2012– | Technion Distinguished Professor. |

**Teaching Experience:**

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| 1986–present | Teaching at the Technion—Israel Institute of Technology<br>Undergraduate Courses:<br>Random Signals, Introduction to Digital Communications.<br>Graduate Courses:<br>Noise phenomena in Communication, Advanced Topics in Communication and Information, Information Theory, Coded Communications. |
| 1994<br>(Spring Quarter) | Northeastern University:<br>Graduate Course:<br>Advanced Topics in Communications: Dispersive Fading Channels. |

**Professional Experience:**

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| 1975–1978 | Research and Development Engineer, Communications Research Labs. |
| 1978–1986 | Senior Research Engineer, Communications Research Lab. |
| 1987–2000 | Consultant to research groups of Tadiran Communication Department, Holon, Israel. |
| 1990–2000 | Consultant to Intel Cellular Communication (formerly DSPC), Givat-Shmuel, Israel. |
| 1996–2003 | Consultant to Millimetrix, Petach-Tikva, Israel. |
| 1993–1998 | Active researcher in the Consortium of Satellite Communications. |
| 1995–1998 | Active researcher in the Consortium of Digital Communications. |
| 1995–2001 | Active researcher in the Consortium of Wide-Band Communications. |
| 1999–2003 | Active researcher in the Consortium of Software Radio. |
| 2004–2010 | Active researcher in the REMON (Next Generation Mobile Network) Consortium and the ISRC (Wideband Wireless Communication Systems) Consortium. |
| 2010–2013 | Active researcher (research group leader in the CORNET (Cognitive Radio) Consortium. |

**Research Experience:**

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| 1975–1986 | Research Labs. Headquarters, Signal Corps. IDF.<br>Fields of modern (state of art) communication systems, anti-jamming techniques, information theory, statistical analog and digital communications, advanced techniques of signal processing and nonlinear filtering. |
| 1978–present | Department of Electrical Engineering, Technion: Professor, William Fondiller Telecommunication Chair. Information theory and statistical communications. Especially interested in theoretical limits in communication with practical constraints, multi-user information theory and spread spectrum systems, multiple-input-multiple-output communications systems, information theoretic models for wireless networks and systems, information theoretic aspects of magnetic recording, channel coding, combined modulation and coding, turbo codes and LDPC, in channel, source, and combined source-channel applications, iterative detection and decoding algorithms, coherent and noncoherent detection and information theoretic aspects of digital communication in optical channels, multi-terminal information theory, cooperative and distributed wireless systems and information-estimation relations. |
| Oct–Nov 1984 | M.I.T. Department of Electrical Engineering and Computer Science D.S.P. Group.<br>Working on: Representation of signals with partial information. |
| July–Oct 1986 | AT&T Information Systems, Middletown, N.J.<br>Working on: Information theoretic aspects of communications through a twisted pair loop. |
| 1987–present | Consultant to Tadiran-Holon, Israel, Radio Equipment Plant and to DSPC.<br>Working on: Theoretical aspects of state of art digital communication, signal processing and recording systems. |
| July–Aug 1987 | AT&T Bell Laboratories, Communication Analysis Research Dept., Murray-Hill, N.J.<br>Working on: Information theoretic aspects of bandwidth restricted optical communication. |
| July–Aug 1988 | AT&T Bell Laboratories, Communication Analysis Research Dept., Murray-Hill, N.J.<br>Working on: Information theoretic aspects of bandwidth restricted optical communication and the effect of phase noise on the performance of a limiter discriminator detector. |
| July–Aug 1989 | AT&T Bell Laboratories, Communication Analysis Research Dept., Murray-Hill, N.J.<br>Working on: Information theoretic aspects of bandwidth restricted optical communication, information theoretic aspects of the Gaussian channel with intersymbol interference and the mobile communication channel. |
| Jul–Aug 1990–2 | Electrical Engineering Department, Princeton University, Princeton, N.J.<br>Working on: Information theoretic aspects of worst-case average-power limited interference. |
| Aug 1990/1/2 | AT&T Bell Laboratories, Communication Analysis Research Dept., Murray-Hill, N.J. |

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| | Working on: Information theoretic aspects of mobile communications channels. |
| July 93-Jan. 94 and Aug.–Sept. 94 | Sabbatical with AT&T Bell Laboratories, Communication Analysis Research Dept., Murray-Hill, N.J. Working on: Information theoretic aspects of dispersive channels, interference channels and cellular systems. |
| Feb.–Aug. 94 | Sabbatical with the Dept. of Electrical and Computer Engineering, Northeastern University, Boston, MA. Working on: Information theoretic aspects of fading channels and multi-user communication systems, and teaching a graduate course on advanced topics in communication and information theory. |
| August 1995 | Electrical Engineer Department, Princeton University, Princeton, N.J. Working on: Empirical distribution of good codes. |
| September 1995 | AT& T Bell Laboratories, Communication Analysis Research Dept., Murray Hill, N.J. Working on: Information theoretic aspects of cellular communication systems. |
| August 1996 | Electrical Engineering Dept., Princeton University, Princeton, N.J. Working on: Systematic lossy source/channel coding. |
| | Lucent Technologies, Bell Laboratories, Communication Analysis Research Dept. Working on: Information theoretic aspect of communications in a fading environment. |
| Aug. 97-Sep. 2012 (yearly visits) | |
| | Alcatel-Lucent, Bell Laboratories, Communication Analysis Research Dept. Working on: Information theoretic aspects of advanced wireless MIMO communications. |
| August 97–present (yearly visits) | |
| | Electrical Engineering Dept., Princeton University, Princeton, N.J. Working on: Information theoretic aspects of multi-terminal communications. |
| July 2002–present (yearly visits) | |
| | Electrical and Computer Engineering Department, EPFL, Lausanne, Switzerland. Working on: Information Theoretic Analysis of Communications Problems. |

**Participation in International Congresses and Invited Talks (selected list):**

MELECOM Tel-Aviv, May 1981, papers presented: (i) S. Shamai (Shitz), "Digital Continuous Phase Modulation with Partially Coherent Detection", (ii) S. Shamai (Shitz), "Optimal Linear Detection Filter for Digital PAM in the Presence of Additive Gaussian Noise and Intersymbol Interference".

International Symposium on Information Theory—ISIT, Brighton June 1985, paper presented: S. Shamai (Shitz) and I. Bar-David "Capacity Bandwidth Trade-Off For A Class Of Constant Envelope Modulations".

International Symposium on Information Theory—ISIT, Ann-Arbor, Michigan, U.S.A., October 1986, paper presented: S. Shamai (Shitz) and I. Bar-David, "Capacity of Peak and Average Power Constrained Quadrature Gaussian Channels".

URSI Tel-Aviv, August 1987, paper presented (invited paper): S. Shamai (Shitz), "Information Transfer by Constant Envelope Signaling".

The 1989 CMRR Workshop on Modulation and Coding for Digital Recording Systems, January 1989, San-Diego, California, U.S.A., paper presented (invited): S. Shamai (Shitz) and I. Bar-David, "An Overview of Information Theoretic Models for Magnetic Recording".

The 1989 Workshop on Information Theory, June 1989, Cornell University, Ithaca, N.Y., U.S.A., paper presented (invited): S. Shamai (Shitz) and A. Dembo, "Bounds on the Binary Symmetric Cut-Off Rate with Application to the Peak- and Slope-Limited Magnetization Model".

The French Israel Symposium on Advanced Topics in Telecommunication, Herzlia, Israel, December 1989, paper presented (invited): S. Shamai (Shitz), "Overview of Information Theoretic Models for Magnetic Recording".

International Symposium on Information Theory–ISIT, January 1990, San-Diego, CA, USA., papers presented: (i) S. Shamai (Shitz) and E. Zehavi, "On the Capacity of the Bit-Shift Magnetic Recording Channel". (ii) A. Lapidoth and S. Shamai (Shitz), "On the Capacity of a Spectrally Constrained Poisson-Type Channel". (iii) Y. Dallal and S. Shamai (Shitz), "Asymptotic Behavior of MFSK in Noisy Phase Channels".

The 1990 Workshop on Information Theory, June 1990, Koningshof Veldhoven, The Netherlands, paper presented (invited): S. Shamai (Shitz), E. Zehavi and G. Kaplan, "Information Rates for the Bit-Shift Magnetic Recording Channel".

The 1990 Bilkent International Conference on New Trends in Communication, Control and Signal Processing, July 1990, Ankara, Turkey, papers presented: (i) Y. Dallal and S. Shamai (Shitz), "Coherent Lightwave DPSK with Time Diversity". (ii) Y. Kofman, S. Shamai (Shitz) and E. Zehavi, "Analysis of a Multilevel Coded Modulation Scheme".

The 1990 International Symposium on Information Theory and Its Applications, November 1990, Waikiki, Hawaii, U.S.A., papers presented: (i) Y. Dallal and S. Shamai (Shitz), "Capacity Limited Performance of Coherent Lightwave BFSK with Hard Decoding". (ii) Y. Dallal and S. Shamai (Shitz), "Concatenated Coding for Coherent Lightwave DPSK".

The IEEE Global Communications Conference–GLOBECOM '90, December 1990, San-Diego, CA, USA., paper presented: E. Zehavi and S. Shamai (Shitz), "Bounds on the Capacity of the Peak Shift Magnetic Recording Channel".

The 1991 International Symposium on Information Theory-ISIT, June 1991, Budapest, Hungary, papers presented: (i) S. Shamai (Shitz), L.H. Ozarow and A.D. Wyner, "Information Rates for a Discrete-Time Gaussian Channel with Intersymbol Interference and Stationary Inputs", (ii) Y.E. Dallal and S. Shamai (Shitz), "Asymptotically Robust Communication Using an Orthogonal Codebook over Energy Limited Channels, (iii) Y.E. Dallal and S. Shamai (Shitz), "Concatenated Coding or Heterodyne Optical FSK and OOK Signals Impaired by Phase Noise", (iv) G. Kaplan and S. Shamai (Shitz), "On Information Rates of Compound Channels".

The 21st Annual 1991 IEEE Communication Theory Workshop, July 1991,

Rhodes, Greece, papers presented: (i) S. Shamai (Shitz) and G. Kaplan, "Error Exponents for Block Fading Gaussian Channels with a Decoding Delay Constraint", (ii) Y.E. Dallal and S. Shamai (Shitz), "Analytical Techniques for Heterodyne Optical Systems".

The Franco-Israeli Symposium on Electro-Optics, October 1991, Paris, France, paper presented (invited): Y.E. Dallal and S. Shamai (Shitz), "Communication under the Noisy Phase Regime".

The International Commsphere '91 Symposium, December 1991, Herzlia, Israel, paper presented: L.H. Ozarow, S. Shamai (Shitz) and A.D. Wyner, "Capacity Considerations for TDMA Cellular Mobile Radio".

The ETH/Technion Workshop, February 1992, Zurich, Switzerland, paper presented (invited): S. Shamai (Shitz) and I. Bar David, "Overview of Information Theoretic Models for Magnetic Recording".

The International Symposium on Signals Systems and Electronics, September 1992, Paris, France, paper presented: Y. Kofman, E. Zehavi and S. Shamai (Shitz), "Convolutional Codes for Noncoherent Detection".

The International Symposium on Information Theory—ISIT, January 1993, San Antonio, Texas, USA. Papers presented: (i) S. Shamai (Shitz) and S. Verdú, "Worst-Case Power-Constrained Noise for Binary-Input Channels", (ii) G. Kaplan and S. Shamai (Shitz), "Error Performance over the Uninterleaved Rician Channel", (iii) N. Merhav, G. Kaplan, A. Lapidoth and S. Shamai (Shitz), "On Information Rates of Mismatched Decoders", (iv) Y. Kofman, E. Zehavi and S. Shamai (Shitz), "Convolutional Codes for Noncoherent Detection: Performance Analysis and Structural Properties", (v) S. Shamai (Shitz) and N. Chayat, "Bounds on the Capacity of an AWGC Channel with Intertransition-Constrained Bipolar Inputs", (vi) Y. Dallal and S. Shamai (Shitz), "Power Moment Characterization for Noisy Phase Lightwave Systems".

The 1993 Workshop on Information Theory, June 1993, Susono-shi, Shizouka, Japan. Paper presented (invited): S. Shamai (Shitz), "On the Capacity of the Continuous-Time Gaussian Channels with Constrained Bipolar Inputs".

The French-Israeli Workshop on Algebraic Coding, July 1993, ENST Paris, France. Paper presented: G. Kaplan, S. Shamai (Shitz) and Y. Kofman, "On Convolutional Code Selection for an Uninterleaved, Bursty Rician Channel".

The Twenty-Eight Annual Conference on Information Sciences and Systems, Princeton, USA, March 1994. Paper presented: S. Shamai (Shitz) and R. Laroia, "The Intersymbol Interference Channel: Lower Bounds on Capacity and Channel Precoding Loss".

The International Symposium on Information Theory — ISIT, June 1994, Trondheim, Norway. Papers presented: (i) S. Shamai (Shitz), "Information Rates by Over-Sampling the Sign of a Bandlimited Process", (ii) S. Shamai (Shitz) and S.A. Raghavan, "On the Generalized Symmetric Cut-Off Rate for Finite State Channels", (iii) D. Ben-Eli, Y. Dallal and S. Shamai (Shitz), "Performance Bounds and Cut-Off Rates of Quantum Limited OOK with Optical Amplification", (iv) G. Kaplan and S. Shamai (Shitz), "On Error Exponents, Coding and Feedback for Decoding Delay Constrained Communication Systems", (v) Y. Dallal, N. Tal and S. Shamai (Shitz), "On Noncoherent Detection of Noisy Phase OOK Signals".

The French-Israeli Workshop on Coding and Information Integrity, November 1994, Tel-Aviv, Israel.
Paper presented: S. Shamai (Shitz) and S. Verdú, "Capacity of Channels with

Uncoded Side Information".

The IEEE Information Theory Workshop, April 1995, St. Louis, Missouri. Paper presented (invited): S. Shamai (Shitz) and A. D. Wyner, "Information Theoretic Considerations for Cellular Multiple Access Channels in the Presence of Fading and Inter-Cell Interference".

The IEEE Communication Theory Workshop, April 1995, Santa Cruz, California. Paper presented (invited): S. Shamai (Shitz) and S. Verdú, "Information-Theoretic Approach to Parallel Concatenated Codes".

The 1995 Information Theory Workshop, June 1995, Rydzyna, Poland. Paper presented (invited): S. Shamai (Shitz) and A. D. Wyner, "Information Theoretic Considerations for Intra and Inter Cell Multiple Access Protocols in Mobile Fading Channels".

The International Symposium on Information Theory–ISIT, September 1995, Whistler, British Columbia, Canada. Papers presented: (i) S. Shamai (Shitz) and S. Verdú, "Capacity of Channels with Uncoded Side Information", (ii) S. Shamai (Shitz) and S. Verdú, "The Empirical Distribution of Good Codes", (iii) Y. Dallal, G. Jacobsen and S. Shamai (Shitz), "On the Impact of Laser's Relaxation Oscillation on Quadratically Heterodyned Lightwave Signals".

The Oberwolfach Meeting on Information Theory, Oberwolfach, Germany, February 1996. Paper presented: S. Shamai (Shitz), S. Verdú and R. Zamir, "Information Theoretic Aspects of Systematic Transmission with Distortion".

The International Symposium on Information Theory–ISIT, Ulm, Germany, June/July 1997. Papers presented: (i) S. Shamai (Shitz), "A Broadcast Transmission Strategy for the Gaussian Slowly Fading Channel", (ii) A. Lapidoth and S. Shamai (Shitz), "A Lower Bound on the Mismatched Viterbi Decoding Bit-Error Rate", (iii) I.C. Abou Faycal, M.D. Trott and S. Shamai (Shitz), "The Capacity of Discrete-Time Rayleigh Memoryless Fading Channels".

The International Symposium on Turbo Codes & Related Topics, September 1997, Brest, France. Paper presented (invited): S. Shamai (Shitz), S. Verdu and R. Zamir, "Information Theoretic Aspects of Systematic Coding".

MELECON, 9th Mediterranean Electrotechnical Conference Tel Aviv, Israel, May 1998. Papers presented: (i) S. Verdu and S. Shamai (Shitz) "Information Theoretic Aspects of Coded Random-Sequence Spread Spectrum",
(ii) S. Galan, M. Peleg and S. Shamai (Shitz), "On Iterative Phase Trellis Based Noncoherent Detection of Coded MPSK in a Noisy Phase Regime",
(iii) I. Sason and S. Shamai (Shitz), "Distance Spectrum Based Improved Upper Bounds for Parallel and Serial Concatenated Turbo Codes".

The IEEE Information Theory Workshop, Killarney, Ireland, June 1998. Papers presented: (i) S. Verdu and S. Shamai, "Spectral Efficiency of Direct-Sequence Spread-Spectra-Multiaccess with Random Spreading". (ii) R. Zamir and S. Shamai (Shitz), "Nested Linear/Lattice Codes for Wyner-Ziv Encoding.

The 1998 IEEE International Symposium on Information Theory (ISIT'98), MIT, Cambridge, MA, USA, August 1998. Papers presented: (i) I. Sason and S. Shamai (Shitz), "Improved Upper Bounds on the Performance of Parallel and Serial Concatenated Turbo Codes via their Ensemble Distance Spectrum", (ii) G. Caire and S. Shamai (Shitz), "On the Capacity of Some Channels with Side Information at the Transmitter", (iii) A.R. Oka, S. Bross and S. Shamai (Shitz), "Two Approaches to Multilevel QAM Coding", (iv) O. Somekh and S. Shamai (Shitz), "A Shannon-Theoretic View of Wyner's Multiple-Access Cellular Channel Model in the Presence of Fading".

Invited Talk: ENST, Paris, France, April 6, 1999.
S. Shamai (Shitz), "Improved Upperbounds on the ML Decoding Error Probability of Parallel and Serial Concatenated Turbo Codes via their Ensemble Distance Spectrum", (joint work with I. Sason).

The 1999 Information Theory and Networking Workshop, Metsovo, Greece, June 1999. Papers presented: (i) S. Shamai and E. Telatar, "Some Information Theoretic Aspects of Decentralized Power Control in Multiple Access Fading Channels", (ii) S. Shamai and S. Verdu, "Capacity of CDMA Fading Channels".

The Third ETH-TEHNION Workshop on Information Theory, ETH, Zürich, January 19–21, 2000. Invited Talk: S. Shamai (Shitz) and I. Sason, "Variations on Gallager Bounds, and some Applications".

The Meeting on Inteference Rejection and Signal Separation (IRSS'2000), NJIT, NJ, USA, March 14, 2000. Paper presented (Invited Talk): S. Shamai (Shitz), B. Zaidel and S. Verdú, "On Information Theoretic Aspects of Inter and Intra Cell Interference Mitigation in Coded and Randomly Spread CDMA".

The 34-th Annual Conference on Information Sciences and Systems (CISS'00), Princeton University, Princeton, NJ, USA, March 15–17, 2000. Paper presented: S. Shamai (Shitz) and I. Bettesh, "Outages, Expected Rates and Delays".

Invited Talk: Eurecom, Sophia Antipolis, France, April 26, 2000. S. Shamai (Shitz), "Information Theoretic Aspects of Power Control in Multiple Access Fading Channels".

Invited Talk: ENST, Paris, April 28, 2000. S. Shamai (Shitz), "Variations on the Gallager Bounds with Some Applications", (joint work with I. Sason).

The 2000 IEEE International Symposium on Information Theory (ISIT 2000), Sorrento, Italy, June 25–30, 2000. Papers presented: (i) S. Shamai (Shitz), "A Broadcast Approach for the Multiple-Access Slow Fading Channel," (ii) S. Shamai and T.L. Marzetta, "Multiuser Capacity in Block Fading with No Channel State Information," (iii) I. Bettesh and S. Shamai (Shitz), "Outage Analysis for Multiple Access Channel with Rayleigh Fading," (iv) S. Bross, M. Burnashev and S. Shamai (Shitz), "Error Exponents for the Two-User Poisson Channel".

Workshop on Information Theory and Wireless Communication in the New Century, University of Napoli, Naples, Italy, July 1st, 2000. Paper presented (*invited*): "Information Theoretic Aspects of Power Control in Multiple Access Fading Channels".

2000 Cornell Summer Workshop on Information Theory, Cornell University, Ithaca, NY, USA, August 18–19, 2000. Papers presented (*invited*): (i) S. Shamai and I. Sason, "On Gallager's Bounding Techniques: Observations and Applications," (ii) U. Erez, S. Shamai and R. Zamir, "Capacity and Lattice Strategies for Cancelling Known Interference".

Second International Symposium on Turbo Codes & Related Topics, Brest, France, 4–7, September 2000. Papers presented: (i) S. Shamai (Shitz) and I. Sason, "Variations on Gallager Bounds: Performance Bounds on Turbo Codes in Gaussian and Fading Channels," (*invited*), (ii) I. Sason and S. Shamai, "On Improved Bounds on Coded Communications over Interleaved Fading Channels with Applications to Turbo Codes".

International Workshop on Frontiers in the Physics of Complex Systems, Minerva Center, Dead Sea, Israel, March 25–28, 2001. Paper presented (*invited*): "Variations on the Gallager Bounds with Some Applications".

Invited Talk: FTW and Technical University of Vienna, Vienna, Austria, April 12, 2001. S. Shamai (Shitz), "Information Theoretic Aspects of Power Control in Multiple Access Fading Channels".

The 2001 IEEE International Symposium on Information Theory (ISIT 2001), Washington D.C., USA, June 24–29, 2001. Papers presented: (i) S. Shamai (Shitz) and S. Verdú, "Optimum Power Control for Fading Channels", (ii) G. Godavarti, T.L. Marzetta and S. Shamai (Shitz), "Capacity of Multiple Antenna Wireless Link in Isotropically Random Rician Fading," (iii) S. I. Bross and S. Shamai (Shitz), "Capacity and Decoding Rules for the Poisson Arbitrarily Varying Channel," (iv) G. Caire and S. Shamai (Shitz), "On Achievable Rates in a Multi-Antenna Broadcast Downlink", (v) I. Sason and S. Shamai (Shitz), "On Gallager-type Bounds for the Mismatched Decoding Regime with Applications to Turbo Codes".

Invited Talk: Ericsson, Stockholm, Sweden, August 23, 2001. S. Shamai (Shitz), "Information Theoretic Aspects of Constrained Systems".

Invited Talk: ETH, Zürich, Switzerland, November 12, 2001. S. Shamai (Shitz), "Some Information Theoretic Aspects of Multi-Cell Wireless Systems".

International ITG Conference on Source and Channel Coding, Berlin, Germany, January 28–30, 2002. Paper presented (*invited*): S. Shamai (Shitz), B.M. Zaidel and S. Verdú, "On Information Theoretic Aspects of Multi-Cell Wireless Systems".

MSRI Workshop on Information Theory, Berkeley, CA, USA, February 25–March 1, 2002. Paper presented (*invited*): S. Shamai (Shitz), "On Information Theoretic Aspects of Constrained Systems".

Invited Talks: Stanford University, Stanford, CA., February 22, 2002, and also Bell-Laboratories, Lucent Technology, Murray-Hill, NJ., April 25, 2002. Paper presented: S. Shamai (Shitz), "On Information Theoretic Aspects of Multi-Cell Wireless Systems", EPFL, Lausanne, Switzerland, July 25, 2002, Princeton University: Princeton-Rutgers Seminar Series in Communications and Information Theory, October 3, 2002 and MIT, Cambridge, May 10, 2003.

The 2002 IEEE International Symposium on Information Theory (ISIT2002), Lausanne, Switzerland, June 30–July 5, 2002. Papers presented: (i) S. Shamai (Shitz), B. M. Zaidel and S. Verdú, "Analysis of Strongest-Users-Only Detectors for Randomly Spread CDMA," (ii) H. Weingarten, Y. Steinberg and S. Shamai (Shitz), "Gaussian Codes and the Scaled Nearest Neighbor Decoder," (iii) M. Katz and S. Shamai (Shitz), "Capacity of the Noncoherent Additive White Gaussian Noise Channel".

DIMACS Workshop on Signal Processing for Wireless Transmission, Rutgers University, Piscataway, NJ, USA, October 7–9, 2002. Papers presented: (i) G. Caire and S. Shamai (Shitz), "Writing on Dirty Paper with LDPC Codes," (ii) G. Kramer, S. Shamai (Shitz), S. Vishwanath, S. Jafar and A. Goldsmith, "Information-theoretic Issues Concerning Broadcasting: Capacity Region Outer Bounds".

The 2003 IEEE Information Theory Workshop, "La Sorbonne", Paris, France, March 31–April 4, 2003. Papers presented (*invited*): (i) G. Caire, S. Shamai (Shitz) and S. Verdú, "A New LDPC Lossless Data Compression Algorithm, for Sources with Memory," (ii) S. Shamai and A. Steiner, "MIMO-Broadcast Approach for Slowly Fading Channels".

The 2003 IEEE International Symposium on Information Theory (ISIT'2003), Yokohama, Japan, June 28–July 4, 2003. Papers presented: (i) G. Caire, S. Shamai (Shitz) and S. Verdú, "Lossless Data Compression with Error Correcting Codes," (ii) A. Amraui, G. Kramer and S. Shamai (Shitz), "Coding for the MIMO Broadcast Channel," (iii) Y. C. Eldar and S. Shamai (Shitz), "Covariance Shaping Multiuser Detection," (iv) D. Tuninetti and S. Shamai (Shitz), "On Two-User Fading Gaussian Broadcast Channels with Perfect Channel State Information at the Receivers".

Summer Research Institute 2003, EPFL, Lausanne, Switzerland (*invited talk*): S. Shamai (Shitz), "Single User Broadcasting in a MIMO Channel".

International Symposium on Turbo Codes & Related Topics, Brest, France, 1–5 September, 2003. Papers presented: (i) G. Caire, S. Shamai (Shitz) and S. Verdú, "Data Compression," (ii) I. Sutskover, S. Shamai (Shitz) and J. Ziv, "A Novel Approach to Iterative Joint Detection and Phase Estimation," (iii) A. Steiner, M. Peleg and S. Shamai (Shitz), "SVD Iterative Decision Feedback Demodulation and Detection of Coded Space-Time Unitary Differential Modulation".

Invited Talk: Harvard University, Cambridge, MA, USA, October 13, 2003 and Bell Laboratories, Murray-Hill, NJ, October 16, 2003, S. Shamai (Shitz), "Extremes in Information Combining", (joint work with I. Sutskover and J. Ziv).

Invited Talk: MIT, Cambridge, MA, USA, October 14, 2003 and Bell Laboratories, Crawford-Hill, August 27, 2003, S. Shamai (Shitz), "Single User Broadcasting in a MIMO Channel", (joint work with A. Steiner).

Invited Talk: Faculty of Engineering, Tel-Aviv University, "Dirty Paper and Watermarking Day," December 1, 2004. S. Shamai, "Coding Schemes for the BSC with Known Interference".

Fifth International ITG Conference on Source and Channel Coding (ITG 2004), Erlangen, Germany, January 14–16, 2004. Paper presented: G. Caire, S. Shamai (Shitz) and S. Verdú, "Almost-Noiseless Joint Source-Channel Coding-Decoding of Sources with Memory".

Invited Talk: The 2004 ETH/Technion Workship, ETH, Zurich, Switzerland. S. Shamai (Shitz), "Extremes in Information Combining and Applications", (joint work with I. Sutskover and J. Ziv).

The International Zurich Seminar on Communications, (IZS 2004), ETH, Zurich, Switzerland, February 18–20, 2004. Papers presented: (i) (*invited*): A. Sanderovich, M. Peleg and S. Shamai (Shitz), "LDPC Coded MIMO Multiple Access Communications", (ii) (*invited*): A. Wiesel, Y. Eldar and S. Shamai (Shitz), "Multiuser Precoders for Fixed Receivers".

The Communications Theory Workshop (CTW2004), Capri, Italy, May 5–8, 2004. Paper presented (*invited*): S. Shamai and M. Katz, "On Pragmatic Cooperative Transmission on the Downlink".

The 2004 IEEE International Symposium on Information Theory (ISIT'2004), Chicago, IL, USA, June–29–July 4, 2004. Paper presented: (i) D. Guo, S. Shamai (Shitz) and S. Verdú, "Mutual Information and MMSE in Gaussian Channels", (ii) H. Weingarten, Y. Steinberg and S. Shamai (Shitz), "Capacity Region of the Degraded MIMO Broadcast Channel", (iii) O. Somekh, B.M. Zaidel and S. Shamai (Shitz), "Spectral Efficiency of Joint Multiple Cell-Site Processors for Randomly Spread DS-CDMA Systems", (iv) M. Katz and S. Shamai (Shitz), "Transmitting to Co-located Users in Wireless Ad Hoc Sensory Networks".

Summer Research Institute (July 2004), EPFL, Switzerland and ETH, Zurich, Switzerland, (August 2004), (*invited talk*): S. Shamai (Shitz), "Pragmatic Cooperative Transmission on the Downlink to Co-located Terminals".

Invited Talk: Department of Electrical Engineering, Princeton University, October 1, 2004. S. Shamai (Shitz), "Multi-Cell Communications: An Information Theoretic Perspective". (Joint work with Oren Somekh and Benjamin Zaidel).

The 2004 International Symposium on Information Theory and its Applications (ISITA 2004), Parma, Italy, October 10–14, 2004. Paper presented: (i) A. Bennatan, D. Burshtein, G. Caire and S. Shamai, "Superposition Coding for Gaussian Dirty Paper", (ii) G. Caire, S. Shamai (Shitz) and S. Verdú, "A Practical Scheme for Iterative Data Exchange".

The Joint Workshop on Communications and Coding (JWCC2004), Donnini (Florence), Italy, October 14–17, 2004. Paper presented: (i) S. Shamai, O. Somekh and B.M. Zaidel, "Multi-Cell Communications: An Information Perspective".

Invited Talk: ENST-Départment Communications et Electronique, Paris, France (May 12, 2005). S. Shamai (Shitz), "Decentralized Detection of Nomadic Transmitter via Helping Agents".

The 3rd International Workshop on Signal Processing for Wireless Communications (SPWC2005), London, UK, June 13–15, 2005. Paper presented (*invited*): "Downlink Multi-Cell Processing: An Information Theoretic View". Presented also (*Invited Talk*) at ETH, Zurich, Switzerland.

Invited Talk: 14th IST 2005 Mobile & Wireless Communications Summit: NEWCOM Workshop on Smart Antennas, MIMO Systems and Channel Modeling, Dresden, Germany, June 19–23, 2005 (*invited talk*). S. Shamai (Shitz), "A MIMO Broadcast Approach to Downlink Multi-Cell Processing".

Summer Research Institute (July 2005), EPFL, Lausanne, Switzerland, (*invited talk*): S. Shamai (Shitz), "Decentralized Detection of Nomadic Transmitter via Helping Agents".

CUBIN/ACORN Information Theory Workshop, Melbourne Australia, Sept. 1–4, 2005. Paper presented (*invited*): S. Shamai (Shitz), "Sum Rate Characterization of Joint Multiple Cell-Site Processing".

The 2005 IEEE International Symposium on Information Theory (ISIT'2005), Adelaide, Australia, 4–9 September 2005. Papers presented: (i) G. Caire, S. Shamai (Shitz) and S. Verdú, "An Efficient Scheme for Reliable Error Correction with Limited Feedback", (ii) Y. Steinberg and S. Shamai (Shitz), "Achievable Rates of the Broadcast Channel with States Known at the Transmitter," (iii) D. Guo, S. Shamai (Shitz) and S. Verdú, "Additive Non-Gaussian Noise Channels: Mutual Information and Conditional Mean Estimation", (iv) O. Shental, N. Shental and S. Shamai (Shitz), "On the Achievable Information Rates of Finite-State Input Two-Dimensional Channels with Memory", (v) A. Sanderovich, S. Shamai (Shitz), Y. Steinberg and G. Kramer, "Communication via Decentralized Processing", (vi) M. Katz and S. Shamai (Shitz), "Relaying Protocols for Two Co-located Users".

Invited Talk: ENST-Départment Communications et Éléctronique, Paris France, Workshop on Coding and Information Theory, (Dec. 14, 2005). S. Shamai (Shitz), "Constrained Information Combining: Theory and Applications".

Invited Talk: Electrical Engineering Department, Princeton University, Feb. 2, 2006. S. Shamai (Shitz), "Constrained Information Combining: Theory and Applications".

Invited Talk: WINLAB Seminar, Rutgers University, Feb. 3, 2006. S. Shamai (Shitz), "On Sum Rates of Joint Multi-Cell Site Processing".

The UCSD Workshop on Information Theory and Applications-Inaugural Workshop, UCSD, Dan Diego, CA, USA, Feb. 6–10, 2006. Papers presented: D. Wajcer, S. Shamai (Shitz) and A. Wiesel, "On Superposition and Beamforming for Multiantenna Gaussian Broadcast Channel".

The 2006 International Zurich Seminar on Communications (IZS2006), ETH Zurich, Switzerland, February 22-24, 2006. Papers presented: A. Steiner and S. Shamai (Shitz), "Single User Broadcasting over a Relay Channel".

Invited Talk: Electrical Engineering Department, Stanford University, March 2, 2006, and MIT, April 20, 2006. S. Shamai (Shitz), "Constrained Information Combining: Theory and Applications".

Invited Talk: Electrical Engineering and Computer Sciences Department, Berkeley University, Net/Comm/DSP Seminar, March 8, 2006. S. Shamai (Shitz), "On Sum Rates of Joint Multi-Cell Site Processing".

The International ITG Conference on Source and Channel Coding, Turbo-Coding 2006, Munich, Germany, 3–7, April 2006. Papers presented: I. Sason and S. Shamai (Shitz), "Analytical Bounds on Maximum-Likelihood Decoded Linear Codes with Applications to Turbo-Like Codes: An Overview", and S. Verdú, G. Caire and S. Shamai (Shitz), "Feedback and Belief Propagation".

The 2006 IEEE International Symposium on Information Theory (ISIT'2006), Seattle, Washington, USA, 9–14 July 2006. Papers presented: (i) M. Katz and S. Shamai (Shitz), "Oblivious Cooperation in Colocated Wireless Networks", (ii) G. Durisi, H. Bölcskei and S. Shamai (Shitz), "Capacity of Underspread WSSUS Fading Channels in the Wideband Regime", (iii) M. Twitto, I. Sason and S. Shamai, "Tightened Upper Bounds on the ML Decoding Error Probability of Binary Linear Block Codes", (iv) S. Shamai, E. Telatar and S. Verdú, "Fountain Capacity", (v) D. Guo, S. Shamai and S. Verdú, "Proof of Entropy Power Inequalities Via MMSE", (vi) H. Weingarten, Y. Steinberg and S. Shamai, "On the Capacity Region of the Multi-Antenna Broadcast Channel with Common Messages", (vii) N. Merhav and S. Shamai, "Information Rates Subject to State Masking", (viii) A. Sanderovich, S. Shamai, Y. Steinberg and M. Peleg, "Decentralized Receiver in A MIMO System".

Invited Talk: The Kailath Lecture and Colloquium, Stanford Univeresity, July 6–7, 2006, Stanford, CA, USA. S. Shamai (Shitz), "Decentralized Processing: The Impact of a Common Finite Capacity Feedback Link".

Summer Research Institute 2006, July 3–21, EPFL, Lausanne, Switzerland. Invited Talk: S. Shamai (Shitz), "Decentralized Processing: An Information Theoretic Perspective".

Distinguished Speaker, Department of Electrical & Computer Engineering, Texas A&M University, Sept. 1, 2006. Invited Talk: "Decentralized Processing: An Information Theoretic Perspective".

Invited Talk (FTW) – Telecommunications Research Center, September 19, 2006, "Decentralized Processing: An Information Theoretic Perspective".

NEWCOM-ACoRN Joint Workshop, September 20–22, 2006, Vienna, Austria. Papers presented: (i) A. Wiesel, Y. C. Eldar and S. Shamai (Shitz), "Robust Power Allocation for Maximizing the Compound Capacity," (ii) A. Steiner and S. Shamai (Shitz), "Broadcasting with Partial Transmit Channel State Information".

The UCSD Workshop on Information Theory and Applications (ITA 2007), January 29–February 4, 2007, UCSD, San Diego, USA. Papers presented (*invited*): (i) H. Weingarten, G. Kramer and S. Shamai (Shitz), "The Compound MIMO Broadcast Channel – Degrees of Freedom Analysis," (ii) Y. Liang, H. Poor and S. Shamai (Shitz), "Secrecy Capacity Region of Parallel Broadcast Channel," (iii) I. Maric, A. Godsmith, G. Kramer and S. Shamai (Shitz), "On the Capacity Results for Cognitive Radio," (iv) O. Shental, N. Shental, S. Shamai (Shitz), I. Kanter and A.J. Weiss, "Finite-State Input Two-Dimensional Gaussian Channels with Memory: Estimation and Information via Graphical Models and Statistical Mechanics," (v) D. Tuninetti, G. Caire and S. Shamai, "Scalar Fading Gaussian Broadcast Channels with Perfect receiver CSI: is Gaussian Input Optimal"?

The International Workshop on Wireless Networks: Communication, Cooperation and Competition, 5th Intl. Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks, April 16–20, 2007, Limassol, Cyprus: (*invited talk*): "Oblivious Cooperation of Wireless Colocated Transmitters".

Invited Talk: ACC-Advanced Communications Center, Tel Aviv University, April 19, 2007: S. Shamai (Shitz), "Oblivious Cooperation of Wireless Colocated Transmitters".

Invited Plenary Address: 2007 IEEE International Symposium on Information Theory (ISIT2007), June 24–29, 2007, Nice, France. S. Shamai (Shitz): "Reflections on the Gaussian Broadcast Channel: Progress and Challenges".

The 2007 IEEE International Symposium on Information Theory (ISIT2007), Nice, France, 24–29 June, 2007. Papers presented (*invited*): (i) H. Weingarten, T. Liu, S. Shamai (Shitz), Y. Steinberg and P. Viswanath, "The Capacity Region of the Degraded MIMO Compound Broadcast Channel", (ii) A. Sanderovich, S. Shamai (Shitz) and Y. Steinberg, "On Upper bounds for Decentralized MIMO Receiver", (iii) A. Lapidoth, S. Shamai (Shitz) and M. A. Wigger, "A Linear Interference Network with Local Side-Information", (iv) I. Maric, A. Goldsmith, G. Kramer and S. Shamai (Shitz), "On the Capacity of Interference Channels with a Cognitive Transmitter'p' (v) Y. Liang, V. Poor and S. Shamai (Shitz), "Secrecy Capacity Region of Fading Broadcast Channels", (vi) A. Sanderovich, O. Somekh and S. Shamai (Shitz), "Uplink Macro Diversity with Limited Backhaul Capacity", (vii) A. Somekh-Baruch, S. Shamai (Shitz) and S. Verdú, "Cooperative Multiple Access Encoding with States Available at One Transmitter", (viii) O. Somekh, O. Simeone, V. H. Poor and S. Shamai (Shitz), "Cellular Systems with Full-Duplex Amplify-and-Forward Relaying Cooperative Base-Stations", (ix) G. Durisi, H. Bölcskei and S. Shamai (Shitz), "Capacity of Underspread Noncoherent WSSUS Fading Channels under Peak Signal Constraints," (x) A. Tulino S. Verdu, G. Caire and S. Shamai (Shitz), "The Gaussian Erasure Channel", (xi) T. Gariby, U. Erez and S. Shamai (Shitz), "Dirty Paper Coding with a Finite Input Alphabet".

2007 IEEE Workshop on Information Theory for Wireless Networks, July 1–6, 2007, Bergen, Norway. Paper presented: C. Tian, A. Steiner, S. Shamai (Shitz) and S. Diggavi, "Expected Distortion for Gaussian Source with a Broadacst Transmission Strategy over a Fading Channel",

Summer Research Institute 2007, July 3–21, EPFL, Lausanne, Switzerland. *invited*: S. Shamai (Shitz), "Information Theoretic Motivated Protocols for Oblivious Cooperation of Wireless Colocated Transmitters".

The 2007 IEEE Information Theory Workshop (ITW 2007), Sep. 2–6, 2007, Lake Tahoe, California, USA. Papers presented: *invited*: (i) G. Kramer and S. Shamai (Shitz), "Capacity for a Class of Broadcast Channels with Receiver Side Information", (ii) C. T.K. Ng, C. Tian, A. J. Goldsmith and S. Shamai (Shitz), "Minimum Expected Distortion in Gaussian Source Coding with Uncertain Side Information", (iii) A. Lapidoth, S. Shamai (Shitz) and M. Wigger, "On Cognitive Interference Networks".

Electrical Engineering Department, Stanford University, September 7, 2007. *invited*: S. Shamai (Shitz), "Oblivious Cooperation of Wireless Colocated Transmitter".

The 2007 Joint Workshop on Coding and Communications (JWCC2007), Castle of Durnstein, Vienna, Austria, Oct. 14–16, 2007. Papers presented: (i) S. Shamai (Shitz), O. Somekh, O. Simeone, A. Sanderovich and B. M. Zaidel, "Cooperative Multi-Cell Networks: Impact of Limited-Capacity Backhaul and Inter-Users Links", *Invited Talk*: (ii) Y. Liang, H. V. Poor and S. Shamai (Shitz), "Information-Theoretic Security in Wireless Networks".

The UCSD Workshop on Information Theory and Applications (ITA 2008), January 27–February 1, 2008, UCSD, San Diego, USA. Papers presented (*invited*): (i) S. Shamai (Shitz), O. Simeone, O. Somekh and S. Shamai (Shitz), "Limited Backhaul Multi-Cell Processing", (ii) I. Maric, A. Goldsmith, G. Kramer and S. Shamai (Shitz), "Recent Result on Cognitive Radio", (iii) O. Somekh, O. Simeone, H. V. Poor and S. Shamai (Shitz), "Non-Regenerative Relaying in Mesh Networks", (iv) O. Simeone, O. Somekh, G. Kramer, S. Shamai (Shitz) and H. V. Poor, "Cellular Systems with Multicell Processing and Conferencing Links between Mobile Stations", (v) O. Somekh, O. Simeone, H. V. Poor and S. Shamai (Shitz), "On the Spectrum of Large Random Hermitian Finite-Band Matrices and Applications to Wireless Communication," presented at the Open Problem Session.

Invited Talk: USC Viterbi School of Engineering, Communications Sciences Institute, EE Dept, February 1, 2008. "Oblivious Cooperation of Wireless Colocated Transmitters".

Invited Talk: Bell Laboratories: Alcatel-Lucent, February 7, 2008: "Joint Multi-Cell Downlink Processing with Limited Capacity Backhaul".

The 2008 International Zurich Seminar on Communications (IZS2008), ETH Zurich, Switzerland, March 12-14, 2008. Papers presented: (i) A. Sanderovich, M. Peleg and S. Shamai (Shitz), "Scaling Laws and Techniques in Decentralized Processing of Interfered Gaussian Channels", (ii) A. Steiner and S. Shamai (Shitz), "Multi-Layer Broadcast Hybrid-ARQ Strategies".

The 2008 IEEE Information Theory Workshop (ITW2008), May 5–9, 2008, Porto, Portugal. Papers presented: (i) V. Cadambe, S. A. Jafar and S. Shamai (Shitz), "Interference Alignment on the Deterministic Channel and Application to Fully Connected AWGN Interference Networks", (ii) E. Hof, I. Sason and S. Shamai (Shitz), "Gallager-Type Bounds for Non-Binary Linear Block Codes

over Memoryless Symmetric Channels", *invited*: (iii) Y. Liang, G. Kramer and S. Shamai (Shitz), "Capacity Outer Bounds for Broadcast Channels".

Invited Talk: SUPELEC: L'École Supérieure d'Électricité, June 9, 2008. "Joint Multiple Cell-Site Processing in Wyner-like Fading Models".

Invited Talk: ENST: Ecole Nationale Superieure des Telecommunications, June 10, 2008. "Oblivious Cooperation of Wireless Colocated Transmitters".

The 2008 IEEE International Symposium on Information Theory (ISIT2008), Nice, France, 24–29 June, 2008. Papers presented: (i) N. Liu, I. Maric, A. J. Goldsmith and S. Shamai (Shitz), "The Capacity Region of the Cognitive Z-Interference Channel with One Noise Component," (ii) D. Gunduz, O. Simeone, A. Goldsmith, H. V. Poor and S. Shamai (Shitz), "Relaying Simultaneous Multicasts via Structured Codes," (iii) P. Piantanida and S. Shamai (Shitz), "Capacity of Simultaneous State Dependent Channels with States Known at the Transmitter," (iv) A. Lapidoth, N. Levy, S. Shamai (Shitz) and M. A. Wigger, "A Cognitive Network with Clustered Decoding," presented at the IEEE Symposium on Information Theory (ISIT 2009), June 28–July 3, 2009, Seoul, Korea. (v) B. Nazer, A. Sanderovich, M. Gastpar and S. Shamai (Shitz), "Structured Superposition for Backhaul Constrained Cellular Uplink," (vi) N. Merhav, D. Guo and S. Shamai (Shitz), "Signal Estimation in Gaussian Noise: A Statistical Physics Perspective," (vii) R. Bustin and S. Shamai (Shitz), "A MMSE Approach to the Secrecy Capacity of the MIMO Gaussian Wiretap Channel," (viii) M. Kobayashi, Y. Liang, S. Shamai (Shitz) and M. Debbah, "On the Compound MIMO Broadcast Channesl with Confidential Messages," (ix) C. Tian, S. Diggavi and S. Shamai (Shitz), "An Approximate Characterization For the Gaussian Broadcasting Distortion Region," (x) R. Liu, T. Liu, H. V. Poor, and S. Shamai (Shitz), "MIMO Gaussian Broadcast Channels with Confidential Messages," (xi) R. Liu, Tie Liu, H. V. Poor, and S. Shamai (Shitz), "A Vector Generalization of an Entropy-Power Inequality of Costa."

The 2008 IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC2008), 15–18, Sep. 2008, Cannes, French Riviera, France. Papers presented: (i) S. Shamai (Shitz), O. Simeone, O. Somekh, A. Sanderovich, B. Zaidel and V. Poor, "Information-Theoretic Implications of Constrained Cooperation in Simple Cellular Networks," Invited plenary address presented by S. Shamai at the workshop: Beyond Cellular: Emerging Network Perspectives for Multiuser and Cooperative MIMO (NWMIMO), (ii) Y. Liang, G. Kramer, H. V. Poor and S. Shamai (Shitz), "Recent Results on Compound Wire-tap Channels."

The 2008 IEEE 25–th Convention of Electrical and Electronic Engineers in Israel, December 3–5, 2008, Eilat, Israel. Papers presented: (i) A. Steiner and S. Shamai (Shitz), "The Broadcast Approach in Communications Systems," (ii) N. Levy, O. Zeitouni and S. Shamai (Shitz), "On Information Rates of the Fading Wyner Cellular Model via the Thouless Formula for the Strip."

The 2009 UCSD Workshop on Information Theory and Applications (ITA2009), Feb. 8–13, 2009, UCSD, San Diego, USA. Papers presented: (i) N. Levy and S. Shamai (Shitz), "Clustered Local Decoding for Wyner-type Cellular Models," (ii) C. Huang, S. A. Jafar, S. Shamai, "Multiuser MIMO Degrees of Freedom with No CSIT," (iii) O. Simeone, O. Somekh, E. Erkip, H. V. Poor and S. Shamai (Shitz), "A Broadcast Approach to Robust Communications over Unreliable Multi-Relay Networks," (iv) G. Kramer, Y. Liang and S. Shamai (Shitz), "Outer Bounds on the Admissible Source Region for Broadacst Channels with Dependent Sources," (v) A. Jafarian, S. Sridharan, S. Jafar, S. Shamai and S. Vishwanath, "Lattice Coding for Interference Networks," (vi) C. Tian, S. Diggavi and S. Shamai, "On the Approximation of Common Source Broadcast

Distortion Region," (vii) M. Wigger, A. Lapidoth, N. Levy and S. Shamai (Shitz), "Receivers-Transmitters Side-Information Duality in Linear Interference Networks," (viii) S. Shamai and S. Verdú, "Variable-Rate Channel Capacity," (ix) D. Guo, J. Luo, S. Shamai and D. Baron, "Neighbor Discovery in Ad Hoc Networks as a Compressed Sensing Problem."

2009 NEWCOM++ - ACoRN Joint Workshop, Barcelona, March 30–April 1, 2009. Paper presented: M. Kobayashi, M. Debbah, L. Cardoso and S. Shamai, "Vandermonde Precoding for Cognitive and Security Applications over Frequency-Selective Fading Channels."

The 2009 PIIRS Seminar on the Interface of Information Theory and Estimation Theory, Princeton, April 10–11, 2009. Papers presented: (i) R. Liu, Tie Liu, H. V. Poor and S. Shamai, (Invited Paper) "A Vector Generalization of Costa's Entropy Power Inequality with Applications," (ii) S. Shamai, R. Bustin, R. Liu and V. Poor, (Invited Paper) "Secrecy Capacity of the MIMO Gaussian Wiretap Channel: An I-MMSE Approach."

The 2009 IEEE International Symposium on Information Theory (ISIT2009), Seoul, Korea, June 28–July 3, 2009. Papers presented: (i) N. Liu, I. Maric, A. J. Goldsmith and S. Shamai (Shitz), "The Capacity Region of the Cognitive Z-Interference Channel with One Noise Component," (ii) D. Gunduz, O. Simeone, A. Goldsmith, H. V. Poor and S. Shamai (Shitz), "Relaying Simultaneous Multicasts via Structured Codes," (iii) P. Piantanida and S. Shamai (Shitz), "Capacity of Simultaneous State Dependent Channels with States Known at the Transmitter," (iv) A. Lapidoth, N. Levy, S. Shamai (Shitz) and M. A. Wigger, "A Cognitive Network with Clustered Decoding," (v) B. Nazer, A. Sanderovich, M. Gastpar and S. Shamai (Shitz), "Structured Superposition for Backhaul Constrained Cellular Uplink," (vi) R. Bustin and S. Shamai (Shitz), "A MMSE Approach to the Secrecy Capacity of the MIMO Gaussian Wiretap Channel," (vii) M. Kobayashi, Y. Liang, S. Shamai (Shitz) and M. Debbah, "On the Compound MIMO Broadcast Channesl with Confidential Messages," (viii) C. Tian, S. Diggavi and S. Shamai (Shitz), "An Approximate Characterization For the Gaussian Broadcasting Distortion Region," (ix) R. Liu, T. Liu, H. V. Poor, and S. Shamai (Shitz), "MIMO Gaussian Broadcast Channels with Confidential Messages," (x) R. Liu, Tie Liu, H. V. Poor, and S. Shamai (Shitz), "A Vector Generalization of an Entropy-Power Inequality of Costa."

ENST-Ecole Nationale Superieure des Telecommunications, Paris, Oct. 6, 2009. Paper presented: S. Shamai, (Invited Talk) "Cognitive Radio Networks: An Information Theoretic Perspective."

SUPELEC: Elcole Suprieure D'Electicite, Paris, Oct. 9, 2009: Paper presented: S. Shamai, (Invited Talk) "A MMSE approach to the Secrecy Capacity of the MIMO Gaussian Wiretap Channel."

The 2009 Information Theory Workshop (ITW2009), Taormina, Sicily, October 11–16, 2009. Papers presented: (i) D. Gunduz, O. Simeone, A. Goldsmith, H. V. Poor and S. Shamai (Shitz), "Relaying Simultaneous Multicast Messages," (ii) O. Simeone, O. Somekh, E. Erkip, H. V. Poor and S. Shamai (Shitz), "Multirelay Channel with Non-Ergodic Link Failures," (iii) Tie Liu and S. Shamai (Shitz), "A Channel-Enhancement Approach to the Secrecy Capacity of the Multi-antenna Wiretap Channel." E. Hof, I. Sason and Shlomo Shamai, "Performance Bounds for Erasure and List Decoding Rules of Linear Block Codes," (iv) P. Piantanida and Shlomo Shamai (Shitz), "Capacity Region of Less Noisy State-Dependent Broadcast Channels with States Known at the Transmitter," (v) O. Simeone, E. Erkip and S. Shamai (Shitz), "Robust Communications against Femtocells Access Failure."

The Stanford ISl Seminar, Stanford University, November 16, 2009. Paper presented: S. Shamai, (Invited Talk) "An I-MMSE Perspective to the Capacity of the MIMO Gaussian Wiretap Channel."

EECS, Networking, Communications, and DSP Seminar, U.C. Berkeley, November 17, 2009. Paper presented: S. Shamai, (Invited Talk) "Robust Communication via Decentralized Processing with Unreliable Backhaul Links."

DoCoMo Communications Labs, USA Palo Alto, November 18, 2009. Paper presented: S. Shamai, (Invited Talk) "The Broadcast Approach in Communications Systems: Overview, Applications and Perspectives."

The Kailath Lectures & Colloquium, November 19, 2009, Stanford University. Paper presented: S. Shamai, (Invited Talk) "Constrained Cooperation in Simple Cellular Models: An Information Theoretic View."

Information & Coding Theory Day, Advanced Communications Center (ACC) School of EE, Tel Aviv University, January 3, 2010: Paper presented: S. Shamai, (Invited Talk) "Robust Communication via Decentralized Processing with Unreliable Backhaul Links."

The 2010 UCSD Workshop on Information Theory and Applications (ITA2010), Jan. 31–Feb. 5, 2010, UCSD, San Diego, USA. Papers presented: (i) L. Lai, Y. Liang and S. Shamai, "Capacity Bounds for the Poisson Interference Channel," (ii) O. Simeone, E. Erkip and S. Shamai (Shitz), "Oblivious and Out-of-Band Relaying for Interference Networks," (iii) R. Liu, Tie Liu, V. H. Poor and S. Shamai (Shitz), "MIMO Gaussian Broadcast Channels with Common Messages," (iv) S. Shamai, O. Simeone, M. Gastpar, A. Lapidoth, N. Levy, B. Nazer, V. Poor, A. Sanderovich, O. Somekh, M. Wigger and B. Zaidel, "Information Theoretic Reflections on Constrained Base Station Cooperation in the Uplink," (v) C. Tian, J. Chen, S. Diggavi and S. Shamai (Shitz), "Separation and Approximate Separation of Source and Channel Coding in Networks," (vi) N. Merhav, D. Guo and S. Shamai (Shitz), "Signal Estimation in Gaussian Noise: a Statistical Physics Perspective," (vii) A. Tulino, G. Caire, S. Shamai and S. Verdú, "Capacity of Frequecy-Selective and Time-Selective Fading Channel," (viii) D. Guo, D. Baron, and S. Shamai, "A Single-letter Characterization of Optimal Linear Signal Estimation."

The 2010 International Zurich Seminar on Communications (IZS2010), ETH Zurich, Switzerland, March 3-5, 2010. (i) A. Steiner, S. Shamai (Shitz), V. Lupu and U. Katz, "Multi-Layer Coded Direct Sequence CDMA," (ii) O. Simeone, E. Erkip and S. Shamai, "Oblivious Relaying for Primitive Interference Relay Channels," (iii) O. Simeone, E. Erkip and S. Shamai, "Achievable Rates for Multicell Systems with Femtocells and Network MIMO."

WiOpt 2010, 8th Intl. Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks, Avignon, France, June 1–4, 2010: Paper presented: S. Shamai, (Keynote Invited Talk) "Robust Cooperation and Relaying in Wireless Networks: An Information Theoretic Perspective."

The 2010 IEEE International Symposium on Information Theory (ISIT2010), Austin, Texas, USA, June 13–June 18, 2010. Papers presented: (i) R. Liu, Tie Liu, H. V. Poor, and S. Shamai (Shitz), "MIMO Gaussian Broadcast Channels with Confidential and Common Messages," (ii) R. Bustin, M. Payaro, D. P. Palomar and S. Shamai (Shitz), "On MMSE Properties and I-MMSE Implications in Parallel MIMO Gaussian Channels," (iii) M. Kobayashi, Sheng Yang, P. Piantanida and S. Shamai (Shitz), "On the Multi-Antenna Block Fading Wiretap Channels," (iv) L. Lai, Y. Liang and S. Shamai(Shitz), "On the Capacity Region of the Poisson Interference Channels," (v) A. Zaidi, S.

Shamai (Shitz), P. Piantanida and L. Vandendorpe, "Bounds on the Capacity of the Relay Channel with Noncausal State Information at Source," (vi) Chao Tian, S. N. Diggavi and S. Shamai (Shitz), "The Achievable Distortion Region of Bivariate Gaussian Source on Gaussian Broadcast Channel," (vii) Chao Tian, Jun Chen, S. N. Diggavi, and S. Shamai (Shitz) "Optimality and Approximate Optimality of Source-Channel Separation in Networks," (viii) P. Piantanida and S. Shamai (Shitz), "On the Capacity of Compound State-Dependent Channels With State Known at the Transmitter," (ix) Y. Geng, C. Nair, S. Shamai and Z. V. Wang, "On Broadcast Channels with Binary Inputs and Symmetric Outputs," (x) R. Liu, Tie Liu, H. V. Poor, and S. Shamai (Shitz), "Broadcast Channels with Private and Confidential Messages." Invited Tutorial: Y. Liang, H.V. Poor and S. Shamai: "Physical Layer Security: An Information Theoretic Approach".

Ecole Nationale Superieure des Telecommunications (ENST), September 27, 2010. Paper presented: S. Shamai, (Invited Talk) "An Information Theoretic View of Robust Cooperation/Relaying in Wireless Networks."

The NEWCOM++ : Workshop on Physical Layer Security, Telecom Paris (ENST), September 30, 2010. Paper presented: S. Shamai, Y. Liang and V. Poor, "The Broadcast Approach over Fading Gaussian Wiretap Channels."

Invited Plenary Address: The 6th IEEE Sensor Array and Multichannel Signal Processing Workshop, October 4–7, 2010, Israel. S. Shamai: "An Information Theoretic View of Robust Cooperation/Relaying in Wireless Networks".

2010 IEEEI 26–th Convention of Electrical and Electronics Engineers in Israel, Nov. 17–20, 2010, Hilton Hotel Eilat, Israel. Papers presented: (i) E. Braginskiy, A. Steiner and S. Shamai (Shitz), "Oblivious Cooperative Transmission with Multi-Layer Codes," (ii) E. Hof and S. Shamai, "Secret and Private Rates on Degraded Wire-Tap Channels via Polar Coding," (iii) H. Permuter, S. (Shitz) Shamai and A. Somekh-Baruch, "Cooperation in Multiple Access Channels with States," (iv) A. Sanderovich, M. Peleg and S. Shamai (Shitz), "Multipoint Decentralized Processing of Interfered Gaussian Channel: Scaling Laws," (v) R. Bustin and S. Shamai (Shitz), "The I-MMSE Approach on the Weak Gaussian Z-Interference Channel and the Type I Gaussian Broadcast-Z-Interference Channel," (vi) Y. Avner , B. M. Zaidel , S. Shamai (Shitz) and U. Erez, "On the Dirty Paper Channel with Fading Dirt," (vi) E. Hof, I. Sason and S. Shamai (Shitz), "A Capacity-Approaching Polar Coding Scheme for Degraded Parallel Channels," (vii) S. Shamai (Shitz), (*Invited Plenary Address*), "Information Theoretic Aspects of Constrained CellSites Cooperation."

The 2011 IEEE International Symposium on Information Theory (ISIT2011), July 31–Aug. 5, 2011, Saint-Petersburg, Russia. Papers presented: (i) Y. Avner, B. M. Zaidel and S. Shamai (Shitz), "On Vector Perturbation Precoding for the MIMO Gaussian Broadcast Channel," (ii) M. El-Halabi, Tie Liu, C. Georghiades and S. Shamai (Shitz), "Secret Writing on Dirty Paper: A Deterministic View," (iii) A. Tulino, G. Caire, S. Shamai and S. Verdú, "Support Recovery with Sparsely Sampled Free Random Matrices," (iv) Yihong Wu Shlomo, S.(Shitz) and S. Verdú, "Degrees of Freedom of the Interference Channel: a General Formula," (vi) J. Villard, P. Piantanida and S. Shamai (Shitz), "Secure Lossy Source-Channel Wiretapping with Side Information at the Receiving Terminals," (v) A. Zaidi, P. Piantanida and S. Shamai (Shitz), "Multiple Access Channel with States Known Noncausally at One Encoder and Only Strictly Causally at the Other Encoder," (vii) M. Wigger and S. Shamai (Shitz), "Rate-Limited Transmitter-Cooperation in Wyner's Asymmetric Interference Network," (viii) C. Wang, S. A. Jafar, S. Shamai (Shitz) and M. Wigger, "Interference, Cooperation and Connectivity — A Degrees of Freedom Perspective," (ix) L. Lai, Y.

Liang, W. Du and S. Shamai (Shitz), "Secret Sharing via Noisy Broadcast Channels," (x) H. Permuter, S. Shamai (Shitz) and A. Somekh-Baruch, "Cooperation in Multiple Access Channels in the Presence of Partial State Information," (xi) H. Maleki, S. A. Jafar and S. Shamai, "Retrospective Interference Alignment," (xii) M. Kobayashi, P. Piantanida, Sheng Yang and S. Shamai(Shitz), "On the Secrecy Degrees of Freedom of MISO Wiretap Channels with Delayed CSIT".

The IEEE International Symposium on Information Theory–ISIT 2011, Saint Petersburg, Russia, August 4, 2011. **The XXXII Shannon Lecture**: S. Shamai, "From Constrained Signaling to Nework Interference Alignment via an Information -Estimation Perspective".

BIRS Workshop on Algebraic Structure in Network Information Theory, Banff, Canada, August 14–19, 2011. Paper presented (*invited*): S. Shamai, "Lattice Based Structuring to Combat Interference in Simple Wireless Networks".

**10$^{\text{th}}$ Annual Shannon Memorial Lecturer**
University of California, San Diego, May 3, 2012: Paper presented: "Gaussian Interference Channels: An Information-Estimation Perspective".

The 2012 UCSD Workshop on Information Theory and Applications (ITA2012), Feb. 5–10, 2012, UCSD, San Diego, CA, USA. Papers presented: (i) R. Bustin and S. Shamai, "MMSE interference in Gaussian Channels," (ii) Yingbin Liang, Lifeng Lai, Vincent Poor and Shlomo Shamai, "Recent Results on A Broadcast Approach for Fading Wiretap Channels," (iii) Shlomo Shamai and Ronit Bustin, "MMSE Interference in Gaussian Channels," (iv) Soheil Mohajer, Ravi Tandon, Shlomo Shamai, Vincent Poor, "On MIMO Interference and X-channels with Feedback and Delayed CSI".

Tel Aviv University, Advanced Communication Center: Annual Workshop & Feder Family Award Ceremony: Plenary Address (Invited ): "Old and New via an Information-Estimation Perspective", Feb. 27, 2012.

The 2012 International Zurich Seminar on Communications (IZS2012), Zurich, Switzerland, Feb. 29–Mar. 2, 2012. R. Bustin and S. Shamai (Shitz), "New Outer Bound & Capacity Point for the Gaussian Z-Interference Channel".

ETZ Zurich, Department of Information Technology and EE, February 28, 2012. Paper presented: (Invited Talk) "Lattice Based Structuring to Combat Interference in Simple Wireless Networks".

KTH, Royal Institute of Technology, ACCESS Linneaus Centre School of Electrical Engineering, KTH, Stockholm, Sweden, 5 March, 2012. Paper presented: (Invited Talk) "Robust Communications through Decentralized, Backhaul Limited, Wireless Networks,"

Massachusetts Institute of Technology (MIT), RLE @ MIT, Network Coding and Reliable Communications Group Seminar. (Invited Talk): "Old and New: An Information Theoretic Perspective", June 28, 2012.

NorthEastern University (EU): Boston, USA: (Invited Talk): "Robust Communications through Decentralized, Backhaul Limited, Wireless Networks", June 29, 2012.

Boston Universiry: Workshop: Interference in Networks. (Invited Talk): "An Information-Estimation View of Coding over Gaussian Interference Channels", June 30, 2012.

The 2012 IEEE International Symposium on Information Theory (ISIT2012), July 1–Aug. 6, 2012, Cambridge, MA, USA. Papers presented: (i) R. Tandon,

S. Mohajer, H. V. Poor and S. Shamai, "On X-Channels with Feedback and Delayed CSI," (ii) K. Cohen, A. Steiner and S. Shamai (Shitz), "The Broadcast Approach Under Mixed Delay Constraints," (iii) Y. Liang, L. Lai, H. V. Poor and S. Shamai (Shitz), "An Improved Broadcast Approach for Fading Wiretap Channels," (iv) J. Villard, P. Piantanida, and S. Shamai (Shitz), "Secure Transmission of Sources over Noisy Channels with Side Information at the Receivers," (v) A. Zaidi, P. Piantanida and S. Shamai (Shitz), "Capacity Region of Multiple Access Channel with States Known Noncausally at One Encoder and Only Strictly Causally at the Other Encoder," (vi) R. Bustin and S. Shamai (Shitz), "The Capacity of the Multi-MMSE Constrained Gaussian Channel," (vii) J. W. Yoo and T. Liu and S. Shamai (Shitz), "Worst-Case Expected-Rate Loss of Slow-Fading Channels," (ix) L. Dikstein, H. Permuter and S. (Shitz) Shamai, "MAC with Action-Dependent State Information at One Encoder".

Bell-Laboratories: Murray Hill Mathematics Colloquium & Informal Seminar: (Invited Talk): "Coding over Interference Channels: An Information-Estimation View", July 12, 2012.

EPFL: Ecole Polytechnique Federale De Lausanne: (Invited Talk): "Coding over Interference Channels: An Information-Estimation View", Aug. 2, 2012.

ATT, Shannon Labs: Florham Park Mathematics Research Colloquium & Informal Seminar: (Invited Talk): "Old and New: An Information-Estimation Perspective", Aug. 24, 2012.

SUPELEC, Campus Gif-sur-Yvette, Paris, France: (Invited Talk): "Coding over Interference Channels: An Information-Estimation View", Oct. 2, 2012.

Telecom ParisTech (ENST): (Invited Talk): "Old and New: An Information-Estimation Perspective", Oct. 4, 2012.

The Israel Academy of Sciences and Humanities, 11 December 2012, Academy House, Jerusalem, Israel. Paper presented: S. Shamai, "Information Theory from a Personal Perspective".

Princeton: Department of Electrical Engineering Seminar Series: (Invited Talk): "Cloud Radio Access Downlinks, with Backhaul Constrained Oblivious Processing," Feb. 5, 2014.

Bell-Laboratories: Murray Hill Mathematics Colloquium & Informal Seminar: (Invited Talk): "Robust Uplink Communications with Variable Backhaul Connectivity," Feb. 6, 2014.

Stanford University, Department of Electrical Engineering, ISL Seminar: (Invited Talk): "Coding over Interference Channels: An Information-Estimation View", Feb. 7, 2013.

The 2013 UCSD Workshop on Information Theory and Applications (ITA2013), UCSD, San Diego, CA, USA. (Invited Talk): "Broadcasting over Fading Channels with Mixed Delay Constraints", Feb. 10–15, 2013.

Bell-Laboratories: Murray Hill Mathematics Colloquium & Informal Seminar: (Invited Talk): "Lattice Based Structuring to Combat Interference in Simple Wireless Networks", Feb. 14, 2013.

USC Viterbi School of Engineering, Communications Sciences Institute, (Invited Talk): "Coding over Interference Channels: An Information-Estimation View", Feb. 15, 2013.

The 2013 IEEE International Symposium on Information Theory (ISIT2013), July 7–12, 2013, Istanbul, Turkey. Papers presented: (i) R. Tandon, S. Ali Jafar,

S. Shamai and H. V. Poor, "Two-user MISO Broadcast Channel: Synergistic Benefits of Alternating CSIT," (ii) R. Karasik, O. Simeone and S. Shamai (Shitz), "Robust Uplink Communications over Fading Channels with Variable Backhaul Connectivity," (iii) G. Katz, B. M. Zaidel and Slomo hamai (Shitz), "On Layered Transmission in Clustered Cooperative Cellular Architectures," (iv) R. Duan, Y. Liang and S. Shamai (Shitz), "The Gaussian Interference Channel with State," (v) S. Zou, Y. Liang and S. Shamai (Shitz), "Multiple Access Channel with States Uncertainty at Transmitters," (vi) K. Venkat, T. Weissman, Y. Carmon and S. Shamai, "The Role of Lookahead in Estimation under Gaussian Noise," (vii) Abdellatif Zaidi Shlomo Shamai (Shitz), "On Multiple Access Channels with Delayed CSI," (viii) B. Bandemer, C. Tian and S. Shamai (Shitz), "Gaussian State Amplification with Noisy State Observations".

EPFL: Ecole Polytechnique Federale De Lausanne: (Invited Talk): "Cloud Radio Access Downlinks, with Backhaul Constrained Oblivious Processing", July 25, 2013.

Qualcomm Technologies, Bridgewater, N.: (Invited Talk): "Broadcasting over Fading Channels with Mixed Delay Constraints," Aug. 21, 2013.

Bell-Laboratories: Murray Hill Mathematics Colloquium & Informal Seminar: (Invited Talk): "Cloud Radio Access Downlinks, with Backhaul Constrained Oblivious Processing," Aug. 22, 2013.

ATT, Shannon Labs: Florham Park Mathematics Research Colloquium & Informal Seminar: (Invited Talk): "Broadcasting over Fading Channels with Mixed Delay Constraints," Aug. 23, 2013.

The 2013 Information Theory Workshop (ITW2013), Seville, Spain, Sept. 9–13, 2013. Papers presented: (i) J. Shimonovich, A. Somekh Baruch and S. Shamai (Shitz) , "Cognitive Cooperative Communications on the Multiple Access Channel," (ii) R. Duan, Y. Liang, A. Khisti and S. Shamai (Shitz), "State-Dependent Gaussian Z-Channel with Mismatched Side-Information and Interference," (iii) A. Zaidi, Z. Hassan Awan, S. Shamai (Shitz) and L. Vandendorpe, "Secure Degrees of Freedom of MIMO X-Channels with Output Feedback and Delayed CSI".

SUPELEC, Campus Gif-sur-Yvette, Paris, France: (Invited Talk): "Cloud Radio Access Downlinks, with Backhaul Constrained Oblivious Processing", Sept. 16, 2013.

Telecom ParisTech (ENST): (Invited Talk): "Broadcasting over Fading Channels with Mixed Delay Constraints," Sept. 19, 2013.

New Jersey Technical Institute (NJIT): (Invited Talk): "Broadcasting over Fading Channels with Mixed Delay Constraints", Sept. 30, 2013.

Columbia University: Electrical Engineering & IDSE Seminar. (Invited Talk): "Old and New: An Information-Estimation Perspective", Oct. 1, 2013.

University of Maryland: The Advanced Networks Colloquia Series: (Invited Talk): "Cloud Radio Access Downlinks, with Backhaul Constrained Oblivious Processing," Oct. 7, 2013.

Princeton: Department of Electrical Engineering Seminar Series: (Invited Talk): "Coding over Interference Channels: An Information-Estimation View," Oct. 10, 2013.

The International IEEE Conference on Microwaves, Communications, Antennas and Electronic Systems, COMCAS 2013, Tel-Aviv, Oct. 21–23, 2013, Israel:

(Invited Talk): "Information Theory in Wireless Communications: Past, Present and Future."

Princeton: Department of Electrical Engineering Seminar Series: (Invited Talk): "Cloud Radio Access Downlinks, with Backhaul Constrained Oblivious Processing," Feb. 5, 2014.

Bell-Laboratories: Murray Hill Mathematics Colloquium & Informal Seminar: (Invited Talk): "Robust Uplink Communications with Variable Backhaul Connectivity," Feb. 6, 2014.

The 2014 UCSD Workshop on Information Theory and Applications (ITA2014), UCSD, San Diego, CA, USA, Feb. 9–14, 2014. Papers presented: (i) (Invited Talk): Y. Carmon and S. Shamai, "On the Shamai-Laroia Approximation for the Information Rate of the ISI Channel," (ii) O. Simeone, S-H. Park, O. Sahin, S. Shamai, "Multivariate fronthaul compression for the downlink of cloud radio access networks," (iii) R. Bustin, M. Payaro, D. Palomar and S. Shamai, "The MMSE matrix in the parallel vector additive Gaussian Channel: How is the Gaussian input distribution better?"

International Workshop on Frontiers of Telecommunications and Coding, UCLA, Los Angeles, Feb. 14, 2014: (Invited Talk): "Broadcasting over Fading Channels with Mixed Delay Constraints".

The 2014 International Zurich Seminar on Communications (IZS2014), Zurich, Switzerland, Feb. 26–28, 2014. Y. Carmon, S. Shamai, T. Weissman, "OFDM vs. Single Carrier Modulation an Achievable Rate Perspective".

ETZ Zurich, Department of Information Technology and EE, Feb. 25, 2014. (Invited Talk): "Cloud Radio Access Downlinks, with Backhaul Constrained Oblivious Processing".

The 2014 IEEE International Symposium on Information Theory (ISIT2014), June 29–July 4, 2014, Waikiki, Honolulu, Hawaii, USA. Papers presented: (i) S-H. Park, O. Simeone, O. Shahin and S. Shamai, "Multivariate Backhaul Compression for the Downlink of Cloud Radio Access Networks," (ii) S-H. Park, O. Simeone, O. Shahin, S. Shamai, "Multihop Backhaul Compression for the Uplink of Cloud Radio Access Networks," (iii) S. Rini and S. Shamai, "The Impact of Phase Fading on the Dirty Paper Channel," (iv) T. Kopetz, H. Permuter and S. Shamai, "Multiple Access Channels with Combined Cooperation and Partial Cribbing," (v) S. Dhiraj, R. Tandon and S. Shamai, "On the Degrees-of-freedom of the 3–user MISO Broadcast Channel with Hybrid CSIT," (vi) A. Zaidi and S. Shamai, "Asymmetric Cooperative Multiple Access Channels with Delayed CSI," (vii) S. Zou, L. Lai, Y. Liang and S. Shamai, "Layered Secure Broadcasting over Gaussian MIMO Channels and Application in Secret Sharing," (viii) R. Duan, Y. Liang, A. Khisti and S. Shamai, "State-Dependent Parallel Gaussian Channels with a Common Helper in High Power Regime," (ix) R. Bustin, V. Poor and S. Shamai, "The Effect of Maximal Rate Codes On the Interfering Message Rate," (x) R. Tandon, P. Piantanida and S. Shamai, "On Multi-User MISO Wiretap Channels with Delayed CSIT," (xi) A. Tulino, G. Caire and S. Shamai, "Broadcast Approach for the Sparse-Input Random-Sampled MIMO Gaussian Channel," (xii) W. He, B. Nazer, S. Shamai, "Uplink-Downlink Duality for Integer-Forcing".

Bell-Laboratories: Murray Hill Mathematics Colloquium & Informal Seminar: (Invited Talk): "Fronthaul Compression for Cloud Radio Access Networks: An Information Theoretic View," July 10, 2014.

EPFL: Ecole Polytechnique Federale De Lausanne: (Invited Talk): "Fronthaul Compression for Cloud Radio Access Networks: An Information Theoretic View," July 31, 2014.

Plenary Talk: ISWCS 2014 - The Eleventh International Symposium on Wireless Communication Systems, Barcelona, Aug. 26–29, 2014. "On Cloud Radio Access Networks: Information Theoretic Considerations".

Plenary Talk: ICUWB 2014-The 2014 IEEE International Conference on Ultra-Wideband, Paris, Sept. 1–3, 2014. "An Information Theoretic View of Cognitive Radio Networks".

SUPELEC, Campus Gif-sur-Yvette, Paris, France: (Invited Talk): "Compressive Sensing in Coding Problems: A Rigorous Information Theoretic Approach", Sept. 3, 2014.

Telecom ParisTech (ENST): (Invited Talk): "Fronthaul Compression for Cloud Radio Access Networks: An Information Theoretic View" Sept. 4, 2014.

The Fifth EPFL-UPEMLV Workshop on Information Theory, Random Matrices and Applications, Thursday/Friday, Sept. 11–12, 2014, EPFL. (Invited Talk): "Compressive Sensing in Coding Problems: A Rigorous Information Theoretic Approach".

Princeton University, October 20, 2014: (Invited Talk): "Fronthaul Compression for Cloud Radio Access Networks: An Information Theoretic View".

Columbia University, Electrical Engineering Distinguished Lecture, October 22, 2014: (Invited Talk): "Cognitive Radio Networks: An Information Theoretic Perspective".

NYU-Polytechnic School of Engineering Center for Advanced Technology in Telecommunications: Jack Keil Wolf Lecture Series, October 23, 2014: (Invited Talk): "Information Theory: Old and New—A Personal View".

The 2015 UCSD Workshop on Information Theory and Applications (ITA2015), UCSD, San Diego, CA, USA, Feb. 1, 2015. Papers presented: (i) (Invited): S. Shamai, "I-MMSE Features of Good Codes," (joint work with R. Bustin, H.V. Poor and R.F. Schaefer)

UCLA: Electrical Engineering Department: (Invited Talk): Feb. 6, 2015, "Fronthaul Compression for Cloud Radio Access Networks: An Information Theoretic View".

Bell-Laboratories: Murray Hill Mathematics Colloquium & Informal Seminar: (Invited Talk): Feb. 10, 2015, "Information-Estimation Analysis of the Intersymbol Interference Channel".

Rutgers, The State University of New Jersey Department of Electrical and Computer Engineering (Invited Colloquium): Feb. 11, 2015 "Cognitive Radio Networks: An Information Theoretic Perspective".

Princeton: Department of Electrical Engineering Seminar Series: (Invited Talk): Feb. 12, 2015: "Compressive Sensing in Coding Problems: A Rigorous Information Theoretic Approach".

The 2015 IEEE International Symposium on Information Theory (ISIT2015), June 14–19, 2015, Hong Kong Convention and Exhibition Centre (HKCEC). Papers presented: (i) G. Bassi, P. Piantanida and S. Shamai, "On the Capacity of the Wiretap Channel with Generalized Feedback", (ii) S. Rini and S. Shamai, "On the Dirty Paper Channel with Fast Fading Dirt", (iii) T. Kopetz, H.

Permuter and S. Shamai, "Cooperative Multiple Access Channels with Oblivious Encoders", (iv) R. Bustin, R.F. Schaefer, H.V. Poor and S. Shamai, "On MMSE Properties of "Good" and "Bad" Codes for the Gaussian Broadcast Channel", (v) M. Benammar P. Piantanida and S. Shamai, "On Multiple Description Coding for the Multicast Cognitive Interference Channel", (vi) S. Zou, Y. Liang, L. Lai and S. Shamai, "Rate Splitting and Sharing for Degraded Broadcast Channel with Secrecy Outside a Bounded Range", (vii) H. Zhang, Y. Liang, L. Lai and S. Shamai, "Two-Key Generation for a Cellular Model with a Helper", (viii) R. Duan, Y. Liang and S. Shamai, "State-Dependent Gaussian Z-Interference Channel: Capacity Results", (ix) C. Tian, J. Chen, S.N. Diggavi and S. Shamai, "Matched Multiuser Gaussian Source Channel Communications via Uncoded Schemes".

EPFL: Ecole Polytechnique Federale De Lausanne: (Invited Talk): July 23, 2015, "Gaussian Channels: I-MMSE at Every SNR".

Qualcomm Technologies, Bridgewater, NJ 08807: (Invited Talk): Aug. 12, 2015, "Information-Estimation Analysis of the Intersymbol Interference Channel".

Department of Electrical and Computer Engineering Northeastern University: (Invited Talk): Aug. 18, 2015, "Cognitive Radio Networks: An Information Theoretic Perspective".

Massachusetts Institute of Technology (MIT), RLE MIT, Network Coding and Reliable Communications Group Seminar: (Invited Talk): Aug. 19, 2015, "Gaussian Channels: I-MMSE at Every SNR".

Harvard University: (Invited Talk): Aug. 20, 2015, "Information Theory: Old and New–A Personal View".

Boston University: (Invited Talk): Aug. 21, 2015, "Fronthaul Compression for Cloud Radio Access Networks: An Information Theoretic View".

The International IEEE Conference on Microwaves, Communications, Antennas and Electronic Systems, COMCAS 2015, Tel-Aviv, Nov. 2–4, 2015, Israel: (Invited Talk): "Information Theoretic Considerations for Cloud Radio Access Networks."

Tel Aviv University: (Invited Talk): Nov. 9, 2015: Fronthaul Compression for Cloud Radio Access Networks: An Information Theoretic View."

The 2016 UCSD Workshop on Information Theory and Applications (ITA2016), UCSD, San Diego, CA, USA, Jan. 31–Feb. 5, 2016. Papers presented: (i) (Invited): W. Huleihel, N. Merhav and S. Shamai, "Compressive Sensing in Coding Problems: A Rigorous Information Theoretic Approach", (ii) A. Dytso, R. Bustin, D. Tuninetti, N. Devroy, H.V. Poor and S. Shamai, "On Communications through a Gaussian Channel with and MMSE Disturbance Constraint".

USC, Viterbi School of Engineering, Communications Sciences Institute: (Invited Talk): "An Information Theoretic View of Fronthaul-Constrained Cloud Radio Access Networks", Feb. 5, 2016.

Nexus of Information and Computation Theories IHP Spring 2016 Thematic Program Institut Henri Poincaré: (Invited Talk): "Information Theory: Old and New – A Personal View", Feb. 29, 2016.

ETZ Zurich, Department of Information Technology and EE, March 1, 2016: (Invited Talk): "Compressive Sensing in Coding Problems: A Rigorous Information Theoretic Approach".

The 2016 International Zurich Seminar on Communications (IZS2016), Zurich, Switzerland, March 2–4, 2016: (* Keynote address): "An Information Theoretic View of Fronthaul-Constrained Cloud Radio Access Networks", Mar. 3, 2016. (Invited Talk): S. Zou, Y. Liang, L. Lai, H. V. Poor, S. Shamai, "Recent Results on Broadcast Networks with Layered Decoding and Secrecy: An Overview".

Princeton: Department of Electrical Engineering Seminar Series: (Invited Talk): "Layered Secrecy on Broadcast Networks", Feb. 8, 2016.

Princeton: Department of Electrical Engineering Seminar Series: (Invited Talk): "The Compound Broadcast Channel: Recent Advances and Challenges", April 24, 2016.

Claude Shannon Centennial Conference, The Future of the Information Age, April 28–29, Murray Hill, NJ, USA. (Invited Address): "A Short Outlook: Old and New in Information Theory".

EPFL: Ecole Polytechnique Federale De Lausanne: (Invited Talk): July 7, 2016: Ruediger-Emre Celebration: 50+50=100 Years of Mutual Friendship: "On the Minimum Mean p-th Error in Gaussian Noise Channels and its Applications".

The 2016 IEEE International Symposium on Information Theory (ISIT2016), Barcelona, Spain, July 10–15, 2016. Papers presented: (i) S.-H. Park, O. Simeone and S. Shamai, "Joint Optimization of Cloud and Edge Processing for Fog Radio Access Networks", (ii) A. Aisha, Y. Liang, L. Lai and S. Shamai, "On the Sum-Rate Capacity of Non-Symmetric Poisson Multiple Access Channel", (iii) A. Dytso, R. Bustin, D. Tuninetti, N. Devroye, H.V. Poor and S. Shamai, "On the Minimum Mean p-th Error in Gaussian Noise Channels and its Applications", (iv) S. Rini and S. Shamai, "On the Capacity of the Dirty Paper Channel with Fast Fading and Discrete Channel States", (v) G. Bassi, P. Piantanida and S. Shamai, "Secret Key Generation over Noisy Channels with Common Randomness", (vi) D. Stotz, S. A. Jafar, H. Bölcskei, and S. Shamai, "Canonical Conditions for K/2 Degrees of Freedom", (vii) N. Karamchandani, S. Diggavi, G. Caire and S. Shamai, "Rate and Delay for Coded Caching with Carrier Aggregation", (viii) Y. Sun, R. Duan, Y. Liang, A.histi and S. Shamai, "Helper-Assisted State Cancelation for Multiple Access Channels".

EPFL: Ecole Polytechnique Federale De Lausanne: (Invited Talk): August 4, 2016: "Layered Secrecy on Broadcast Network".

International Symposium on Turbo Codes & Iterative Information Processing, September 5–9, 2016, Brest, France (Plenary Talk): "Information Theoretic Aspects of Fronthaul-Constrained Cloud and Fog Radio Access Networks".

The 2016 Information Theory Workshop, Cambridge UK, 11–14, September 2016, papers presented: (i) S. Zou, Y. Liang, L. Lai, H.V. Poor and S. Shamai, "K-User Degraded Broadcast Channel with Secrecy Outside a Bounded Range", (ii) A. Dytso, R. Bustin, D. Tuninetti, N. Devroye, H.V. Poor and S. Shamai, "On the Applications of the Minimum Mean p-th Error (MMPE) to Information Theoretic Quantities", (iii) S. Yang and S. Shamai, "MIMO Phase Noise Channels at High SNR", (iv) M. Wigger, R. Timo and S. Shamai, "Complete Interference Mitigation Through Receiver-Caching in Wyner's Networks", (v) J. Du, M. Médard and S. Shamai, "Cost of Local Cooperation in Hierarchical Virtual MIMO Transmission Schemes".

Bell-Laboratories: Murray Hill Mathematics Colloquium & Informal Seminar: (Invited Talk): September 22, 2016, "Layered Secrecy on Broadcast Network".

Columbia University, Electrical Engineering Department, (Invited Talk): September 27, 2016, "An Information Theoretic Perspective of Fronthaul Constrained Cloud and Fog Radio Access Networks".

Huawei Mathematical and Algorithmic Sciences Lab, Paris, France, (Invited Talk): October 19, 2016, "An Information Theoretic Perspective of Fronthaul Constrained Cloud and Fog Radio Access Networks".

SUPELEC, Campus Gif-sur-Yvette, Paris, France: (Invited Talk): October 20, 2016: "Gaussian Channels: I-MMSE at Every SNR".

Telecom ParisTech (ENST): (Invited Talk): October 21, 2016: "On the Minimum Mean p-th Error in Gaussian Noise Channels and its Applications".

IPAM Conference on: Emerging Wireless Networks, UCLA, LA, USA, February 6–10, 2017. (Invited Presentation): S. Shamai, "Fronthaul Constrained Cloud and Fog Radio Access Networks: An Information Theoretic View".

The 2017 UCSD Workshop on Information Theory and Applications (ITA2017), UCSD, San Diego, CA, USA, Feb. 12–17, 2017. Papers presented: (i) (Invited): S.-H. Park, S. Simeone and S. Shamai, "Sum-Rates for Wyner based C-RAN Uplink with Inter-Connected Oblivious Radio Units", (ii) A. Dytso, R. Bustin, N. Devroy, V. Poor, S. Shamai and D. Tuninetti, "Some Results on the Generalized Gaussian Distribution".

Ben-Gurion University of the Negev, 4 May 2016, Faculty of Engineering Sciences, Dept. of Electrical and Computer Engineering: (Invited Talk): "An Information Theoretic View of Fronthaul-Constrained Cloud Radio Access Networks".

The 21st International ITG Workshop on Smart Antennas, March 15–17, 2017, Berlin, Germany: (KeyNote Address): S. Shamai, "Cloud and Fog Radio Access Networks: An Information Theoretic View?".

Technische Universitt Berlin, 23 June 2017: (Invited Talk): "A View of Information-Estimation Relations in Gaussian Networks".

The 2017 International Symposium on Information Theory (ISIT2017), Aachen, Germany, June 25–30, 2017. Papers presented: (i) T. Yang, N. Liu, W. Kang, and S. Shamai (Shitz), "An Upper Bound on the Sum Capacity of the Downlink Multicell Processing with Finite Backhaul Capacity", (ii) S.S. Bidokhti, G. Kramer and S. Shamai (Shitz), "Capacity Bounds on the Downlink of Symmetric, Multi-Relay, Single Receiver C-RAN Networks," (iii) W. Yang, Y. Liang, S. Shamai (Shitz), and H. Vincent Poor, "Outer Bounds for Multiple Access Channels with State Known at One Encoder," (iv) O. Shental, B. M. Zaidel and S. Shamai (Shitz), "Low-Density Code- Domain NOMA: Better Be Regular", (v) A. Dytso, R. Bustin, H. V. Poor, and S. Shamai (Shitz), "On Additive Channels with the Generalized Gaussian Noise", (vi) A. Dytso, M. Goldenbaum, H. V. Poor and S. Shamai (Shitz), "A Generalized Ozarow-Wyner Capacity Bound with Applications", (vii) I. E. Aguerri, A. Zaidi, S. Shamai (Shitz) and G. Caire, On the Capacity of Uplink Cloud Radio Access Networks with Oblivious Relaying", (viii) I. B. Gattegno, H. H. Permuter, S. Shamai (Shitz), A. Ozgur, "Cooperative Binning for Semi-deterministic Channels with Non-causal State Information", (ix) Y. Sun, Y. Liang, R. Duan and S. Shamai (Shitz), "State-Dependent Z-Interference Channel with Correlated States."

EPFL: Ecole Polytechnique Federale De Lausanne, 3 August, 2017: (Invited Talk): "An Infor mation Theoretic Perspective of Fronthaul Constrained Cloud and Fog Radio Access Networks".

Massachusetts Institute of Technology (MIT), RLE MIT, Network Coding and Reliable Communications Group Seminar, 7 September, 2017: (Invited Talk): "An Information Theoretic Perspective of Fronthaul Constrained Cloud and Fog Radio Access Networks".

Boston University, 8 September, 2017: (Invited Talk): "A View of Information-Estimation Relations in Gaussian Networks".

Rutgers, The State University of New Jersey Department of Electrical and Computer Engineering, September 11, 2017: (Invited Colloquium): "A View of Information-Estimation Relations in Gaussian Networks".

Columbia University, Electrical Engineering Department, 12 Sept., 2017: (Invited Talk): "Layered Secrecy on Broadcast Networks".

NYU-Polytechnic School of Engineering Center for Advanced Technology in Telecommunications, 14 September, 2017: (Invited Talk): "An Information Theoretic Perspective of Fronthaul Constrained Cloud and Fog Radio Access Networks".

Bell-Laboratories: Murray Hill Mathematics Colloquium & Informal Seminar, 18 Sept., 18, 2017: (Invited Talk): "Low-Density Code-Domain NOMA: Better be Regular".

Princeton: Department of Electrical Engineering Seminar Series, 1 Sept., 2017: (Invited Talk): "On the Capacity of Oblivious Cloud Relay Access Networks".

SUPELEC, Campus Gif-sur-Yvette, Paris, France, 9 Oct., 2017: (Invited Talk): "A View of Information-Estimation Relations in Gaussian Networks".

Huawei Mathematical and Algorithmic Sciences Lab, Paris, France, 10 Oct., 2017: (Invited Talk): "Low-Density Code-Domain NOMA: Better Be Regular".

Telecom ParisTech (ENST), 11 Oct., 2017: (Invited Talk): "Layered Secrecy on Broadcast Networks".

DigiCosme Workshop on Information Theory, Telecom ParisTech, 12 Oct., 2017: (Invited Presentation): "An Information Theoretic Perspective of Fronthaul Constrained Cloud and Fog Radio Access Networks".

Advanced Communications Center, Tel Aviv University: Annual Workshop & Feder Family Award Ceremony, 21 Jan., 2018 (Invited Presentation): S. Shamai, "An Information Theoretic View of Cloud Radio Access Networks".

The 2018 Workshop on Information Theory and Applications (ITA2018), San Diego, CA, USA, Feb. 11–16, 2018: (Presented Invited Paper): A. Zaidi, I. E. Aguerri, G. Caire and S. Shamai (Shitz), "Uplink Oblivious Cloud Radio Access Networks: An Information Theoretic Overview",
(Invited Presentation): A. Dytso, R. Bustin, H.V. Poor and S. Shamai (Shitz), "On the Structure of the Least Favorable Prior Distributions".

Princeton: Department of Electrical Engineering Seminar Series, Feb. 16, 2018: (Invited Talk): "On Uplink Cloud Radio Access Networks With Interconnected Radio Units".

ETZ Zurich, Department of Information Technology and EE, Feb. 20, 2018: (Invited Talk): "A View of Information-Estimation Relations in Gaussian Networks".

The 2018 International Zurich Seminar on Communications (IZS2018), Zurich, Switzerland, Feb. 21-23, 2018: Paper presented: M. Dikshtein, R. Duan, Y. Liang

and S. Shamai (Shitz), "State-Dependent Parallel Gaussian Channels With a State-Cognitive Helper".

King's College, London: April 3, 2018: (Invited Talk): "Capacity of Oblivious Cloud Relay Access Networks".

Imperial College, London: April 4, 2018: (Invited Talk): "A View of Information-Estimation Relations in Gaussian Networks".

Hebrew University of Jerusalem, Israel, CS Colloquium, 7 May, 2018: (Invited Talk): "An Information Theoretic Overview of Uplink Cloud Radio Access Networks".

Princeton: Department of Electrical Engineering Seminar Series, June 14, 2018: (Invited Talk): "Cloud Radio Access Networks, Distributed Information Bottleneck, and more: A Unified Information Theoretic View".

The 2018 International Symposium on Information Theory (ISIT2018), June 17–22, 2018, Vail, Colorado, USA. Papers presented: (i) R. Karasik, O. Simeone and S. Shamai (Shitz), "Fundamental Latency Limits for D2D-Aided Content Delivery in Fog Wireless Networks", (ii) B.M. Zaidel, O. Shental S. Shamai (Shitz), "Sparse NOMA: A Closed-Form Characterization", (uuu) A. Dytso, R. Bustin, H.V. Poor and S. Shamai (Shitz), "On the Structure of the Least Favorable Prior Distributions", (iv) H. Nikbakht M. Wigger and S. Shamai (Shitz), "Mixed Delay Constraints in Wyner's Soft-Handoff Network", (v) J. Du, M. Medard and S. Shamai (Shitz), "Cost of Path Loss and Local Communication in the Scaling Law of Extended Wireless Networks", (vi) A. Bunin, Z. Goldfeld, H.H. Permuter, S. Shamai (Shitz), P. Cuff and P. Piantanida, "Key-Message Security over State-Dependent Wiretap Channels", (vii) C. Li, Y. Liang, H.V. Poor and S. Shamai(Shitz), "A Coding Scheme for Colored Gaussian Wiretap Channels with Feedback", (viii) R. Gul, H. Boelcskei and S. Shamai (Shitz), "Necessary Conditione for K/2 Degrees of Freedom", (ix) B. Huleihel, O. Sabag, H.H. Permuter, N. Kashyap, and S. Shamai (Shitz), "Computable upper bounds for finite-state channels".

Princeton: Department of Electrical Engineering Seminar Series, July 30, 2018: (Invited Talk): "Semantically-Secured Message-Key Trade-off over Wiretap Channels with Random Parameters".

QUALCOMM, Reserch Center, NJ: July 31, 2018: (Invited Talk): "Sparse NOMA: A Closed-Form Characterization".

Bell-Laboratories: Murray Hill Mathematics Colloquium & Informal Seminar, August 2, 2018: (Invited Presentation): "Cloud Radio Access Networks, Distributed Information Bottleneck, and more: A Unified Information Theoretic View".

Massachusetts Institute of Technology (MIT), RLE MIT, Network Coding and Reliable Communications Group Seminar: August 6, 2018: (Invited Talk): "Cloud Radio Access Networks, Distributed Information Bottleneck, and more: A Unified Information Theoretic View".

NorthEastern University (EU): Boston, USA: August 8, 2018: (Invited Talk): "On Uplink Cloud Radio Access Networks with Interconnected Radio Units".

Boston University: Boston, USA: August 9, 2018: (Invited Talk): "Sparse NOMA: A Closed-Form Characterization".

Huawei Paris: 26 September, 2018: (Invited Talk): "On Uplink Cloud Radio Access Networks With Interconnected Radio Units".

SUPELEC: École Supérieure d'Electricité: Thursday September 27, 2018: (Invited Talk): "Sparse NOMA: A Closed-Form Characterization".

ParisTech (ENST): September 28, 2018: (Invited Talk): "Cloud Radio Access Networks, Distributed Information Bottleneck, and more: A Unified Information Theoretic View".

The 2018 Information Theory Workshop (ITW2018), Guangzhou, China, Nov. 25–29, 2018. Papers presented: (i) H. Nikbakht, M. Wigger and S. Shamai (Shitz), "Mixed Delay Constraints at Maximum Sum-Multiplexing Gain," (ii) A. Dytso, M. Egan, S.M. Perlaza, H.V. Poor and S. Shamai (Shitz), "Optimal Inputs for Some Classes of Degraded Wiretap Channels," (iii) A. Dytso, H.V. Poor and S. Shamai (Shitz), "Capacity of the Vector Gaussian Channel in the Small Amplitude Regime," (iv) (Poster) S. Yagli, A. Dytso, H.V. Poor and S. Shamai (Shitz), "Bounding the Number of Mass Points of the Amplitude and Power Constrained AGC".

The Chinese University of Hong Kong (CUHK), Dec. 3, 2018: (Invited Talk): "Cloud Radio Access Networks, Distributed Information Bottleneck, and more: A Unified Information Theoretic View".

The University of Hong Kong (HKU), Department of Mathematics Dec. 4, 2018: (Invited Talk): "Sparse NOMA: A Closed-Form Characterization".

The 2018 Workshop on Coding, Cooperation, and Security in Modern Communication Networks (COCO2018), Dec. 10–11, 2018, Technion, Haifa, Israel: (Keynote address): S. Shamai, "Cloud Radio Access Networks, Distributed Inofrmation Bottleneck, and more: A Unified Information Theoretic Framework".

The 2018 ICSEE International Conference on the Science of Electrical Engineering (ICSEE-Eilat), Dec. 12–14, 2018, Eilat, Israel. Papers presented: (i) (Invited): S. Shamai (Shitz), "Distributed Information Bottleneck, and more: A Unified Information Theoretic View," (ii) G. Caire, S. Shamai (Shitz), A. Tulino, S. Verdú and C. Yapar, "Information Bottleneck for an Oblivious Relay with Channel State Information: the Scalar Case," (iii) M. Dikshtein, R. Duan, Y. Liang and S. Shamai (Shitz), "Parallel Gaussian Channels Corrupted by Independent States With a State-Cognitive Helper," (iv) M. Dikshtein and S. Shamai (Shitz), "Broadcasting Information subject to State Masking," (v) A. Dytso, R. Bustin, H.V. Poor and S. Shamai (Shitz), "On Lossy Compression of Generalized Gaussian Sources," (vi) M. Zeide, O. Simeone, and S. Shamai (Shitz), "Confidential Communication in C-RAN Systems with Infrastructure Sharing".

The 2019 Workshop on Information Theory and Applications (ITA2019), San Diego, CA, USA, Feb. 11–15, 2019: (Presented Invited Paper): A. Zaidi and S. Shamai (Shitz), "Perspectives on Information Bottleneck Problems,"
X. Liu, R. Bustin, G. Han and S. Shamai (Shitz), "An Elementary Proof of a Classical Information-Theoretic Formula".

Columbia University, Electrical Engineering Department, Feb. 19, 2019: (Invited Talk): "Cloud Radio Access Networks, Distributed Information Bottleneck, and more: A Unified Information Theoretic View".

Princeton: Department of Electrical Engineering Seminar Series, Feb. 20, 2019: (Invited Talk): "Sparse NOMA: A Closed Form Characterization".

Bell-Laboratories: Murray Hill Mathematics Colloquium & Informal Seminar, Feb. 21, 2019: (Invited Presentation): "Wireless Networks via the Cloud: An Information Theoretic View".

Hebrew University of Jerusalem, Israel, CS Colloquium, 1 May, 2019: (Invited Talk): "Perspectives on Information Bottleneck Problems".

The Fifth London Symposium on Information Theory (LSIT) 2019, May 30–31, 2019. (Presented): M. Wigger, H. Nikbakht and S. Shamai (Shitz), "Networks with Mixed Delay- Constraints".

The International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks WiOpt 2019, June 3–7, 2019, Avignon, France. KeyNote presented: S. Shamai (Shitz): "Wireless Networks via the Cloud : An Information Theoretic View."

The 2019 International Symposium on Information Theory (ISIT2019), July 7–12, 2019, Paris, France. Papers presented: (i) R. Karasik, O. Simeone and S. Shamai (Shitz), "Latency Limits for Content Delivery in a Fog-RAN with D2D Communication", (ii) S. Yagli, A. Dytso, H.V. Poor and S. Shamai (Shitz), "An Upper Bound on the Number of Mass Points in the Capacity Achieving Distribution for the Amplitude Constrained Additive Gaussian Channel", (iii) B. Huleihel, O. Sabag, H. H. Permuter, N. Kashyap and S. Shamai (Shitz), "Computable Upper Bounds for Unifilar Finite-State Channels", (iv) M. Dikshtein, A. Somekh-Baruch and S. Shamai (Shitz), "Broadcasting Information subject to State Masking over a MIMO State Dependent Gaussian Channel", (v) O. Sabag, H.H. Permuter and S. Shamai (Shitz), "Capacity-Achieving Coding Scheme for the MAC with Degraded Message Sets and Feedback", (vi) B. Dai, C. Li, Y. Liang, Z. Ma and S. Shamai (Shitz), "The Dirty Paper Wiretap Feedback Channel with or without Action on the State", (vii) X. Liu, R. Bustin, G. Han and S. Shamai (Shitz), "An Elementary Proof of a Classical Information-Theoretic Formula".

ParisTech (ENST): June 6, 2019: (Invited Talk): "Wireless Networks via the Cloud: An Information Theoretic View".

Huawei Paris: 15 July 2019: (Invited Talk): "Wireless Networks via the Cloud: An Information Theoretic View".

Graduate Institute of Communications Engineering (NTU), Taipei, Taiwan, 15 Aug. 2019: (Invited Talk): "Wireless Networks via the Cloud: An Information Theoretic View".

The 2019 Workshop on Probability and Information Theory (WPI 2019) August 19–22, 2019, HKU, Hong Kong: (Invited Talk): "Information Bottleneck Problems: An Outlook".

The IEEE Information Theory Workshop 2019 (ITW2019), Visby, Gotland, Sweden, 25–28, August 2019: Papers presented: (i) X. Wu, A. Özgür, M. Peleg and S, Shamai (Shitz), "New Upper Bounds on the Capacity of Primitive Diamond Relay Channels", (ii) H. Nikbakhtr, M. Wigger, W. Hachem and S. Shamai (Shitz), "Mixed Delay Constraints on a Fading C-RAN Uplink".

MIT, Boston: September 3, 2019: (Invited Talk): "Wireless Networks via the Cloud: An Information Theoretic View".

NEU, Boston: September 4, 2019: (Invited Talk): "Sparse NOMA: A Closed-Form Characterization".

Princeton University: September 6, 2019: (Invited Talk): "Wireless Networks via the Cloud: An Information Theoretic View".

Rutgers University, NJ: September 10, 2019: (Invited Talk): "Sparse NOMA: A Closed-Form Characterization".

EPFL: École Polytechnique Fédérale de Lausanne, 3 October, 2019: (Invited Talk): "Wireless Networks via the Cloud: An Information Theoretic View".

XVI International Symposium Problems of Redundancy in Information and Control Systems MIEM HSE, 34 Tallinskaya street, Moscow, Russia, Oct. 21–25, 2019. (Plenary Address): S. Shamai (Shitz), "Distributed Compression, the Information Bottleneck and Cloud Radio scow Stundeccess Networks: A Unified Information Theoretic View".

The 2020 Workshop on Information Theory and Applications (ITA2020), San Diego, CA, USA, Feb. 2–7, 2020: (Presented Invited Papers): S. Shamai (Shitz) and A. Steiner, "Broadcast Approach under Information Bottleneck Capacity Uncertainty", G. Han and S. Shamai (Shitz), "On Sampling Continuous-Time Gaussian Channels".

The 2020 International Zurich Seminar on Communications (IZS2020), Zurich, Switzerland, Feb. 26–28, 2018: (Papers Presented): K. M. Cohen, A. Steiner and S. Shamai (Shitz), "On the Broadcast Approach over Parallel MIMO Two-state Fading Channel", A. Zaidi and S. Shamai (Shitz), "On the Information Bottleneck Problems: An Information Theoretic Perspective".

The 2020 International Symposium on Information Theory (ISIT2020), June 21–26, Los Angeles, USA (virtual). (Papers Presented): R. Karasik, O. Simeone, M. Di Renzo and S. Shamai (Shitz), "Beyond Max-SNR: Joint Encoding for Reconfigurable Intelligent Surfaces", B. M. Zaidel, O. Shental and S. Shamai (Shitz), "Bounding the Achievable Region of Sparse NOMA", A. Dytso, H. V. Poor and S. Shamai (Shitz), "A General Derivative Identity for the Conditional Mean Estimator in Gaussian Noise and Some Applications", M. Zohdy, A. Tajer and S. Shamai (Shitz), "Interference Management without CSIT: A Broadcast Approach".

The 2020 Workshop on Coding, Cooperation, and Security in Modern Communication Networks (COCO2020), July 6,16, 2020, Israel: (Keynote Address): S. Shamai, "Information Bottleneck Problems: Connections, Applications and Implications".

The 2020 Workshop on Machine Learning for Communications (MLCOM2020), 7–8, September 2020 Israel (virtual): (Key Presentation): S. Shamai (Shitz), "The Information Bottleneck: A Unified Information Theoretic View".

**International Professional Activities:**

Program Committee Member of the 1994, 1998, 2002, 2004, 2005, 2006, 2007, 2008, 2009 2010, 2011, 2012, 2013, 2014, 2015 and the 2016 IEEE International Symposium on Information Theory.

Co-organizer of the 'Multiple Access' Session. 1995 IEEE Information Theory Workshop, 25-29 June, 1995, Rydzyna, Poland.

Co-organizer of the 'Turbo Coding' Session. Mediterranean Workshop on Coding and Information Integrity, Palma-de-Mallorca, Spain, Feb. 28-March 1, 1996.

Chair and Co-organizer of the 1996 IEEE Information Theory Workshop, 9–13 June, 1996. Haifa, Israel.

Co-organizer of the 'Shannon Theory' Session at the 1998 IEEE Information Theory Workshop, June 1998, Killarney, Co. Kerry, Ireland.

Co-organizer of the International Technion Communication Day — in Honor of Israel Bar-David, 25 March 1999, Haifa, Israel.

Program Committee Cochair of the IEEE International Symposium on Information Theory (ISIT'2001), Washington, DC, USA, June 24–29, 2001.

Organizer of the "Signals and Systems" Session at the URSI Annual Meeting, Technion, Haifa, Israel, 15 December, 1998 and February 15, 2000.

Co-organizer of the "Fading Channels" Session at the $34^{\text{th}}$ Annual Conference on Information Sciences and Systems (CISS'00), Princeton University, Princeton, NJ, USA, March 15–17, 2000.

Scientific Committee of the 2001 Semiannual Vehicular Technology Conference (VTC 2001) Spring, Tel Aviv, Israel, 6–9 May, 2001.

Shannon Theory Associate Editor, IEEE Transaction on Information Theory. 1996–2000.

Board of Governors Member (1995–2000), (2002–2005), (2005–2008) of the IEEE Information Theory Society.

Guest co-editor of the Special Issue of the IEEE Transactions on Information Theory dedicated to A.D. Wyner: "Shannon Theory: Perspective, Trends and Applications", June 2002.

Member of the Evaluation Committee of the Computer Science and the Communication Systems Departments at (EPFL) – the Swiss Federal Institute of Technology, Lausanne, Switzerland, November 2001.

Program Committee Member of the 2003 IEEE Information Theory Workshop, "La Sorbonne", Paris, France, March 31–April 4, 2003.

Program Committee Member of the 2003 International Symposium on Turbo Codes & Related Topics, Brest, France, 1–5, September 2003.

"Capacity for Multiple Users and Multiple Antennas Systems," Session Organizer at the 2004 Communication Theory Workshop, Capri, Italy, May 5–8, 2004.

Program Committee Member of the 2004 International Symposium on Information Theory and its Applications, (ISITA 2004), Parma, Italy, October 10–14, 2004.

Editorial Board of Foundation and Trends in Communications and Information Theory, now, the essence of knowledge, publishers. Since 2004.

Program Committee Member of the 2006 International Symposium on Turbo Codes & Related Topics and the 6th International ITG Conference on Source and Channel Coding, Munich, Germany, April 3–7, 2006.

IEEE, Information Theory Society, "IEEE FELLOW" nomination committee member, 2003, 2004, 2005, 2006, 2007 and 2008.

Organizer and Chair of the Technion Information Theory Workshop Jan. 2006.

Member: International Advisory Committee of the 2006/2008/2010/2012 International Symposium on Information Theory and its Applications (ISITA).

Program Committee Member of: Optimization of Wireless Networks Design and Operations (WiOpt 2008), Berlin, Germany, April 1–3, 2008.

Program Committee Member of the 2009 Information Theory Workshop, Taormina, Sicily, Oct. 11–16, 2009.

Guest Co-Editor: EURASIP Journal on Wireless Communications and Networking, Special Issue on Wireless Physical Layer Security, Volume 2009, Article ID 404061, 2 pages.

Guest Co-Editor: IEEE Journal of Selected Areas in Communications, Special Issue, Cooperative Communications in MIMO Cellular Networks (to appear in 2010).

Executive Editorial Board of the IEEE Trans. on Information Theory, since 2010.

Program Committee Member of the 2012 Information Theory Workshop, September 3–7, 2012, Lausanne, Switzerland.

Steering Committe Member of the IEEE 2nd International Workshop on Multicell Cooperation in conjunction with IEEE GLOBECOM 2012, December 7, 2012, Anaheim, CA, USA

Member of the IEEE Information Theory Society Nominations and Appointments Committee, since January 2013.

Program Committee Member of the 2016 Information Theory Workshop, Cambridge, UK, 11–14, Sep. 2016.

IEEE, Information Theory Society: Member of the Shannon Award Selection Committee, since November 2016.

Guest Co-Editor of Entropy-Special Issue on: Information Theory for Data Communications and Processing: since March 2018.

Coorganizer and Cochair of the The 2020 Workshop on Machine Learning for Communications (MLCOM2020), 7–8, September 2020 Israel.

Program Committee Member of the 2020 IEEE Information Theory Workshop, Riva del Garda, Italy, will be held 11–15 April, 2021.

**Scientific and Professional Associations:**

Fellow of IEEE
Member of AEAI
Fellow of URSI
Israel Academy of Science and Humanities
Foreign Member of the US National Academy of Engineering
Life Fellow of IEEE.

**Awards/Recognitions:**

| | |
|---|---|
| 1983 | Landau Award, Distinguished Research Award for Faculty Members. |
| 1985 | Distinguished Research Kennedy Leigh Award. |
| 1985 | ALON Grant for Distinguished Young Scientists. |
| 1985 | Best Student Paper Award at the 14th Convention of IEEE (in Israel) |
| 1988 | Klein Award for work on "Signal Representation and Reconstruction". |
| 1988 | New England Academic Award for exceptional contribution in the field of Communication Systems and Information Theory. |
| 1990 | The Association for Technological Education Research Award. |
| 1994 | IEEE Fellow: Citation: "For contribution to Shannon Theory as applied to the calculation of the reliability of communications channels. |
| 1999 | The URSI van der Pol Gold Medal. Citation: "For contributions to the basic understanding of the potentials for and the limitations to information transfer through various communication channel models". |
| 1999 | Corecipient of the 2000 Donald G. Fink Prize Paper Award for the paper: entitled: "Fading Channels: Information-Theoretic and Communications Aspects," IEEE transactions on Information Theory, Vol. 44, No. 6, October 1998, pp. 2619–2692. |
| 2000 | The Henry Taub Prize for Excellence in Research. |
| 2003 | Corecipient of the 2003 Joint IT/ComSoc Paper Award for the paper: S. Shamai (Shitz) and I. Sason, "Variations on the Gallager Bounds, Connections, and Applications," IEEE Transactions on Information Theory, Vol. 48, No. 12, pp. 3029–3051, December 2002. |
| 2004 | Corecipient of the 2004 Joint IT/ComSoc Paper Award for the paper: G. Caire and S. Shamai (Shitz), "On Achievable Rates in Multi-Antenna Broadcast Downlink," IEEE Transactions on Information Theory, Vol. 49, No. 7, pp. 1691–1706, July 2003. |
| 2007 | Corecipient of the 2007 IEEE Information Theory Society Paper Award for the paper: H. Weingarten, Y. Steinberg and S. Shamai (Shitz), "The Capacity Region of the Gaussian Multiple-Input Multiple-Output Broadcast Channel," IEEE Transactions on Information Theory, Vol. 52, No. 9, pp. 3936–3964, September 2006. |
| 2008 | Corecipient of the 2008 Best Student Paper Award in Signal Processing & Data Storage for the paper: O. Shental, N. Shental, S. Shamai (Shitz), I. Kanter, A. J. Weiss and Y. Weiss, "Discrete-Input Two-Dimensional Gaussian Channels with Memory: Estimation and Information via Graphical Models and Statistical Mechanics," IEEE Trans. Information Theory, Vol. 54, No. 4, pp. 1500–1513, April 2008. |
| 2010 | Corecipient of the First 2009 European Commission FP7 Network of Excellence in Wireless Communications (NEWCOM++) for the paper: Mari Kobayashi, Merouane Debbah and Shlomo Shamai (Shitz), "Secured Communication over Frequency-Selective Fading Channels: a Practical Vandermonde Precoding," EURASIP Journal on Wireless Communications and Networking, vol. 2009. |
| 2010 | Thomson Reuters (ISI) Award for International Excellence in Scientific Research. |
| 2011 | Recipient of the 2011 Information Theory Society Claude E. Shannon Award for "consistent and profound contributions to information theory". |
| 2012–13 | IEEE Information Theory Society Distinguished Lecturer. |
| 2012 | Member of the Israel Academy of Sciences and Humanities. |
| 2013 | Foreign Member of the US National Academy of Engineering. |

2013 Selected as the Thomson Reuters "Highly Cited Researcher 2013".

2014 Recipient of the Rothschild Prize in Mathematics/Computer Sciences and Engineering.

2014 Corecipient of the 2014 EURASIP Best Paper Award for the EURASIP Journal on Wireless Communications and Networking, for the paper: "Compound Wiretap Channels," EURASIP Journal on Wireless Communications and Networking, vol. 2009.

2014 Selected as the Thomson Reuters "Highly Cited Researcher 2014".

2015 Coreceipient of the IEEE Communications Society Best Tutorial Paper Award, for the paper: D. Gesbert, S. Hanly, H. Huang, S. Shamai, O. Simeone, W. Yu, "Multi-cell MIMO cooperative networks: A new look at interference," Journal Selected Areas in Communications (JSAC), vol. 28, no. 9, pp. 1380–1408, Dec. 2010.

2015 NEWCOM#, 2014 Best Student Paper Award for the paper: J. Villard, P. Piandanida and S. Shamai, "Secure Transmission of Sources Over Noisy Channels With Side Information at the Receivers," IEEE Trans. on Inform. Theory, vol. 60, no. 1, pp. 713–739, January 2014.

2015 2015 European Commission FP7 Network of Excellence in Wireless Communications (NEWCOM#) Best Paper Award, for the paper: A. Zaidi and S. Shamai (Shitz), "On Cooperative Multiple Access Channels with Delayed CSI at Transmitters," IEEE Transactions on Information Theory, vol. 61, no. 10, pp. 6204–6230, Oct. 2014.

2015 Selected as the Thomson Reuters "Highly Cited Researcher 2015".

2016 2017 IEEE Richard W. Hamming Medal for "fundamental contributions to information theory and wireless communications".

2016 Selected as the Thomson Reuters "Highly Cited Researcher 2016".

2017 URSI (International Union Radio-Scientifique Internationale) Fellow.

2017 Selected as the Thomson Reuters "Highly Cited Researcher 2017".

2018 The 2018 IEEE Signal Processing Best Paper Award, for the paper: S.-H. Park, O. Simeone, O. Sahin, and S. Shamai, "Joint Precoding and Multivariate Backhaul Compression for the Downlink of Cloud Radio Access Networks", IEEE Trans. on Signal Processing, vol. 61, no. 22, pp. 5646–5658, Nov. 2013.

2018 Corecipient, with Dr. Benjamin Zaidel, of the 2018 Third Bell Labs Prize for Shaping the Future of Information and Communications Technology.

2018 Selected as the Clarivate Analytics "Highly Cited Researcher 2018".

# List of Scientific and Professional Publications
# Shlomo Shamai (Shitz)

## A. Theses

"Digital Continuous Phase Modulation", M.Sc Dissertation, December 1981.

"Communication with Envelope Constrained Signals", D.Sc. Dissertation, January 1986.

## B. Published papers

1. S. Shamai (Shitz) and Y.Y. Zeevi, On the Duality of Time and Frequency Domain Signal Reconstruction from Partial Information, IEEE Trans. on ASSP, ASSP–33, No. 6, pp. 1486–1498, Dec. 1985.
2. I. Kalet, S. Shamai (Shitz), Z. Haddad, E. Trachtman and Y. Baruch, Examples of Continuous Phase Modulation Using Discriminator Detection, IEEE Trans. on Communications, Vol. COM–34, No. 11, November 1986, pp. 1148–1150.
3. S.R. Curtis, S. Shamai (Shitz) and A.V. Oppenheim, Reconstruction of Two-Dimensional Signals from Zero Crossings, IEEE Trans. on ASSP, Vol. 35, No. 6, pp. 890–893, June 1987.
4. Y.Y. Zeevi, A. Gavriely and S. Shamai (Shitz), Image Reconstruction by Zero and Sinewave Crossings, JOSA. A., Vol. 4, No. 11, pp. 2045–2060, Nov. 1987.
5. S. Shamai (Shitz), On Permutation Invariant Multiple Access Channels with Application to Multiple Access Spread - Spectrum, AEÜ (Electronics and Communication), Band 41, Heft. 6, pp. 347–355, Nov./Dec. 1987.
6. M. Polacek, S. Shamai (Shitz) and I. Bar David, On Threshold Extension by Click Noise Elimination, IEEE Trans. on Communications, Vol. 36, No. 3, pp. 375–380, March 1988.
7. I. Bar David and S. Shamai (Shitz), On Information Transfer by Envelope Constrained Signals over the AWGN Channel, IEEE Trans. on Information Theory, Vol. 34, No. 3, pp. 371–379, May 1988.
8. I. Bar-David and S. Shamai (Shitz), On the Rice Model of Noise in FM Receivers, IEEE Trans. on Information Theory, Vol. 34, No. 6, pp. 1406–1419, November 1988.
9. S. Shamai (Shitz), On the Capacity of a Gaussian Channel with Peak Power Constrained and Bandlimited Input Signals, AEÜ (Electronics and Communications), Band 42, Heft 6, pp. 340–346, Nov./Dec. 1988.
10. Y.Y. Zeevi and S. Shamai (Shitz), Image Representation by Zero Crossings, Chapter 6 in, Image Understanding 1989, edited by S. Ullman and W. Richards, Abex Publishing Corporation, N.J. 1990.
11. N. Chayat and S. Shamai (Shitz), Extension of an Entropy Property for Binary Input Memoryless Symmetric Channels, IEEE Trans. on Information Theory, Vol. 35, No. 5, pp. 1077–1079, Sept. 1989.
12. S. Shamai (Shitz) and I. Bar David, Upper Bounds on the Capacity of a Constrained Gaussian Channel, IEEE Trans. on Information Theory, Vol. 35, No. 5, pp. 1079–1084, Sept. 1989.

13. I. Bar David and S. Shamai (Shitz), Information Rates for Magnetic Recording with a Slope Limited Magnetization Model, IEEE Trans. on Information Theory, Vol. 35, No. 5, pp. 956–962, Sept. 1989.

14. S. Shamai (Shitz), On Information Rates of Bandwidth Restricted Noisy Phase Channels, AEÜ (Electronics and Communication), Band 43, Heft 6, pp. 350–360, Nov./Dec. 1989.

15. I. Kalet and S. Shamai (Shitz), On the Capacity of a Twisted-Wire Pair: Gaussian Model, IEEE Trans. on Communications, Vol. 38, No. 3, pp. 379–383, March 1990.

16. S. Shamai (Shitz), On the Capacity of a Twisted-Wire Pair: Peak Power Constraints, IEEE Trans. on Communications, Vol. 38, No. 3, pp. 368–378, March 1990.

17. S. Shamai (Shitz) and Y. Kofman, On the Capacity of Binary and Gaussian Channels with Run-Length Limited Inputs, IEEE Trans. on Communications, Vol. 38, No. 5, pp. 584–594, May 1990.

18. S. Shamai (Shitz) and I. Bar David, On the Capacity Penalty due to Bandwidth Restrictions with Applications to Rate-Limited Binary Signaling, IEEE Trans. on Information Theory, Vol. 36, No. 3 pp. 623–627, May 1990.

19. J.E. Mazo and S. Shamai (Shitz), Theory of FM Clicks with Brownian Motion Phase Noise, IEEE Trans. on Communications, Vol. 38, No. 22, pp. 1022–1030, July 1990.

20. S. Shamai (Shitz) and A.D. Wyner, A Binary Analog to the Entropy-Power Inequality, IEEE Trans. on Information Theory, Vol. 36, No. 6, pp. 1428–1430, November 1990.

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48. S. Shamai (Shitz) and S. Verdú, "Worst-Case Power-Constrained Noise for Binary-Input Channels", presented at the 1993 IEEE International Symposium on Information Theory, San Antonio, Texas, January 1993.

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53. Y. Dallal and S. Shamai (Shitz), "Power Moment Characterization for Noisy Phase Lightwave Systems", presented at the 1993 IEEE International Symposium on Information Theory, San Antonio, Texas, January 1993.

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60. G. Kaplan and S. Shamai (Shitz), "On Error Exponents, Coding and Feedback for Decoding Delay Constrained Communication Systems", presented at the 1994 IEEE International Symposium on Information Theory, Trondheim, Norway, July 1994.

61. Y. Dallal, N. Tal and S. Shamai (Shitz), "On Noncoherent Detection of Noisy Phase OOK Signals", presented at the 1994 IEEE International Symposium on Information Theory, Trondheim, Norway, July 1994.

62. S. Shamai (Shitz) and A.D. Wyner, "Information Theoretic Considerations for Simple Multiple-Access Cellular Communication Channels", presented at the 1994 International Symposium on Information Theory and its Applications (ISITA '94), Sydney, Australia, November 1994.

63. S. Shamai (Shitz) and S. Verdú, "Capacity of Channels with Uncoded Side Information", presented at the French-Israeli Workshop on Coding and Information Integrity, Tel-Aviv, Israel, November 1994.

64. Y. Kofman, E. Zehavi and S. Shamai (Shitz), "*nd*-Convolutional Codes: Performance and Structural Analysis" presented at the Eighteen Convention of Electrical and Electronics Engineers in Israel, Tel-Aviv, Israel, March 1995.

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74. S. Shamai (Shitz) and S. Verdú, "An Information Theoretic Approach to Turbo-Codes", presented at the Mediterranean Workshop on Coding and Applications, Mallorca, Spain, February/March 1996.

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82. I.C. Abou Faycal, M.D. Trott and S. Shamai (Shitz), "The Capacity of Discrete-Time Rayleigh Fading Channels", presented at the 1997 IEEE International Symposium on Information Theory, Ulm, Germany, June/July 1997.

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84. S. Shamai (Shitz) and O. Somekh, "Shannon-Theoretic Considerations for a Gaussian Cellular TDMA Multi-Access Channel with Fading", presented at the 8th IEEE International Symposium on Personal Indoor and Mobile Radio Communications (PIMRC '97), Helsinki, Finland, September 1997.

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99. S. Verdu and S. Shamai (Shitz), "Capacity of CDWA with Random Spreading and Multiuser Detection", (invited paper), presented at the IEEE International Symposium on Spread Spectrum Techniques and Applications (ISSSTA'98), Sun City, South Africa, September 1998.

100. N. Chayat and S. Shamai (Shitz), "Iterative Soft Onion Peeling for Multi-Access and Broadcast Channels", presented at the 9th International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC'98), Boston, USA, Sept. 1998, and at the URSI Annual Meeting, Haifa, Israel, December 1998.

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104. X. Zhang, D. Brady and S. Shamai (Shitz), "Coherent PSK Demodulation in Constant Envelope Interference", Proc. of the 33rd Annual Conference on Information Sciences and Systems, Dept. of ECE, The John Hopkins University, Baltimore, Maryland, USA, 17–19, March 1999.

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109. S. Shamai (Shitz) and E. Telatar, "Some Information Theoretic Aspects of Decentralized Power Control in Multiple Access Fading Channels", presented at the 1999 Information Theory and Networking Workshop, Metsovo, Greece, June 27-July 1, 1999.

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114. N. Binshtock and S. Shamai (Shitz), "Integer Metric for Binary Input Symmetric Output Memoryless Channels," presented at the URSI Annual Meeting, Tel-Aviv University, Tel-Aviv, Israel, February 15, 2000.

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119. B.M. Zaidel, S. Shamai (Shitz) and S. Verdú, "Information Theoretic Aspects of Some Multiuser Detection Strategies in a Multi-Cell Random Spread DS-CDMA System", presented at the 21$^{st}$ Convension of Electrical and Electronic Engineers in Israel, Tel-Aviv, Israel, 11–12 April, 2000.

120. I. Sason and S. Shamai Shitz, "On Gallager Bounding Technique with Applications to Parallel and Serial Concatenated Turbo Codes," presented at the 21$^{st}$ Convension of Electrical and Electronic Engineers in Israel, Tel-Aviv, Israel, 11–12 April, 2000.

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122. U. Erez, R. Zamir and S. Shamai (Shitz), "Additive Noise Channels with Side Information at the Transmitter," presented at the 21$^{st}$ Convention of Electrical and Electronic Engineers in Israel, Tel-Aviv, Israel, 11–12, April, 2000.

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124. I. Sason and S. Shamai (Shitz), "Improved Upper Bounds on the ML Performance of Turbo Codes for Interleaved Rician Fading Channels with Comparison to Iterative Decoding," presented at the International Conference on Communications (ICC'2000), New Orleans, Louisiana, June 18–22, 2000.

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136. S. Shamai (Shitz) and S. Verdú, "Spectral Efficiency of CDMA: Linear vs. Nonlinear Receivers," Proceedings of the 2000 International Symposium on Information Theory and its Application (ISITA 2000), Honolulu, Hawaii, USA, November, 2000.

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139. S. Shamai (Shitz) and B.M. Zaidel, "Enhancing the Cellular Down-Link Capacity via Co-Processing at the Transmitting End," presented at the IEEE Semiannual Vehicular Technology, pp. 1745–1749, VTC2001 Spring Conference, Rhodes, Greece, May 6–9, 2001.

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141. S. Waxman and S. Shamai (Shitz), "Iterative Cancellation and Decoding for the Uplink IS–95 CDMA System," presented at the IEEE Semiannual Vehicular Technology, VTC2001 Spring Conference, May 6–9, Rhodes, Greece, 2001.

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143. M. Godavarti, T.L. Marzetta and S. Shamai (Shitz), "Capacity of a Multiple-Antenna Wireless Link with Isotropically Random Rician Fading," presented at the 2001 IEEE International Symposium on Information Theory, Washington, D.C., USA, June 24–29, 2001.

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150. H. Weingarten, Y. Steinberg and S. Shamai (Shitz), "Gaussian Codes and Nearest Neighbor Decoding for Fading Multi-Antenna Channels," presented at the 39th Annual Allerton Conference on Commun. Contr. and Comp., Allerton House, Monticello, Illinois, October 3–5, 2001.

151. G. Caire and S. Shamai (Shitz), "On the Multiple Antenna Broacast Channel," (*invited paper*), presented at the $35^{\text{th}}$ Asilomar Conference, Pacific Grove, California, USA, October/November 2001.

152. S. Shamai (Shitz), B.M. Zaidel and S. Verdú, "On Information Theoretic Aspects of Multi-Cell Wireless Systems," (*invited paper*), presented at the 4th International ITG Conference on Source and Channel Coding, Berlin, Germany, January 28–30, 2002.

153. S. Shamai (Shitz), "On Information Theoretic Aspects of Constrained Systems," (*invited paper*), presented at the MSRI Workshop on Information Theory, Berkeley, CA., USA, February 25–March 1, 2002.

154. S. Shamai (Shitz), B.M. Zaidel and S. Verdú, "Analysis of Strongest-Users-Only Detectors for Randomly Spread CDMA," presented at the IEEE Int. Symp. Inform. Theory (ISIT 2002), Lausanne, Switzerland, June 30–July 5, 2002.

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162. G. Kramer, S. Shamai (Shitz), S. Vishwanath, S. Jafar and A. Goldsmith, "Information-theoretic Issues Concerning Broadcasting: Capacity Region Outer Bounds", DIMACS Workshop on Signal Processing for Wireless Transmission, Rutgers University, Piscataway, NJ, USA, October 7–9, 2002.

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165. M. Katz and S. Shamai (Shitz), "On the Capacity-Achieving Distribution of the Discrete-Time Non-Coherent Additive White Gaussian Noise Channel," presented at the $22^{\text{nd}}$ IEEE Convention Israel, $1^{\text{st}}$ of December, 2002, Tel-Aviv, Israel.

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168. D. Tuninetti and S. Shamai (Shitz), "On Two-User Fading Gaussian Broadcast Channels with Perfect Channel State Information at the Receivers," (*invited paper*), presented at DIMACS Workshop on Network Information Theory, DIMACS Center, Rutgers University, Piscataway, NJ, March 17–19, 2003.
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180. A. Bennatan, D. Burstein, G. Caire and S. Shamai (Shitz), "Coding Schemes for Dirty Paper Problems," (*invited paper*), presented at the Forty First Annual Allerton Conference on Communication, Control, and Computing, Allerton House, Monticello, Illinois, October 1–3, 2003.

181. G. Caire, S. Shamai (Shitz) and S. Verdú, "LDPC-based Algorithms for Almost Noiseless Joint Source-Channel Coding-Decoding of Sources with Memory," presented at the Fifth International ITG Conference on Source and Channel Coding (SCC'04), Erlangen, Germany, January 14–16, 2004.

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184. A. Steiner and S. Shamai (Shitz), "Multi-Layer Broadcasting for the Faded MIMO Channel," presented at the 38th Annual Conference on Information Sciences and Systems (CISS 2004), March 14–19, 2004, Princeton, NJ, USA.

185. H. Weingarten, Y. Steinberg and S. Shamai (Shitz), "The Capacity Region of the Gaussian MIMO Broadcast Channel," presented at the 38th Annual Conference on Information Sciences and Systems (CISS 2004), March 14–19, 2004, Princeton, N.J., USA.

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187. A. Wiesel, Y. C. Eldar and S. Shamai (Shitz), "Linear MIMO Precoders for Fixed Receivers," presented at ICASSP 2004, Montreal, Quebec, Canada, May 17–21, 2004.

188. D. Guo, S. Shamai (Shitz) and S. Verdú, "Mutual Information and MMSE in Gaussian Channels," presented at the 2004 IEEE International Symposium on Information Theory (ISIT 2004), Chicago, Illinois, USA, June 27–July 2, 2004.

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190. O. Somekh, B.M. Zaidel and S. Shamai (Shitz)," "Spectral Efficiency of Joint Multiple Cell-Site Processors for Randomly Spread DS-CDMA Systems," presented at the 2004 IEEE International Symposium on Information Theory (ISIT 2004), Chicago, Illinois, USA, June 27–July 2, 2004.

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192. M. Katz and S. Shamai (Shitz), "Communication to Collocated Ad-Hoc Receiving Nodes in a Fading Environment," presented at the IEEE 23rd Israel Convention, Tel Aviv, Israel, September 6–7, 2004.

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200. D. Guo, S. Shamai (Shitz) and S. Verdú, "Mutual Information and Conditional Mean Estimation in Poisson Channels," presentated at the 2004 IEEE Information Theory Workshop, San Antonio, TX, USA, October 24–29, 2004.

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203. A. Sanderovich, S. Shamai (Shitz), Y. Steinberg and G. Kramer, "Decentralized Detection of Nomadic Transmitter via Helping Agents," presented at the Winter-School on Coding and Information Theory, February 20–25, Bratislava, Slovakia.

204. A. Wiesel, Y. C. Eldar and S. Shamai (Shitz), "Semidefinite Relaxation for Detection of 16–QAM Signaling in MIMO Channels," presented at the Conference on Information Sciences and Systems (CISS2005), March 16–18, 2005, Johns Hopkins University, Baltimore, MD, USA.

205. A. Steiner and S. Shamai (Shitz), "Queueing and Multi-Layer Coding," presented at the Conference on Information Sciences and Systems (CISS2005), March 16–18, 2005, Johns Hopkins University, Baltimore, MD, USA.

206. A. Wiesel, Y. C. Eldar and S. Shamai (Shitz), "Beamforming Maximizes the Compound Capacity," presented at the International ITG/IEEE Workshop on Smart Antennas, WSA, 2005, University Duisburg-Essen, April 4–5, 2005.

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209. S. Shamai (Shitz), O. Somekh and B.M. Zaidel, "Downlink Multi-Cell Processing: An Information Theoretic View," presented at the 3rd International Workshop on Signal Processing for Wireless Communications, London, UK., June 13–15, 2005.

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213. Y. Steinberg and S. Shamai (Shitz), "Achievable Rates of the Broadcast Channel with States Known at the Transmitter," presented at the IEEE International Symposium on Information Theory (ISIT 2005), September 4–9, 2005, Adelaide, Australia.

214. D. Guo, S. Shamai (Shitz) and S. Verdú, "Additive Non-Gaussian Noise Channels: Mutual Information and Conditional Mean Estimation," presented at the IEEE International Symposium on Information Theory (ISIT 2005), September 4–9, 2005, Adelaide, Australia.

215. O. Shental, N. Shental and S. Shamai (Shitz), "On the Achievable Information Rates of Finite-State Input Two-Dimensional Channels with Memory," presented at the IEEE International Symposium on Information Theory (ISIT 2005), September 4–9, 2005, Adelaide, Australia.

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217. M. Katz and S. Shamai (Shitz), "Relaying Protocols for Two Co-located Users," presented at the IEEE International Symposium on Information Theory (ISIT 2005), September 4–9, 2005, Adelaide, Australia.

218. A. Lapidoth and S. Shamai, "Collapse of Degrees of freedom in MIMO Broadacst with Finite Precision CSI," (*invited paper*) presented at the 43rd Allerton Conference on Communications Control and Computing, Monticello, Illinois, USA, September 28–30, 2005.

219. D. Wajcer, S. Shamai (Shitz) and A. Wiesel, "On Superposition and Beamforming for Multiantenna Gaussian Broadcast Channel," presented at The UCSD Workshop on Information Theory and Applications—Inaugural Workshop, February 6–10, 2006, UCSD, San Diego, USA.

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221. C.T.K. Ng, I. Maric, A.J. Goldsmith, S. Shamai (Shitz) and R. D. Yates, "Iterative and One-shot Conferencing in Relay Channels," (*invited paper*) presented at the 2006 Information Theory Workshop, March 13–17, 2006, Punta del Este, Uruguay.

222. I. Sason and S. Shamai (Shitz), "Analytical Bounds on Maximum-Likelihood Decoded Linear Codes with Applications to Turbo-Like Codes: An Overview," presented at the International ITG Conference on Source and Channel Coding, Turbo-Coding 2006, Munich, Germany, 3–7 April, 2006.

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224. M. Katz and S. Shamai (Shitz), "Oblivious Cooperation in Colocated Wireless Networks," presented at IEEE Int. Symposium Inform. Theory (ISIT2006), July 9–14, 2006, Seattle, Washington, USA.

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228. D. Guo, S. Shamai and S. Verdú, "Proof of Entropy Power Inequalities Via MMSE," presented at IEEE Int. Symposium Inform. Theory (ISIT2006), July 9–14, 2006, Seattle, Washington, USA.

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231. A. Sanderovich, S. Shamai, Y. Steinberg and M. Peleg, "Decentralized Receiver in A MIMO System," presented at IEEE Int. Symposium Inform. Theory (ISIT2006), July 9–14, 2006, Seattle, Washington, USA.

232. A. Wiesel, Y.C. Eldar and S. Shamai (Shitz), "Linear Transmitter Design for the MISO Compound Channel with Interference," presented at the 14th European Signal Processing Conference (EUSIPCO 2006), September 4–8, 2006, Florence, Italy.

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234. A. Steiner and S. Shamai (Shitz), "Broadcasting with Partial Transmit Channel State Information," NEWCOM-ACoRN Workshop, September 20–22, 2006, Vienna, Austria.

235. M. Peleg, A. Sanderovich and S. Shamai (Shitz), "On Extrinsic Information of Good Codes Operating Over Discrete Input Memoryless Channels," presented at The 24th Convention of Electrical and Electronic Engineers (IEEE) in Israel, November 15–17, 2006, Eilat, Israel.

236. M. Katz and S. Shamai (Shitz), "Cooperative Protocols for a Source and An Occasional Nearby Relay," presented at The 24th Convention of Electrical and Electronic Engineers (IEEE) in Israel, November 15–17, 2006, Eilat, Israel.

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241. O. Shental, N. Shental, S. Shamai (Shitz), I. Kanter and A.J. Weiss, "Finite-State Input Two-Dimensional Gaussian Channels with Memory: Estimation and Information via Graphical Models and Statistical Mechanics," presented at UCSD Workshop on Information Theory and Applications, January 29–February 4, 2007, UCSD, San Diego, USA.

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243. A. Sanderovich, A. Steiner and S. Shamai (Shitz), "Cooperation Strategies for Two Colocated Receivers, with No CSI at the Transmitter," presented at the 41st Annual Conference on Information Sciences and Systems, March 14–16, 2007, John Hopkins University, Baltimore, Maryland, USA.

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245. H. Weingarten, T. Liu, S. Shamai (Shitz), Y. Steinberg and P. Viswanath, "The Capacity Region of the Degraded MIMO Compound Broadcast Channel," presented at the 2007 IEEE International Symposium on Information Theory (ISIT2007), June 24–29, 2007, Nice, France.

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250. A. Sanderovich, O. Somekh and S. Shamai (Shitz), "Uplink Macro Diversity with Limited Backhaul Capacity," presented at the 2007 IEEE International Symposium on Information Theory (ISIT2007), June 24–29, 2007, Nice, France. This paper received the ISIT Best Student Paper Award.

251. A. Somekh-Baruch, S. Shamai (Shitz) and S. Verdú, "Cooperative Multiple Access Encoding with States Available at One Transmitter," presented at the 2007 IEEE International Symposium on Information Theory (ISIT2007), June 24–29, 2007, Nice, France.

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259. A. Lapidoth, S. Shamai (Shitz) and M. Wigger, "On Cognitive Interference Networks," presented at the IEEE Information Theory Workshop (ITW 2007), September 2–6, Lake Tahoe, California, USA.

260. Y. Liang, A. Somekh-Baruch and S. Shamai (Shitz), "Cognitive Interference Channels with Confidential Messages," presented at the 45th Annual Allerton Conference on Communication, Control and Computing, Allerton House, Monticello, IL, USA, 26–28 September, 2007.

261. Y. Liang, G. Kramer, Vo. Poor and S. Shamai (Shitz), "Compound Wiretap Channels," presented at the 45th Allerton Conference on Communication, Control and Computing, Allerton House, Monticello, IL, USA, 26–28 September, 2007.

262. O. Simeone, O. Somekh, S. Shamai (Shitz) and Y. Bar-Ness and V. Poor, "Capacity of Linear Two-Hop Networks with Rate Splitting, Decode-and-Forward Relaying and Cooperation," presented at the 45th Annual Allerton Conference on Communication, Control and Computing, Allerton House, Monticello, IL, USA, 26–28 September, 2007.

263. Y. Hong and S. Shamai (Shitz), "Interference Mutual Information Combining and Coder Design for IDMA, presented at the 45th Annual Allerton Conference on Communication, Control and Computing, Allerton House, Monticello, IL, USA, 26–28 September, 2007.

264. S. Shamai (Shitz), O. Somekh, O. Simeone, A. Sanderovich and B. M. Zaidel, "Cooperative Multi-Cell Networks: Impact of Limited-Capacity Backhaul and Inter-Users Links," (*invited paper*), presented at the Joint Workshop on Coding and Communications (JWCC2007), Castle of Durnstein, Vienna, Austria, October 14–16, 2007.

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269. S. Shamai (Shitz), O. Simeone, O. Somekh and S. Shamai (Shitz), "Limited Backhaul Multi-Cell Processing," (*invited paper*), presented at the 2008 Information Theory and Applications (ITA 2008) Workshop, January 27–February 1, University of California, San Diego, USA.

270. I. Maric, A. Goldsmith, G. Kramer and S. Shamai (Shitz), "Recent Result on Cognitive Radio," presented at the 2008 Information Theory and Applications (ITA 2008) Workshop, January 27 - February 1, University of California, San Diego, USA.

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272. O. Simeone, O. Somekh, G. Kramer, S. Shamai (Shitz) and H. V. Poor, "Cellular Systems with Multicell Processing and Conferencing Links between Mobile Stations," presented at the 2008 Information Theory and Applications (ITA 2008) Workshop, January 27 - February 1, University of California, San Diego, USA.

273. O. Somekh, O. Simeone, H. V. Poor and S. Shamai (Shitz), "On the Spectrum of Large Random Hermitian Finite-Band Matrices and Applications to Wireless Communication," presented at the Open Problem Session, 2008 Information Theory and Applications (ITA 2008) Workshop, January 27 - February 1, University of California, San Diego, USA.

274. A. Sanderovich, M. Peleg and S. Shamai (Shitz), "Scaling Laws and Techniques in Decentralized Processing of Interfered Gaussian Channels," presented at the International Zurich Seminar on Communications, Zurich, Switzerland, March 12–14, 2008.

275. A. Steiner and S. Shamai (Shitz), "Multi-Layer Broadcast Hybrid-ARQ Strategies," presented at the International Zurich Seminar on Communications, Zurich, Switzerland, March 12–14, 2008

276. 273. Osvaldo Simeone, Oren Somekh, Vincent Poor and Shlomo Shamai (Shitz), "Distributed MIMO in Multi-Cell Wireless Systems via Finite-Capacity Links," presented at The 3rd International Symposium on Communications, Control and Signal Processing (ISCCSP 2008), March 12–14, 2008,

277. O. Somekh, A. Sanderovich, B. M. Zaidel, S. Shamai (Shitz) and H. V. Poor, "On the Impact of Limited-Capacity Backhaul and Inter-Users Links in Cooperative Multicell Networks," presented at the Conference on Information Sciences and Systems (CISS 2008), March 19–21, 2008, Princeton, USA.

278. V. Cadambe, S. A. Jafar and S. Shamai (Shitz), "Interference Alignment on the Deterministic Channel and Application to Fully Connected AWGN Interference Networks," presented at the IEEE Information Theory Workshop (ITW2008), May 5–9, 2008, Porto, Portugal.

279. E. Hof, I. Sason and S. Shamai (Shitz), "Gallager-Type Bounds for Non-Binary Linear Block Codes over Memoryless Symmetric Channels," presented at the IEEE Information Theory Workshop (ITW2008), May 5–9, 2008, Porto, Portugal.

280. Y. Liang, G. Kramer and S. Shamai (Shitz), "Capacity Outer Bounds for Broadcast Channels," presented at the IEEE Information Theory Workshop (ITW2008), May 5–9, 2008, Porto, Portugal.

281. I. Maric, A. Goldsmith, G. Kramer and S. Shamai (Shitz), "Communication Strategies for Cognitive Radio Networks," presented at a Poster Session by I. Maric, at the Microsoft Cognitive Wireless Networking Summit, June 5–6, 2008, Snoqualmie, WA, USA.

282. N. Levy, O. Somekh, S. Shamai (Shitz) and O. Zeitouni, "On Certain Large Random Hermitian Jacobi Matrices with Application to Wireless Communication," presented at the 2008 IEEE International Symposium on Information Theory (ISIT2008), July 6–11, 2008, Toronto, Ontario, Canada.

283. O. Simeone, O. Somekh, H. Vincent Poor, S. Shamai (Shitz), "Distributed MIMO Systems with Oblivious Antennas," presented at the 2008 IEEE International Symposium on Information Theory (ISIT2008), July 6–11, 2008, Toronto, Ontario, Canada.

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402. H. Maleki, S. A. Jafar and S. Shamai, "Retrospective Interference Alignment," 2011 IEEE International Symposium on Information Theory (ISIT2011), July 31–Aug. 5, 2011, Saint-Petersburg, Russia.

403. M. Kobayashi, P. Piantanida, Sheng Yang and S. Shamai(Shitz), "On the Secrecy Degrees of Freedom of MISO Wiretap Channels with Delayed CSIT," 2011 IEEE International Symposium on Information Theory (ISIT2011), July 31–Aug. 5, 2011, Saint-Petersburg, Russia.

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405. R. Bustin and S. Shamai (Shitz), "Properties of the MMSE of "Bad" Codes," the Forty-Ninth Annual Allerton Conference on Communication, Control, and Computing, Monticello, Illinois, USA, Sept. 28–30, 2011.

406. S. Mohajer, S. N. Diggavi , H. V. Poor and S. Shamai (Shitz), "On the Parallel Relay Wire-tap Network," the Forty-Ninth Annual Allerton Conference on Communication, Control, and Computing, Monticello, Illinois, USA, Sept. 28–30, 2011.

407. A. Tulino, G. Caire, S. Shamai and S. Verdú, "Beyond IID Gaussian Matrices in Compressed Sensing," the 45th Asilomar Conference on Signals, Systems and Computers, Pacific Grove, California, USA, November 6–9, 2011.

408. S. Kaviani, O. Simeone, W. A. Krzymién and S. Shamai, "Linear MMSE Precoding and Equalization for Network MIMO with Partial Cooperation," the Global Communications Conference (GLOBECOM'2011), Dec. 5–9, 2011, Houston, Texas, USA.

409. R. Bustin and S. Shamai, "MMSE interference in Gaussian Channels," The 2012 Information Theory and Applications Workshop (ITA2012), Feb. 5–10, 2012, UCSD, San Diego, CA, USA.

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417. K. Cohen, A. Steiner and S. Shamai (Shitz), "The Broadcast Approach Under Mixed Delay Constraints," IEEE International Symposium on Information Theory (ISIT2012), July 1–6, 2012, Cambridge, MA, USA.

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421. R. Bustin and S. Shamai (Shitz), "The Capacity of the Multi-MMSE Constrained Gaussian Channel," IEEE International Symposium on Information Theory (ISIT2012), July 1–6, 2012, Cambridge, MA, USA.

422. J. W. Yoo and T. Liu and S. Shamai (Shitz), "Worst-Case Expected-Rate Loss of Slow-Fading Channels," IEEE International Symposium on Information Theory (ISIT2012), July 1–6, 2012, Cambridge, MA, USA.

423. L. Dikstein, H. Permuter and S. (Shitz) Shamai, "MAC with Action-Dependent State Information at One Encoder," IEEE International Symposium on Information Theory (ISIT2012), July 1–6, 2012, Cambridge, MA, USA.

424. R. Tandon, M.-A. Maddah Ali, A. Tulino, H. V. Poor, and S. Shamai, "On Fading Broadcast Channels with Partial CSIT," Ninth International Symposium on Wireless Communication Systems (ISWCS2012) Paris, France, August 28–31, 2012.

425. S.-H. Park, O. Simeone, O. Sahin and S. Shamai (Shitz), "Robust and Efficient Distributed Compression for Cloud Radio Access Networks", Information Theory Workshop 2012 (ITW) September 3–7, 2012, Lausanne, Switzerland.

426. J. Du, M. Xiao, M. Skoglund and S. Shamai (Shitz), "Short-Message Noisy Network Coding with Partial Source Cooperation," Information Theory Workshop 2012 (ITW) September 3–7, 2012, Lausanne, Switzerland.

427. K. Venkat, T. Weissman, Y. Carmon and S. Shamai, "On Information, Estimation and Lookahead," Allerton 2012, 50th Annual Allerton Conference on Communication, Control, and Computing (Allerton), October 1–5, 2012, Monticello, Illinois, USA.

428. K. M. Cohen, A. Steiner and S. Shamai, "Broadcast Approaches to Mixed Delay Constraints," 2012 IEEE 27th Convention of Electrical & Electronics Engineers in Israel (IEEEI 2012), November 14–17, 2012, Hilton Hotel, Eilat, Israel.

429. R. Bustin and S. Shamai, "An Information-Estimation Perspective of Communications over Gaussian Interference Channels," 2012 IEEE 27th Convention of Electrical & Electronics Engineers in Israel (IEEEI 2012), November 14–17, 2012, Hilton Hotel, Eilat, Israel.

430. M. Peleg and S. Shamai, "On Sparse Sensing of Coded Signals at Sub-Landau Sampling Rates," 2012 IEEE 27th Convention of Electrical & Electronics Engineers in Israel (IEEEI 2012), November 14–17, 2012, Hilton Hotel, Eilat, Israel.

431. L. Dikstein, H. Permuter and S. Shamai, "MAC with Action-State Information at One Encoder," 2012 IEEE 27th Convention of Electrical & Electronics Engineers in Israel (IEEEI 2012), November 14–17, 2012, Hilton Hotel, Eilat, Israel.

432. I. Bergel, D. Yellin and S. Shamai, "Uplink Downlink Balancing using Variable Feedback Rates," 2012 IEEE 27th Convention of Electrical & Electronics Engineers in Israel (IEEEI 2012), November 14–17, 2012, Hilton Hotel, Eilat, Israel.

433. J. Shimonovich, A. Somekh Baruch and S. Shamai (Shitz), "Cognitive Aspects in a Multiple Access Channel," 2012 IEEE 27th Convention of Electrical & Electronics Engineers in Israel (IEEEI 2012), November 14–17, 2012, Hilton Hotel, Eilat, Israel.

434. Y. Carmon, S. Shamai and T. Weissman, "Disproof of the Shamai-Laroia Conjecture," 2012 IEEE 27th Convention of Electrical & Electronics Engineers in Israel (IEEEI 2012), November 14–17, 2012, Hilton Hotel, Eilat, Israel.

435. S.-H. Park, O. Simeone, O. Sahin and S. Shamai (Shitz), "Joint Base Station Selection and Distributed Compression for Cloud Radio Access Networks," Global Communications Conference (GLOBECOM2012), 3–7, December 2012, Anaheim, CA, USA.

436. S. Shamai, (*Invited*), "Information Theory: Old and New: A Personal Perspective," presented at the workshop "What is Information 2013," Sde-Boker, Jan. 7–11, 2013.

437. S. Shamai, K. Cohen and A. Steiner, "Broadcasting over Fading Channels with Mixed Delay Constraints," Information Theory and Applications Workshop (ITA2013), Feb. 10–15, 2013, UCSD, San Diego, CA, USA.

438. A. Zaidi and S. Shamai (Shitz), "On Multiple Access Channels with Delayed CSI at Transmitters," IEEE Workshshop on Signal Processing Advances in Wireless Communications (SPAWC 2013), Darmstadt, Germany, June 16–19, 2013.

439. S. Zou, Y. Liang, L. Lai and S. Shamai (Shitz), "Layered Decoding and Secrecy over Degraded Broadcast Channels," (*Invited Paper*), IEEE Workshshop on Signal Processing Advances in Wireless Communications (SPAWC 2013) Darmstadt, Germany on June 16–19, 2013.

440. R. Tandon, S. Ali Jafar, S. Shamai and H. V. Poor, "Two-user MISO Broadcast Channel: Synergistic Benefits of Alternating CSIT," International Symposium on Information Theory, ISIT2013, July 7–12, 2013, Istanbul, Turkey.

441. R. Karasik, O. Simeone and S. Shamai (Shitz), "Robust Uplink Communications over Fading Channels with Variable Backhaul Connectivity," International Symposium on Information Theory, ISIT2013, July 7–12, 2013, Istanbul, Turkey.

442. G. Katz, B. M. Zaidel and Slomo hamai (Shitz), "On Layered Transmission in Clustered Cooperative Cellular Architectures," International Symposium on Information Theory, ISIT2013, July 7–12, 2013, Istanbul, Turkey.

443. R. Duan, Y. Liang and S. Shamai (Shitz), "The Gaussian Interference Channel with State," International Symposium on Information Theory, ISIT2013, July 7–12, 2013, Istanbul, Turkey.

444. S. Zou, Y. Liang and S. Shamai (Shitz), "Multiple Access Channel with States Uncertainty at Transmitters," International Symposium on Information Theory, ISIT2013, July 7–12, 2013, Istanbul, Turkey.

445. K. Venkat, T. Weissman, Y. Carmon and S. Shamai, "The Role of Lookahead in Estimation under Gaussian Noise," International Symposium on Information Theory, ISIT2013, July 7–12, 2013, Istanbul, Turkey.

446. Abdellatif Zaidi Shlomo Shamai (Shitz), "On Multiple Access Channels with Delayed CSI," International Symposium on Information Theory, ISIT2013, July 7–12, 2013, Istanbul, Turkey.

447. B. Bandemer, C. Tian and S. Shamai (Shitz), "Gaussian State Amplification with Noisy State Observations," International Symposium on Information Theory, ISIT2013, July 7–12, 2013, Istanbul, Turkey.

448. S-H. Park, O. Simeone, O. Sahin and S. Shamai (Shitz), "Multi-Layer Hybrid-ARQ for an Out-of-Band Relay Channel," 24th Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC 2013), Sept. 8–11, 2013, London, UK.

449. S-H. Park, O. Simeone, O. Sahin and S. Shamai (Shitz), "Delay-Tolerant Robust Communication on a Relay Channel with Fading Side Information," 24th Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC 2013), Sept. 8–11, 2013, London, UK.

450. J. Shimonovich, A. Somekh Baruch and S. Shamai (Shitz) , "Cognitive Cooperative Communications on the Multiple Access Channel," 2013 Information Theory Workshop (ITW2013), Seville, Spain, Sept. 9-13, 2013.

451. R. Duan, Y. Liang, A. Khisti and S. Shamai (Shitz), "State-Dependent Gaussian Z-Channel with Mismatched Side-Information and Interference," 2013 Information Theory Workshop (ITW2013), Seville, Spain, Sept. 9–13, 2013.

452. A. Zaidi, Z. Hassan Awan, S. Shamai (Shitz) and L. Vandendorpe, "Secure Degrees of Freedom of MIMO X-Channels with Output Feedback and Delayed CSI," 2013 Information Theory Workshop (ITW2013), Seville, Spain, Sept. 9–13, 2013.

453. S. Shamai, "Information Theory in Wireless Communications: Past, Present and Future," (*Invited Talk*): The Future of Wireless Communications in the Twenty-First Century, The International IEEE Conference on Microwaves, Communications, Antennas and Electronic Systems, COMCAS 2013 Tel-Aviv, October 21–23, Israel.

454. J. Kang, O. Simeone, J. Kang and S. Shamai (Shitz), "Joint Signal and Channel State Information Compression for Uplink Network MIMO Systems," presented at the IEEE Global Conference on Signal and Information Processing GlobalSIP 2013, December 3–5, 2013, Austin, Texas, U.S.A.

455. Y. Carmon, S. Shamai (Shitz) and T. Weissman, "On the Shamai-Laroia Approximation for the Information Rate of the ISI Channel," 2014 Information Theory and Applications Workshop (ITA2014), Feb. 9–14, 2014, UCSD, San Diego, CA, USA.

456. R. Bustin, M. Payaro, D. P. Palomar and Prof. S. Shamai (Shitz), "The MMSE Matrix in the Parallel Vector Additive Gaussian Channel: How is the Gaussian Input Distribution "Better"?", 2014 Information Theory and Applications Workshop (ITA2014), Feb. 9–14, 2014, UCSD, San Diego, CA, USA.

457. O. Simeone, S.-H. Park, O. Sahin and S. Shamai, "Multivariate Fronthaul Compression for the Downlink of Cloud Radio Access Networks," 2014 Information Theory and Applications Workshop (ITA2014), Feb. 9–14, 2014, UCSD, San Diego, CA, USA.

458. S. Shamai, K. Cohen and A. Steiner, (*Invited Talk*): "Broadcasting over Fading Channels with Mixed Delay Constraints", International Workshop on Frontiers of Telecommunications and Coding, UCLA, Los Angeles, Feb. 14, 2014.

459. Y. Carmon, S. Shamai and T. Weissman, "OFDM vs. Single Carrier Modulation an Achievable Rate Perspective," 2014 International Zurich Seminar on Communications (IZS 2014), Feb. 26–28, 2014, Zurich, Switzerland.

460. S-H. Park, O. Simeone, O. Sahin and S. Shamai (Shitz), "Performance Evaluation of Multiterminal Backhaul Compression for Cloud Radio Access Networks," 48th Annual Conference on Communications, Information, Sciences and Systems (CISS2014), March 19–21, 2014, Princeton, NJ, USA.

461. S-H. Park, O. Simeone, O. Sahin and S. Shamai (Shitz), "On Remote Radio Head Selection for the Downlink of Backhaul Constrained Network MIMO Systems," 48th Annual Conference on Communications, Information, Sciences and Systems (CISS2014), March 19–21, 2014, Princeton, NJ, USA.

462. M. Benammar, P. Piantanida and S. Shamai (Shitz), "Dirty-paper Coding Techniques for Compound MISO Broadcast Channels: A DoF Analysis," 9th International Conference on Cognitive Radio Oriented Wireless Networks, Crowncom, June 2–4, 2014, Oulu, Finland.

463. I. Bergel, D. Yellin and S. Shamai (Shitz), "Dirty Paper Coding with Partial Channel State Information," IEEE Workshshop on Signal Processing Advances in Wireless Communications (SPAWC 2014), June 22–25, 2014, Toronto, Canada.

464. Wenbo He , B. Nazer, and S. Shamai (Shitz), "Uplink-Downlink Duality for Integer-Forcing: Effective SINRs and Iterative Optimization," IEEE Workshshop on Signal Processing Advances in Wireless Communications (SPAWC 2014), June 22–25, 2014, Toronto, Canada.

465. S.-H. Park, O. Simeone, O. Sahin and S. Shamai (Shitz), "Multivariate Backhaul Compression for the Downlink of Cloud Radio Access Networks," International Symposium on Information Theory, ISIT2014, June 29-July 4, 2014, Honolulu, Hawaii, USA.

466. S.-H. Park, O. Simeone, O. Sahin and S. Shamai (Shitz), "Multihop Backhaul Compression for the Uplink of Cloud Radio Access Networks," International Symposium on Information Theory, ISIT2014, June 29-July 4, 2014, Honolulu, Hawaii, USA.

467. S. Rini and S. Shamai (Shitz), "The Impact of Phase Fading on the Dirty Paper Channel," International Symposium on Information Theory, ISIT2014, June 29-July 4, 2014, Honolulu, Hawaii, USA.

468. T. Kopetz, H. H. Permuter and S. Shamai (Shitz), "Multiple Access Channels with Combined Cooperation and Partial Cribbing," International Symposium on Information Theory, ISIT2014, June 29-July 4, 2014, Honolulu, Hawaii, USA.

469. S. Amuru, R. Tandon and S. Shamai (Shitz), "On the Degrees-of-freedom of the 3–User MISO Broadcast Channel with Hybrid CSIT," International Symposium on Information Theory, ISIT2014, June 29-July 4, 2014, Honolulu, Hawaii, USA.

470. A. Zaidi and S. Shamai (Shitz), "Asymmetric Cooperative Multiple Access Channels with Delayed CSI," International Symposium on Information Theory, ISIT2014, June 29-July 4, 2014, Honolulu, Hawaii, USA.

471. S. Zou, L. Lai, Y. Liang and S. Shamai (Shitz), "Layered Secure Broadcasting over Gaussian MIMO Channels and Application in Secret Sharing," International Symposium on Information Theory, ISIT2014, June 29-July 4, 2014, Honolulu, Hawaii, USA.

472. R. Duan, Y. Liang, A. Khisti and S. Shamai (Shitz), "State-Dependent Parallel Gaussian Channels with a Common Helper in High Power Regime," International Symposium on Information Theory, ISIT2014, June 29-July 4, 2014, Honolulu, Hawaii, USA.

473. R. Bustin, H. V. Poor and S. Shamai (Shitz) "The Effect of Maximal Rate Codes On the Interfering Message Rate," International Symposium on Information Theory, ISIT2014, June 29-July 4, 2014, Honolulu, Hawaii, USA.

474. R. Tandon, P. Piantanida and S. Shamai (Shitz), "On Multi-User MISO Wiretap Channels with Delayed CSIT," International Symposium on Information Theory, ISIT2014, June 29-July 4, 2014, Honolulu, Hawaii, USA.

475. A. Tulino, G. Caire, S. Shamai (Shitz) and S. Verdú, "Broadcast Approach for the Sparse-Input Random-Sampled MIMO Gaussian Channel," International Symposium on Information Theory, ISIT2014, June 29-July 4, 2014, Honolulu, Hawaii, USA.

476. W. He, B. Nazer and S. Shamai (Shitz), "Uplink-Downlink Duality for Integer-Forcing," International Symposium on Information Theory, ISIT2014, June 29-July 4, 2014, Honolulu, Hawaii, USA.

477. S. Shamai, S-H. Park, O. Simeone and O. Sahin, "On Cloud Radio Access Networks: Information Theoretic Considerations," (*plenary address*), The Eleventh International Symposium on Wireless Communication Systems (ISWCS2014), Barcelona, Spain, August 26–29, 2014.

478. S. Shamai, "An Information Theoretic View of Cognitive Radio Networks," (*plenary address*), The 2014 IEEE International Conference on Ultra-Wideband (CUWB2014), Paris, France, September 1–3, 2014.

479. W. Huleihel, N. Merhav and S. Shamai, (*Invited Talk*): "Compressive Sensing in Coding Problems: A Rigorous Information Theoretic Approach," The Fifth EPFL-UPEMLV Workshop on Information Theory, Random Matrices and Applications, EPFL, Lausanne, Switzerland, 11–12 September, 2014.

480. A. Tulino, G. Caire, S. Shamai, (*Invited Talk*): "Broadcast Approach for the Sparse-Input Random-Sampled MIMO Gaussian Channel," The Fifth EPFL-UPEMLV Workshop on Information Theory, Random Matrices and Applications, EPFL, Lausanne, Switzerland, 11–12 September, 2014.

481. R. Duan, Y. Liang, A. Khisti and Shlomo Shamai (Shitz), "Dirty Interference Cancelation for Multiple Access Channels," The International Symposium on Information Theory and Its Applications (ISITA2014), 26–29 October, 2014, Melbourne, Australia.

482. M. Benammar, P. Piantanida and S. Shamai (Shitz), "Multiple Description Coding for the Compound Broadcast Channel," IEEE Information Theory Workshop (ITW2014) Hobart, Tasmania, Australia, Nov. 2–5, 2014.

483. R. Duan, Y. Liang, A. Khisti and S. Shamai (Shitz), "Dirty Interference Cancellation for Gaussian Broadcast Channels," IEEE Information Theory Workshop (ITW2014) Hobart, Tasmania, Australia, Nov. 2–5, 2014.

484. G. Katz, B. Zaidel and S. Shamai, "On Layered Transmission in Flat-Fading Clustered Cooperative Cellular Architectures," 2014 IEEE 27th Convention of Electrical & Electronics Engineers in Israel (IEEEI 2012), Dec. 3–5, 2014, Eilat, Israel.

485. I. Bergel, Y. Perets and S. Shamai, "Lattice Interference Mitigation with Mixed Channel State Information," 2014 IEEE 27th Convention of Electrical & Electronics Engineers in Israel (IEEEI 2012), Dec. 3–5, 2014, Eilat, Israel.

486. R. Bustin, H. V. Poor and S. Shamai, "Worst Additive Noise: An Information-Estimation View," 2014 IEEE 27th Convention of Electrical & Electronics Engineers in Israel (IEEEI 2012), Dec. 3–5, 2014, Eilat, Israel.

487. M. Benammar, P. Piantanida and S. Shamai (Shitz), "Capacity Results for the Multicast Cognitive Interference Channel," the IEEE Information Theory Workshop (ITW2015), April 26–May 1, 2015, Jerusalem, Israel.

488. S. Zou, Y. Liang, L. Lai and S. Shamai (Shitz), "Degraded Broadcast Channel: Secrecy Outside of a Bounded Range," the IEEE Information Theory Workshop (ITW2015), April 26–May 1, 2015, Jerusalem, Israel.

489. R. Bustin, R. F. Schaefer, H. V. Poor and S. Shamai (Shitz), "On MMSE Properties of Optimal Codes for the Gaussian Wiretap Channel," the IEEE Information Theory Workshop (ITW2015), April 26–May 1, 2015, Jerusalem, Israel.

490. S. Shamai (Shitz), R. Timo and M. Wigger, "Conferencing in Wyner's Asymmetric Interference Network: Effect of Number of Rounds," the IEEE Information Theory Workshop (ITW2015), April 26–May 1, 2015, Jerusalem, Israel.

491. A. M. Fouladgar, O. Simeone, O. Sahin and S. Shamai (Shitz), "Joint Interference Alignment and Bi-Directional Scheduling for MIMO Two-Way Multi-Link Networks," International Conference on Communications (ICC2015), London, UK, June 8–12, 2015.

492. R. Bustin, R. F. Schaefer, H. V. Poor and S. Shamai, "On MMSE Properties of Codes for the Gaussian Broadcast Channel with Confidential Messages," International Conference on Communications (ICC2015), London, UK, June 8–12, 2015.

493. J. Kang, O. Simeone, J. Kang and S. Shamai, "Joint Precoding and Fronthaul Optimization for C-RANs in Ergodic Fading Channels," International Conference on Communications (ICC2015), London, UK, June 8–12, 2015.

494. G. Bassi, P. Piantanida and S. Shamai (Shitz), "On the Capacity of the Wiretap Channel with Generalized Feedback," IEEE International Symposium on Information Theory (ISIT2015), Hong Kong, June 14–19, 2015.

495. S. Rini and S. Shamai (Shitz), "On the Dirty Paper Channel with Fast Fading Dirt," IEEE International Symposium on Information Theory (ISIT2015), Hong Kong, June 14–19, 2015.

496. T. Kopetz H. H. Permuter and S. Shamai (Shitz), "Cooperative Multiple Access Channels with Oblivious Encoders," IEEE International Symposium on Information Theory (ISIT2015), Hong Kong, June 14–19, 2015.

497. R. Bustin, R. F. Schaefer, H. V. Poor and S. Shamai (Shitz), "On MMSE Properties of "Good" and "Bad" Codes for the Gaussian Broadcast Channel," IEEE International Symposium on Information Theory (ISIT2015), Hong Kong, June 14–19, 2015.

498. M. Benammar, P. Piantanida and S. Shamai (Shitz), "On Multiple Description Coding for the Multicast Cognitive Interference Channel," IEEE International Symposium on Information Theory (ISIT2015), Hong Kong, June 14–19, 2015.

499. S. Zou, Y. Liang, L. Lai and S. Shamai (Shitz), Rate Splitting and Sharing for Degraded Broadcast Channel with Secrecy Outside a Bounded Range," IEEE International Symposium on Information Theory (ISIT2015), Hong Kong, June 14–19, 2015.

500. H. Zhang and Y. Liang, L. Lai and S. Shamai (Shitz), "Two-Key Generation for a Cellular Model with a Helper," IEEE International Symposium on Information Theory (ISIT2015), Hong Kong, June 14–19, 2015.

501. R. Duan, Y. Liang and S. Shamai (Shitz), "State-Dependent Gaussian Z-Interference Channel: Capacity Results," IEEE International Symposium on Information Theory (ISIT2015), Hong Kong, June 14–19, 2015.

502. C. Tian, J. Chen, S. N. Diggavi and S. Shamai, "Matched Multiuser Gaussian Source Channel Communications via Uncoded Schemes," IEEE International Symposium on Information Theory (ISIT2015), Hong Kong, June 14–19, 2015.

503. G. Bassi, P. Piantanida and S. Shamai (Shitz), "The Role of Noisy Feedback in Secure Communications," EuCN2015, European Conference on Networks and Communications, Paris, France, June 29/July 2, 2015.

504. R. Bustin, R. F. Schaefer, H. V. Poor and Shlomo Shamai (Shitz), "An I-MMSE Based Graphical Representation of Rate and Equivocation for the Gaussian Broadcast Channel," 2nd Workshop on Physical-layer Methods Security. IEEE Conference on Communications and Network Security (CNS2015), 28–30 Sept., 2015.

505. W. He, B. Nazer, and S. Shamai (Shitz), "Dirty-Paper Integer-Forcing," The Fifty-Third Annual Allerton Conference on Communication, Control, and Computing, Sept. 29–Oct. 2, 2015.

506. G. Bassi, P. Piantanida and S. Shamai (Shitz), "The Wiretap Channel with Generalized Feedback: Secure Communication and Key Generation", 2015 IEEE Information Theory Workshop, (ITW2015), Jeju Island, Korea, Oct. 11–15, 2015.

507. G. Bassi, P. Piantanida and S. Shamai (Shitz), "Secure Communication with Noisy Feedback", Joint NEWCOM/COST Workshop on Wireless Communications JNCW 2015, Oct. 14–15, 2015, Hotel Plaza, Barcelona, Spain.

508. S. Shamai, "Information Theoretic Considerations for Cloud Radio Access Networks," (*Invited Talk*): The International IEEE Conference on Microwaves, Communications, Antennas and Electronic Systems, COMCAS 2015, Tel-Aviv, Nov. 2–4, 2015, Israel.

509. W. Huleihel, N. Merhav and S. Shamai, "Compressive Sensing in Coding Problems: A Rigorous Information Theoretic Approach," (*Invited Talk*): The 2016 UCSD Workshop on Information Theory and Applications (ITA2016), UCSD, San Diego, CA, USA, Jan. 31–Feb. 5, 2016.

510. A. Dytso, R. Bustin, D. Tuninetti, N. Devroy, H.V. Poor and S. Shamai, "On Communications through a Gaussian Channel with and MMSE Disturbance Constraint," (*Invited Talk*): The 2016 UCSD Workshop on Information Theory and Applications (ITA2016), UCSD, San Diego, CA, USA, Jan. 31–Feb. 5, 2016.

511. S. Shamai, "An Information Theoretic View of Fronthaul-Constrained Cloud Radio Access Networks," Thursday, March 3, 2016. (*Keynote*): The 2016 International Zurich Seminar on Communications (IZS2016), Zurich, Switzerland, March 2–4, 2016.

512. S. Zou, Y. Liang, L. Lai, H. V. Poor, S. Shamai, "Recent Results on Broadcast Networks with Layered Decoding and Secrecy: An Overview", (*Invited Talk*): The 2016 International Zurich Seminar on Communications (IZS2016), Zurich, Switzerland, March 2–4, 2016.

513. S. Shamai, "A Short Outlook: Old and New in Information Theory" (Invited Address:), Claude Shannon Centennial Conference, The Future of the Information Age, April 28–29, Murray Hill, NJ, USA.

514. M. Wigger, S. S. Bidokthi, S. Shamai (Shitz) and R. Timo, "An Information-Theoretic View of Cache-Aided Cellular Networks," 2016 Iran Workshop on Communication and Information Theory (IWCIT) 3–4 May 2016, Sharif University of Technology, Tehran, Iran.

515. W. Lee, O. Simeone, J. Kang and S. Shamai (Shitz), "Multivariate Fronthaul Quantization for C-RAN Downlink: Channel-Adaptive Joint Quantization in the Cloud", IEEE International Conference on Communications (ICC 2016), Kuala Lumpur, Malaysia, 23–27 May, 2016.

516. S.-H. Park, O. Simeone and S. Shamai (Shitz), "Joint Cloud and Edge Processing for Latency Minimization in Fog Radio Access Networks", The 17th IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC2016), July 3–6, Edinburgh, UK.

517. S-H. Park, O. Simeone and S. Shamai (Shitz), "Joint Optimization of Cloud and Edge Processing for Fog Radio Access Networks", The 2016 IEEE International Symposium on Information Theory, Barcelona, Spain, July 10–15, 2016.

518. A-ul. Aisha, Y. Liang, L. Lai and S. Shamai(Shitz), "On the Sum-Rate Capacity of Non-Symmetric Poisson Multiple Access Channel", The 2016 IEEE International Symposium on Information Theory, Barcelona, Spain, July 10–15, 2016.

519. A. Dytso, R. Bustin, D. Tuninetti, N. Devroye, H. V. Poor and S. Shamai (Shitz), "On the Minimum Mean p-th Error in Gaussian Noise Channels and its Applications", The 2016 IEEE International Symposium on Information Theory, Barcelona, Spain, July 10–15, 2016.

520. S. Rini and S. Shamai (Shitz), "On the Capacity of the Dirty Paper Channel with Fast Fading and Discrete Channel States", The 2016 IEEE International Symposium on Information Theory, Barcelona, Spain, July 10–15, 2016.

521. G. Bassi, P. Piantanida and S. Shamai (Shitz), "Secret Key Generation over Noisy Channels with Common Randomness", The 2016 IEEE International Symposium on Information Theory, Barcelona, Spain, July 10–15, 2016.

522. D. Stotz, S. Ali Jafar, H. Bölcskei, and S. Shamai (Shitz), "Canonical Conditions for K/2 Degrees of Freedom", The 2016 IEEE International Symposium on Information Theory, Barcelona, Spain, July 10–15, 2016.

523. N. Karamchandani, S. Diggavi, G. Caire and S. Shamai (Shitz), "Rate and Delay for Coded Caching with Carrier Aggregation", The 2016 IEEE International Symposium on Information Theory, Barcelona, Spain, July 10–15, 2016.

524. Y. Sun, R. Duan, Y. Liang, A. Khisti and S. Shamai (Shitz), "Helper-Assisted State Cancelation for Multiple Access Channels", The 2016 IEEE International Symposium on Information Theory, Barcelona, Spain, July 10–15, 2016.

525. S. Zou, Y. Liang, L. Lai, H. V. Poor and S. Shamai (Shitz), "K-User Degraded Broadcast Channel with Secrecy Outside a Bounded Range," The 2016 Information Theory Workshop, Cambridge, UK, 11–14, Sep. 2016.

526. A. Dytso, R. Bustin, D. Tuninetti, N. Devroye, H. V. Poor and S. Shamai (Shitz), "On the Applications of the Minimum Mean $p$-th Error (MMPE) to Information Theoretic Quantities," The 2016 Information Theory Workshop, Cambridge, UK, 11–14, Sep. 2016.

527. S. Yang and S. Shamai (Shitz), "MIMO Phase Noise Channels at High SNR," The 2016 Information Theory Workshop, Cambridge, UK, 11–14, Sep. 2016.

528. M. Wigger, R. Timo and S. Shamai, "Complete Interference Mitigation Through Receiver-Caching in Wyner's Networks," The 2016 Information Theory Workshop, Cambridge, UK, 11–14, Sep. 2016.

529. J. Du, M. Médard and S. Shamai (Shitz), "Cost of Local Cooperation in Hierarchical Virtual MIMO Transmission Schemes," The 2016 Information Theory Workshop, Cambridge, UK, 11–14, Sep. 2016.

530. S. Shamai (Invited), "Information Theory: Some Old and Some New," the 2016 ICSEE International Conference on the Science of Electrical Engineering, Nov. 16–18, 2016, Eliat Israel.

531. A. Bunin, P. Piantanida and S. Shamai (Shitz), "The Gaussian Wiretap Channel with Correlated Sources at the Terminals: Secret Communication and Key Generation", the 2016 ICSEE International Conference on the Science of Electrical Engineering, Nov. 16–18, 2016, Eliat Israel.

532. A. Homri, M. Peleg and S. Shamai, "Oblivious Processing in a Fronthaul Constrained Gaussian Channel," the 2016 ICSEE International Conference on the Science of Electrical Engineering, Nov. 16–18, 2016, Eliat Israel.

533. S. Rini and S. Shamai (Shitz), "On the Capacity of the Carbon Copying onto Dirty Paper Channel," the 2016 ICSEE International Conference on the Science of Electrical Engineering, Nov. 16–18, 2016, Eliat Israel.

534. I. B. Gattegno, H. H. Permuter, S. Shamai and A. Ozgur, "Semi-deterministic relay channels with non-causal states only at the transmitter and receiver," the 2016 ICSEE International Conference on the Science of Electrical Engineering, Nov. 16–18, 2016, Eliat Israel.

535. Ain-ul-Aisha, L. Lai, Y. Liang and S. Shamai (Shitz), "On the Sum-Rate Capacity of Poisson MISO Multiple Access Channels," (Invited Paper), The IEEE International Conference on Communication Systems, 14–16, Dec. 2016, Shenzhen China.

536. S. Shamai: (Invited Talk), "Fronthaul Constrained Cloud and Fog Radio Access Networks: An Information Theoretic View," IPAM Conference on: Emerging Wireless Networks, UCLA, LA, USA, Feb. 6–10, 2017.

537. A. Dytso, R. Bustin, N. Devroy, V. Poor, S. Shamai and D. Tuninetti, "Some Results on the Generalized Gaussian Distribution," Information Theory & Applications (ITA2017), San Diego, USA, Feb. 12–17, 2017.

538. S.-H. Park, S. Simeone and S. Shamai, "Sum-Rates for Wyner based C-RAN Uplink with Inter-Connected Oblivious Radio Units," Information Theory & Applications (ITA2017), San Diego, USA, Feb. 12–17, 2017.

539. S. Shamai: (Keynote Address), "Cloud and Fog Radio Access Networks: An Information Theoretic View?," WSA 2017: 21st International ITG Workshop on Smart Antennas March 15–17, 2017, Berlin, Germany.

540. Jinkyu Kang, Osvaldo Simeone, Joonhyuk Kang and Shlomo Shamai (Shitz), "Control-Data Separation across Edge and Cloud for Uplink Communications in C-RAN," IEEE WCNC, 19–22 March, 2017, San Francisco, CA, USA.

541. A. Bunin, Z. Goldfeld, H. H. Permuter, S. Shamai (Shitz), P. W. Cuff, P. Piantanida, "Semantically-Secured Message-Key Trade-off over Wiretap Channels with Random Parameters," (Invited Paper), WCS 2017, the Second International Workshop on Communication Security, Paris, France, April 30, 2017.

542. Tianyu Yang, Nan Liu, Wei Kang, and Shlomo Shamai (Shitz), "An Upper Bound on the Sum Capacity of the Downlink Multicell Processing with Finite Backhaul Capacity," IEEE International Symposium on Information Theory (ISIT2017), Aachen, Germany, June 25–30, 2017.

543. Shirin Saeedi Bidokhti, Gerhard Kramer and Shlomo Shamai (Shitz), "Capacity Bounds on the Downlink of Symmetric, Multi-Relay, Single Receiver C-RAN Networks," IEEE International Symposium on Information Theory (ISIT2017), Aachen, Germany, June 25-30, 2017.

544. Wei Yang, Yingbin Liang, Shlomo Shamai (Shitz), and H. Vincent Poor, "Outer Bounds for Multiple Access Channels with State Known at One Encoder," IEEE International Symposium on Information Theory (ISIT2017), Aachen, Germany, June 25-30, 2017.

545. Ori Shental Benjamin M. Zaidel Shlomo Shamai (Shitz), "Low-Density Code-Domain NOMA: Better Be Regular," IEEE International Symposium on Information Theory (ISIT2017), Aachen, Germany, June 25-30, 2017.

546. Alex Dytso, Ronit Bustin, H. Vincent Poor, and Shlomo Shamai (Shitz), "On Additive Channels with the Generalized Gaussian Noise," IEEE International Symposium on Information Theory (ISIT2017), Aachen, Germany, June 25-30, 2017.

547. Alex Dytso, Mario Goldenbaum, H. Vincent Poor and Shlomo Shamai (Shitz), "A Generalized Ozarow-Wyner Capacity Bound with Applications," IEEE International Symposium on Information Theory (ISIT2017), Aachen, Germany, June 25-30, 2017.

548. Inaki Estella Aguerri, Abdellatif Zaidi, Shlomo Shamai (Shitz) and Giuseppe Caire, "On the Capacity of Uplink Cloud Radio Access Networks with Oblivious Relaying," IEEE International Symposium on Information Theory (ISIT2017), Aachen, Germany, June 25-30, 2017.

549. Ido B. Gattegno, Haim H. Permuter, Shlomo Shamai (Shitz), Ayfer Ozgur, "Cooperative Binning for Semi-deterministic Channels with Non-causal State Information," IEEE International Symposium on Information Theory (ISIT2017), Aachen, Germany, June 25-30, 2017.

550. Yunhao Sun, Yingbin Liang, Ruchen Duan ans Shlomo Shamai (Shitz), "State-Dependent Z-Interference Channel with Correlated States," IEEE International Symposium on Information Theory (ISIT2017), Aachen, Germany, June 25-30, 2017.

551. Seok-Hwan Park, Osvaldo Simeone and Shlomo Shamai (Shitz), "Fronthaul Quantization as Artificial Noise for Enhanced Secret Communication in C-RAN," 2017 IEEE 18th International Workshop on Signal Processing Advances in Wireless Communications (SPAWC2017), July 3–6, 2017, Sapporo Japan.

552. Seok-Hwan Park, Osvaldo Simeone, Wonju Lee, and Shlomo Shamai (Shitz), "Coded Multicast Fronthauling and Edge Caching for Multi-Connectivity Transmission in Fog Radio Access Networks," 2017 IEEE 18th International Workshop on Signal Processing Advances in Wireless Communications (SPAWC2017), July 3–6, 2017, Sapporo Japan.

553. Jaein Kim, Seok-Hwan Park, Osvaldo Simeone, Inkyu Lee and Shlomo Shamai (Shitz), "Joint Design of Digital and Analog Processing for Downlink C-RAN with Large-Scale Antenna Arrays," 2017 IEEE 18th International Workshop on Signal Processing Advances in Wireless Communications (SPAWC2017), July 3–6, 2017, Sapporo Japan.

554. A. Dytso, R. Bustin, H. V. Poor, and S. Shamai (Shitz), "On the Equality Condition for the I-MMSE Proof of the Entropy Power Inequality," The 55th Annual Allerton Conference on Communication, Control, and Computing, University of Illinois at Urbana-Champaign, October 3–6, 2017.

555. Shaofeng Zou, Yingbin Liang and Shlomo Shamai (Shitz), "Gaussian Fading Channel with Secrecy Outside a Bounded Range," The IEEE Conference on Communications and Network Security (CNS2017), 9–11 October, 2017, Las Vegas, NV, USA.

556. S. Shamai, "An Information Theoretic Perspective of Fronthaul Constrained Cloud and Fog Radio Access Networks". (Invited Talk), DigiCosme Workshop on Information Theory, Telecom ParisTech, 12 October 2017.

557. Stefano Rini and Shlomo Shamai (Shitz), "The approximate capacity for the three-receiver writing on random dirty paper channel," 2017 IEEE Information Theory Workshop (ITW2017), 6–10, November 2017, Qianzhen District Kaohsiung, Taiwan.

558. Seok-Hwan Park, Osvaldo Simeone and Shlomo Shamai (Shitz), "Uplink Sum-Rate Analysis of C-RAN With Interconnected Radio Units," 2017 IEEE Information Theory Workshop (ITW2017), 6–10, November 2017, Qianzhen District Kaohsiung, Taiwan.

559. M. Peleg and S. Shamai, "Dirty Paper Via a Relay with Oblivious Processing," the International Conference on Microwaves, Communications, Antennas and Electronic Systems (COMCAS2017), 13–15, November, 2017,

560. A. Dytso, M. Goldenbaum, H. V. Poor and S. Shamai (Shitz), "Upper and Lower Bounds on the Capacity of Amplitude-Constrained MIMO Channels," the IEEE GLOBECOM 2017, 4–8 December 2017, Singapore.

561. A. Zaidi, I. E. Aguerri, G. Caire and S. Shamai (Shitz), "Uplink Oblivious Cloud Radio Access Networks: An Information Theoretic Overview," Workshop on Information Theory and Applications (ITA2018), San Diego, CA, USA, Feb. 11–16, 2018.

562. A. Dytso, R. Bustin, H.V. Poor and S. Shamai (Shitz), "On the Structure of the Least Favorable Prior Distributions," Workshop on Information Theory and Applications (ITA2018), San Diego, CA, USA, Feb. 11–16, 2018.

563. M. Dikshtein, R. Duan, Y. Liang and S. Shamai (Shitz), "State-Dependent Parallel Gaussian Channels With a State-Cognitive Helper," The 2018 International Zurich Seminar on Communications (IZS2018), Zurich, Switzerland, Feb. 21–23, 2018.

564. A. Dytso, M. Goldenbaum, H. V. Poor and S. Shamai (Shitz), "When are Discrete Channel Inputs Optimal? – Optimization Techniques and Some New Results," 52th Annual Conference on Information Sciences and Systems (CISS), March 21–23, 2018, Princeton University, USA.

565. R. Karasik, O. Simeone and S. Shamai (Shitz), "Fundamental Latency Limits for D2D-Aided Content Delivery in Fog Wireless Networks," IEEE International Symposium on Information Theory (ISIT2018), Vail, Colorado, USA, June 17-22, 2018.

566. B. M. Zaidel, O. Shental and S. Shamai (Shitz), "Sparse NOMA: A Closed-Form Characterization," IEEE International Symposium on Information Theory (ISIT2018), Vail, Colorado, USA, June 17-22, 2018.

567. A. Dytso, R. Bustin, H. V. Poor and S. Shamai (Shitz), "On the Structure of the Least Favorable Prior Distributions," IEEE International Symposium on Information Theory (ISIT2018), Vail, Colorado, USA, June 17-22, 2018.

568. H. Nikbakht and M. Wigger and S. Shamai (Shitz), "Mixed Delay Constraints in Wyner's Soft-Handoff Network," IEEE International Symposium on Information Theory (ISIT2018), Vail, Colorado, USA, June 17-22, 2018.

569. J. Du, M. Medard and S. Shamai (Shitz), "Cost of Path Loss and Local Communication in the Scaling Law of Extended Wireless Networks," IEEE International Symposium on Information Theory (ISIT2018), Vail, Colorado, USA, June 17-22, 2018.

570. A. Bunin, Z. Goldfeld, H. H. Permuter, S. Shamai, P. Cuff and P. Piantanida, "Key-Message Security over State-Dependent Wiretap Channels," IEEE International Symposium on Information Theory (ISIT2018), Vail, Colorado, USA, June 17-22, 2018.

571. Chong Li, Yingbin Liang, H. Vincent Poor and Shlomo Shamai(Shitz), "A Coding Scheme for Colored Gaussian Wiretap Channels with Feedback," IEEE International Symposium on Information Theory, June 17-22, 2018, Vail, Colorado in the USA.

572. R. Gul, H. Bölcskei and S. Shamai (Shitz), "Necessary Conditions for K/2 Degrees of Freedom," IEEE International Symposium on Information Theory, June 17-22, 2018, Vail, Colorado in the USA.

573. B. Huleihel, O. Sabag, H. H. Permuter, N. Kashyap, S. Shamai, "Computable upper bounds for finite-state channels," Recent results Session: IEEE International Symposium on Information Theory, June 17-22, 2018, Vail, Colorado in the USA.

574. R. Karasik, O. Simeone and S. Shamai (Shitz), "Information-Theoretic Analysis of D2D-Aided Pipelined Content Delivery in Fog-RAN, 15th International Symposium on Wireless Communication Systems (ISWCS 2018), 28–31 August 2018, Lisbon Portugal.

575. A. Dytso, M. Egan, S. M. Perlaza, H. V. Poor and S. Shamai (Shitz), "Optimal Inputs for Some Classes of Degraded Wiretap Channels," 2018 IEEE Information Theory Workshop (ITW2018), 25–29, November, 2018, Guangzhou, China.

576. A. Dytso, H. V. Poor and S. Shamai (Shitz), "Capacity of the Vector Gaussian Channel in the Small Amplitude Regime," 2018 IEEE Information Theory Workshop (ITW2018), 25–29, November, 2018, Guangzhou, China.

577. H. Nikbakht and M. Wigger S. Shamai (Shitz), "Mixed Delay Constraints at Maximum Sum-Multiplexing Gain," 2018 IEEE Information Theory Workshop (ITW2018), 25–29, November, 2018, Guangzhou, China.

578. S. Yagli, A. Dytso, H.V. Poor, S. Shamai (Shitz), "Bounding the Number of Mass Points of the Amplitude and Power Constrained AGC," Poster in the 2018 IEEE Information Theory Workshop (ITW2018), 25–29, November, 2018, Guangzhou, China.

579. (Keynote Address): S. Shamai, "Cloud Radio Access Networks, Distributed Information Bottleneck, and more: A Unified Information Theoretic Framework," The 2018 Workshop on Coding, Cooperation, and Security in Modern Communication Networks (COCO2018), 10–11, Dec. 2018, Technion, Haifa, Israel.

580. (Invited): S. Shamai (Shitz), "Distributed Information Bottleneck, and more: A Unified Information Theoretic View," The 2018 ICSEE International Conference on the Science of Electrical Engineering (ICSEE-Eilat), Dec. 12–14, 2018, Eilat, Israel.

581. G. Caire, S. Shamai (Shitz), A. Tulino, S. Verdu and C. Yapar, "Information Bottleneck for an Oblivious Relay with Channel State Information: the Scalar Case," The 2018 ICSEE International Conference on the Science of Electrical Engineering (ICSEE-Eilat), Dec. 12–14, 2018, Eilat, Israel.

582. M. Dikshtein, R. Duan, Y. Liang and S. Shamai (Shitz), "Parallel Gaussian Channels Corrupted by Independent States With a State-Cognitive Helper," The 2018 ICSEE International Conference on the Science of Electrical Engineering (ICSEE-Eilat), Dec. 12–14, 2018, Eilat, Israel.

583. M. Dikshtein and S. Shamai (Shitz), "Broadcasting Information subject to State Masking," The 2018 ICSEE International Conference on the Science of Electrical Engineering (ICSEE-Eilat), Dec. 12–14, 2018, Eilat, Israel.

584. A. Dytso, R. Bustin, H.V. Poor and S. Shamai (Shitz), "On Lossy Compression of Generalized Gaussian Sources," The 2018 ICSEE International Conference on the Science of Electrical Engineering (ICSEE-Eilat), Dec. 12–14, 2018, Eilat, Israel.

585. M. Zeide, O. Simeone, and S. Shamai (Shitz), "Confidential Communication in C-RAN Systems with Infrastructure Sharing," The 2018 ICSEE International Conference on the Science of Electrical Engineering (ICSEE-Eilat), Dec. 12–14, 2018, Eilat, Israel.

586. A. Zaidi and S. Shamai (Shitz), "Perspectives on Information Bottleneck Problems," Information Theory & Applications (ITA2019), San Diego, USA, February 11–15, 2019.

587. X. Liu, R. Bustin, G. Han and S. Shamai (Shitz), "An Elementary Proof of a Classical Information-Theoretic Formula," Information Theory & Applications (ITA2019), San Diego, USA, February 11-15, 2019.

588. S. Yagli, A. Dytso, H. V. Poor and S. Shamai (Shitz), (Invited): "Some Aspects of Totally Positive Kernels Useful in Information Theory", IEEE Wireless Communications and Networking Conference (WCNC2019) 15–19 April 2019, Marrakech, Morocco.

589. M. Wigger, H. Nikbakht and S. Shamai (Shitz), "Networks with Mixed Delay-Constraints," the Fifth London Symposium on Information Theory (LSIT) 2019, May 30–31, 2019.

590. (Keynote Address): S. Shamai (Shitz): "Wireless Networks via the Cloud : An Information Theoretic View," the International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks WiOpt 2019, June 3–7, 2019, Avignon, France. (Based on joint work with E. Augerri, G. Caire, S.-H. Park, O. Sahin, O. Simeone and A. Zaidi.)

591. H. Nikbakht, M. Wigger and S. Shamai (Shitz), "Multiplexing Gain Region of Sectorized Cellular Networks with Mixed Delay Constraints," The 20th IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC2019), 2–5 July 2019, Cannes France.

592. R. Karasik, O. Simeone and S. Shamai (Shitz), "Latency Limits for Content Delivery in a Fog-RAN with D2D Communication," The 2019 IEEE International Symposium on Information Theory (ISIT2019), July 7–12, 2019, Paris, France.

593. S. Yagli, A. Dytso, H. V. Poor and S. Shamai (Shitz), "An Upper Bound on the Number of Mass Points in the Capacity Achieving Distribution for the Amplitude Constrained Additive Gaussian Channel," The 2019 IEEE International Symposium on Information Theory (ISIT2019), July 7–12, 2019, Paris, France.

594. B. Huleihel, O. Sabag, H. H. Permuter, N. Kashyap and S. Shamai (Shitz), "Computable Upper Bounds for Unifilar Finite-State Channels," The 2019 IEEE International Symposium on Information Theory (ISIT2019), July 7–12, 2019, Paris, France.

595. M. Dikshtein, A. Somekh-Baruch and S. Shamai (Shitz), "Broadcasting Information subject to State Masking over a MIMO State Dependent Gaussian Channel," The 2019 IEEE International Symposium on Information Theory (ISIT2019), July 7–12, 2019, Paris, France.

596. O. Sabag H. Permuter and S. Shamai (shitz), "Capacity-Achieving Coding Scheme for the MAC with Degraded Message Sets and Feedback," The 2019 IEEE International Symposium on Information Theory (ISIT2019), July 7–12, 2019, Paris, France.

597. B. Dai, C. Li, Y. Liang, Z. Ma and S. Shamai (Shitz), "The Dirty Paper Wiretap Feedback Channel with or without Action on the State," The 2019 IEEE International Symposium on Information Theory (ISIT2019), July 7-12, 2019, Paris, France.

598. X. Liu, R. Bustin, G. Han and S. Shamai (Shitz), "An Elementary Proof of a Classical Information-Theoretic Formula," The 2019 IEEE International Symposium on Information Theory (ISIT2019), July 7-12, 2019, Paris, France.

599. S. Shamai, (Invited Talk): "Information Bottleneck Problems: An Outlook", The 2019 Workshop on Probability and Information Theory (WPI 2019), The University of Hong Kong, 19–22 August, 2019.

600. H. Nikbakht, M. Wigger, W. Hachem and S. Shamai (Shitz), "Mixed Delay Constraints on a Fading C-RAN Uplink", The IEEE Information Theory Workshop (ITW2019), Visby, Gotland, Sweden, 25–28 August, 2019.

601. X. Wu, A. Ozgur, M. Peleg and S. Shamai (Shitz), "New Upper Bounds on the Capacity of Primitive Diamond Relay Channels", The IEEE Information Theory Workshop (ITW2019), Visby, Gotland, Sweden, 25–28 August, 2019.

602. S. Shamai (Shitz), (Invited Plenary Address): "Distributed Compression, the Information Bottleneck and Cloud Radio Access Networks: A Unified Information Theoretic View", XVI International Symposium Problems of Redundancy in Information and Control Systems MIEM HSE, 34 Tallinskaya Street, Moscow, Russia, Oct. 21–25, 2019.

603. A. Steiner and S. Shamai (Shitz), "Broadcast Approach for the Information Bottleneck Channel", The International Conference on Microwaves, Communications, Antennas & Electronic Systems (COMCAS 2019), 4–6, Nov. 2019, David Intercontinental Hotel, Tel Aviv, Israel.

604. A. Katz, M. Peleg and Shlomo Shamai (Shitz), "Gaussian Diamond Primitive Relay with Oblivious Processing", The International Conference on Microwaves, Communications, Antennas & Electronic Systems (COMCAS 2019), 4–6, Nov. 2019, David Intercontinental Hotel, Tel Aviv, Israel.

605. S. Shamai (Shitz) and A. Steiner, "Broadcast Approach under Information Bottleneck Capacity Uncertainty", Information Theory & Applications (ITA2020), San Diego, USA, February 2-7, 2020.

606. G. Han and S. Shamai (Shitz), "On Sampling Continuous-Time Gaussian Channels", Information Theory & Applications (ITA2020), San Diego, USA, Feb. 2-7, 2020.

607. K. M. Cohen, A. Steiner and S. Shamai (Shitz), "On the Broadcast Approach over Parallel MIMO Two-state Fading Channel", the International Zurich Seminar on Information and Communication (IZS2020), Zurich, Switzerland, February 26–28, 2020.

608. A. Zaidi and S. Shamai (Shitz), "On the Information Bottleneck Problems: An Information Theoretic Perspective", the International Zurich Seminar on Information and Communication (IZS2020), Zurich, Switzerland, February 26–28, 2020.

609. D. Yu, S.-H. Park, O. Simeone and S. Shamai (Shitz), "Optimizing Over-the-Air Computation in IRS-Aided C-RAN Systems", 2020 IEEE 21st International Workshop on Signal Processing Advances in Wireless Communications (SPAWC2020), May 26–29, Atlanta, GA, USA.

610. J. Kim, D. Yu, S-H. Park, O. Simeone and S. Shamai (Shitz), "Inter-Tenant Cooperative Reception for C-RAN Systems With Spectrum Pooling", the IEEE International Conference on Communications (ICC2020), Dublin, Ireland, 7–11, June 2020.

611. R. Karasik, O. Simeone, M. Di Renzo and S. Shamai (Shitz), "Beyond Max-SNR: Joint Encoding for Reconfigurable Intelligent Surfaces", the 2020 IEEE International Symposium on Information Theory (ISIT2020), June 21–26, 2020, Los Angeles, California, USA.

612. B. M. Zaidel, O. Shental and S. Shamai (Shitz), "Bounding the Achievable Region of Sparse NOMA", the 2020 IEEE International Symposium on Information Theory (ISIT2020), June 21–26, 2020, Los Angeles, California, USA.

613. A. Dytso, H. V. Poor and S. Shamai (Shitz), "A General Derivative Identity for the Conditional Mean Estimator in Gaussian Noise and Some Applications", the 2020 IEEE International Symposium on Information Theory (ISIT2020), June 21–26, 2020, Los Angeles, California, USA.

614. M. Zohdy, A. Tajer and S. Shamai (Shitz), "Interference Management without CSIT: A Broadcast Approach", the 2020 IEEE International Symposium on Information Theory (ISIT2020), June 21–26, 2020, Los Angeles, California, USA.

615. Bin Dai, Chong Li, Yingbin Liang, Zheng Ma and Shlomo Shamai (Shitz), "On the Capacity of Gaussian Multiple-Access Wiretap Channels with Feedback", to be presented at the International Symposium on Information Theory and its Applications (ISITA2020), Kapolei, Hawai'i, USA, 24–27, October 2020.

616. (Keynote Address): S. Shamai, "Information Bottleneck Problems: Connections, Applications and Implications". The 2020 Workshop on Coding, Cooperation, and Security in Modern Communication Networks (COCO2020), July 6,16, 2020, Israel.

617. (Key Presentation): S. Shamai (Shitz), "The Information Bottleneck: A Unified Information Theoretic View", The 2020 Workshop on Machine Learning for Communications (MLCOM2020), 7–8, September 2020 Israel (virtual).

**D. Patents**

1. D. Burstein, S. Shamai (Shitz), D. Rainish and D. Ben-Eli, "A Code Synchronization Unit and Method", DSPC patent in Israel and US.
2. D. Yellin and S. Shamai (Shitz), "Cyclic Adaptive Single and Multi-User Receivers for DS-CDMA Signals", DSPC Patent, filed USA, Sept. 1998.
3. Y. Peretz and S. Shamai (Shitz), "Method and Device for managing Power Consumption of a Receiver in Stand-By Mode", DSPC Patent, filed USA, July 1999.

**E. Research Reports (not published as technical papers)**

1. S. Shamai (Shitz), "Optimal Finite Impulse Response Linear Detection Filter For Digital P.A.M. in The Presence of Additive Gaussian Noise and Intersymbol Interference", EE Pub. No. 419, Technion, Israel, Dec. 1981.
2. S. Shamai (Shitz), "Nonuniformly Spaced Sampling for Bandlimited Functions and Stochastic Processes", EE Pub. No. 505, Technion, Israel, Oct. 1984.
3. S. Shamai (Shitz) and I. Bar David, "On the Autocorrelation Function and Spectral Density of Phase Modulated Signals". EE Pub. No. 511, Dec. 1984.
4. S. Shamai (Shitz) and I. Bar David, "On FM Clicks and Envelopes". EE Pub. No. 520, April 1985.
5. S. Shamai (Shitz) and I. Bar-David, On the Statistics of Axes Crossings Related to FM Clicks, Envelopes and Instantaneous Frequencies, EE Pub. No. 531, Technion, Israel, Nov. 1985.
6. S. Shamai (Shitz), "Statistics of Parameters of a Narrow Band Signal Plus Gaussian Noise". EE Pub. No. 529, Technion, Israel, Dec. 1985.
7. S. Shamai (Shitz) and I. Bar David, "On Clicks in FM Receivers - Unmodulated Signals". EE Pub. No. 539, Technion, Israel, Dec. 1985.
8. S. Shamai (Shitz) and I. Bar-David, "The Capacity of Bandwidth Restricted Polyphase Codes", EE Pub. No. 532, Technion, Israel, Feb. 1987.
9. M. Peleg, A. Sanderovich and S. Shamai (Shitz), "On Extrinsic Information of Good Codes Operating over Discrete Memoryless Channels", CCIT Report #525, EE Dept., Technion, March 2005, arXive, http://il.arxiv.org/abs/cs.IT/0504028 and http://arxiv.org/ftp/cs/papers/0504/0504028.pdf.

**Significant Professional Projects**

Intensive involvement in research and development of state of art digital and analog military communication systems in particular modern modulation and coding techniques, (1978–1986).

System design of an advanced digital FM multimode radio with advanced signal processing based on combined continuous phase modulation (CPM) and coding including ECCM.

Contribution to cellular and wireless networks. Advanced high speed-data radio: coding/modulation and equalization aspects.

The design and analysis of state-of-the-art iterative signal processing techniques with applications to coding, equalization, multi-user detection, non-coherent communications, communications on fading channels.

**Research Grants**

| | |
|---|---|
| 1990-1993 | Technion Grant for Promotion of Research,<br>Title of Research: Information Theoretic Models for Magnetic Recording Channels.<br>Total Budget: $2,000×3. |
| 1992-1993 | The Ministry of Communications Research Grant.<br>Co-recipient with E. Zehavi.<br>Title of Research: Issues in Trellis Coded Modulation.<br>Total Budget: $20,000×2. |
| 1993-1996 | Technion Grant for Promotion of Research.<br>Title of Research: Information Rates in Constrained Channels.<br>Total Budget: $4,000×3. |
| 1994-1997 | The Binational Scientific Foundation Grant.<br>Co-recipient with S. Verdu (Princeton University).<br>Title of Research: Analysis of Single and Multiple Terminal Additive Noise Channels under Nonstandard Constraints.<br>Total Budget: $25,000×3. |
| 1997-1999 | Technion Grant for Promotion of Research.<br>Title of Research: Information Theoretic Aspects of Communication over Fading Channels<br>Total Budget: $4,000. |
| 1998-2000 | The Binational Scientific Foundation Grant.<br>Co-recipient with S. Verdu (Princeton University).<br>Title of Research: Information Theoretic Investigation of Random Spreading Code Division Multiple Access.<br>Total Budget: $21,000×3. |
| 1998-2000 | The Israel Academy of Sciences and Humanities Research Grant.<br>Title of Research: Reliable Information Rates for Basic Models of Cellular Communication Systems.<br>Total Budget: $38,000×3. |
| 2000–2003 | The Binational Science Foundation Grant.<br>Co-recipient with S. Verdú (Princeton University).<br>Title of Research: Information-Theoretic and Communications Aspects of Time-Varying Fading Channels.<br>Total Budget: $24,000×3. |
| 2000–2003 | The Israel Academy of Science and Humanities Research Grant.<br>Co-recipient with Y. Steinberg (EE Dept., Technion).<br>Title of Research: Information Theoretic Study of Communication and Identification Channels.<br>Total Budget: $54,000×3. |
| 2001–2002 | The Eliyahu Pen Technion Research Grant for Excellence in Funded Research Activity.<br>Total Budget: $4,000. |
| 2001–2004 | The Israel Academy of Science and Humanities Research Grant.<br>Submitted with R. Zamir (EE Dept.–Systems, Tel-Aviv Univ.)<br>Title of Research: Nested Codes with Applications to Multi-terminal/Multi-link Systems. |

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| 2003–2007 | The Israel Academy of Science and Humanities Research Grant. Co-investigator Y. Steinberg (EE Dept., Technion). Title of Research: Multiterminal Communications with Side Information: An Information Theoretic Inspired Approach. Budget: $50,000×4. |
| 2004–2006 | European-Union Sixth Framework Programme NEWCOM—Network of Excellence in Wireless COMmunication. Budget: EUR 56,000. |
| 2004–2007 | The Israel Academy of Science and Humanities Research Grant. Co-investigator Y. C. Eldar (EE Dept., Technion). Title of Research: Least-Squares Inner Product Shaping: Theory and Applications to Communication System. Budget: $35,000×3. |
| 2005–2009 | The Binational Science Foundation Grant. Co-investigator S. Verdú (Princeton University). Title of Research: Information Theory and Estimation: Interactions and Applications. Budget: $20,000×4. |
| 2006–2007 | INTEL. Co-investigators A. Orda and Y. Steinberg. Title of Research: Wireless Networks: Cooperative Approach in Communications and Protocols. Budget: $27,000. |
| 2006–2009 | Marie Curie Foundation. Principal Investigator Anelia Somekh-Baruch (EE Dept., Technion). Title of Research: Applications of Multiuser Information Theory to Data Hiding. Total Budget: EUR 259,852. |
| 2007–2011 | The Israel Academy of Science and Humanities Research Grant. Principal Investigator: Shlomo Shamai Co-investigator: Y. C. Eldar (EE Dept., Technion). Title of Research: Multi-Element Communications under Uncertainty Conditions: An Information Theoretic and Signal Processing Interplay. Budget: $75,000×4. |
| 2008–2011 | European-Union Seventh Framework Programme NEWCOM++ Network of Excellence in Wireless COMmunication. Budget: EUR 50,000×3. |
| 2009–2013 | The Binational Science Foundation Grant. Co-investigators: S. Verdú (Princeton University) and G. Caire (USC University). Title of Research: Random Matrices in Information Theory and Communications. Budget (total): 120,000$. |
| 2009–2013 | CORNET (Cognitive Radio) Consortium. Title of Research: Fundamental Limits in Cognitive Radio. Budget (total): $30,000×4. |
| 2011–2015 | Israel Academy of Science and Humanities. Title of Research: Information Thoretic Aspects of Cooperative Cellular Wireless Networks. Budget (total): $75,000×4. |
| 2012–2015 | European-Union Seventh Framework Programme NEWCOM# Network of Excellence in Wireless COMmunication. Budget: EUR 50,000×3. |

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| 2013–2017 | The Binational Science Foundation Grant.<br>Co-investigators: S. Verdú (Princeton University) and G. Caire (USC University).<br>Title of Research: Random Matrices in Information Theory: An Interactive Approach. Budget (total): 107,200$. |
| 2016–2019 | Heron (Next Generation Cellular Networks) Consortium:<br>Title of Research: Cooperative Cellular Networks—A Theoretical View. |
| 2016–2021 | Advanced ERC Grant.<br>Title of Research: Cloud Wireless Networks: An Information Theoretic Framework.<br>Budget (total): 1,980,000 Euro. |
| 2019–2022 | The Binational Scientific Foundation Grant-US National Scientific Foundation Grant (BSF-NSF): Joint with: Prof. V. H. Poor, Princeton University.<br>Title of Research: A Unified View of Estimation and Information Relationships for Networks and Beyond.<br>Budget: total (BSF part) 171,000$. |
| 2019–2023 | The Israel Sicence Foundation (ISF):<br>Joint with Dr. Benjamin Zaidel, Bar Ilan University.<br>Title of Research: "Sparse Communications: An Information Theoretic Perspective". Budget: total 80,000$ $\times 4$. |

**Graduate Students/Postdocs**

Graduated

Michael Polacek (M.Sc. – graduated Feb. 1986). Thesis title: "On FM Threshold Extension by Click Noise Elimination". Supervisors: I. Bar David (Primary) and S. Shamai (Shitz).

Osnat Refaeli (M.Sc. – graduated May 1988). Thesis title: "On the Capacity of Peak and Average Power Constrained Gaussian Channels". Supervisor: S. Shamai (Shitz).

Yoram Batsha (M.Sc. – graduated Nov. 1988). Thesis title: "Bounds on the Optimal Mean Square Estimation Error in Autoregressive Models". Supervisor: S. Shamai (Shitz).

Yosef Kofman (M.Sc. – graduated May 1988). Thesis title: "On the Capacity of Binary and Gaussian Channels with Run-Length Limited Inputs". Supervisor: S. Shamai (Shitz).

David Reinitz (M.Sc. – graduated January 1990). Thesis title: "Soft Decision Detection of Coded CPFSK Combined with Discriminator Demodulator". Supervisor: S. Shamai (Shitz).

Amos Lapidoth (M.Sc. – graduated June 1990). Thesis title: "The Capacity of the Optical Channel under Spectral Constraints". Supervisor: S. Shamai (Shitz).

Yona Leshez (M.Sc. – graduated May 1992). Thesis title: "Post-Detector Processors for CPM Signals Detected with a Limiter-Discriminator". Supervisor: S. Shamai (Shitz) (Primary) and Eli Plotnik.

Ephraim Fecht (M.Sc. – graduated June 1992). Thesis title: "Communication Channels Interference Sensitivity Analysis". Supervisor: S. Shamai (Shitz).

Yeheskel Dallal (D.Sc. – graduated June 1992). Thesis title: "Communication in the Presence of Phase Noise". Supervisors: S. Shamai (Shitz) (Primary) and J. Salz.

Yosef Kofman (D.Sc. – graduated June 1992). Thesis title: "Combined Modulation and Coding". Supervisors: S. Shamai (Shitz) (Primary) and E. Zehavi.

Naftali Chayat (M.Sc. – graduated October 1992). Thesis title: "Bounds on the Capacity of an AWGN Channel with Intertransition-Time Restricted Binary Input". Supervisor: S. Shamai (Shitz).

David Ben-Eli (M.Sc. – graduated May 1993). Thesis title: "Information Rates in Optical Channels including Optical Amplifiers". Supervisors: I. Bar-David (Primary) and S. Shamai (Shitz).

Gideon Kaplan (D.Sc. – graduated June 1993). Thesis title: "Communication and Information Rates in Miss-Matched Channels". Supervisors: S. Shamai (Shitz) (Primary) and I. Bar-David.

Rony Ashkenazi (M.Sc. – graduated July 1993). Thesis title: "Suboptimal Detection for Intersymbol Interference Cable Channels". Supervisors: S. Shamai (Shitz) (Primary) and E. Plotnik.

Yoni Perez (M.Sc. – graduated May 1996). Thesis title: "Coded CPFSK with Limiter Discriminator Detection". Supervisor: S. Shamai (Shitz).

Baruch Bublil (M.Sc. – graduated May 1996). Thesis title: "Suboptimal Noncoherent Detection of CPM Signals". Supervisor: S. Shamai (Shitz).

Benny Zeidel (M.Sc. – graduated November 1996). Thesis title: "Performance of Linear MMSE Multiuser Detection Combined with a Standard IS-95 Uplink". Supervisors: Hagit Messer-Yaron (Primary) and S. Shamai (Shitz).

Sara Glen (M.Sc. – graduated March 1998). Thesis title: "Noncoherent Coded MDPSK". Supervisor: S. Shamai (Shitz), Consultant: M. Peleg.

Avi Shabtai (M.Sc. – graduated July 1998). Thesis title: "Symbol Timing Acquisition for CPM Signals". Supervisors: Yeheskel Dallal (Primary) and S. Shamai (Shitz).

Oka Anand (M.Sc. – graduated July 1998). Thesis title: "Rotational Invariance and Distance Spectrum in Geometrically Uniform Codes". Supervisors: S. Bross (Primary) and S. Shamai (Shitz).

Shaul Shochat (M.Sc. – graduated September 1998).
Final Project Title: "Turbo Coding Performance on a Practical FM Channel". Supervisors: S. Litsyn (Primary) and S. Shamai (Shitz).

Nir Binshtok (M.Sc. – graduated November 1998). Thesis title: "Integer Metrics for Binary Input Symmetric Output Memoryless Channels". Supervisor: S. Shamai (Shitz).

Levi Sharon (M.Sc. – graduated December 1998). Thesis title: "A Survey – Iterative Methods in Digital Communication". Supervisors: N. Merhav (Primary) and S. Shamai (Shitz).

Ilan Abramovici (M.Sc. – graduated January 1999). Thesis title: "Turbo Encoded BICM: A Bandwidth Efficient Modulation Scheme". Supervisor: S. Shamai (Shitz).

Shai Vaxman (M.Sc. – graduated July 2001). Thesis title: "Iterative Multi-User Detection with Application to IS-95". Supervisor: S. Shamai (Shitz).

Igal Sason (Ph.D. – graduated September 2001). Thesis title: "Bounds on the Performance of Turbo Coding". Supervisor: S. Shamai (Shitz).

Avi Steiner (M.Sc. – graduated January 2002). Thesis title: "Turbo Codes for Multiantenna Block Fading Channels".
Supervisor: S. Shamai (Shitz), Consultant: M. Peleg.

Yosef Ronen (M.Sc. – graduated July 2002). Thesis title: "Joint Channel Estimation and Decoding in Turbo Code Space-Time Systems".
Supervisors: S. Bross (Primary) and S. Shamai (Shitz).

Michael Katz (M.Sc. – graduated September 2002). Thesis title: "Information Theoretic Aspects of Noncoherent Channels". Supervisor: S. Shamai (Shitz).

Ido Betesh (Ph.D. – graduated November 2002). Thesis title: "Information and Network Theory Aspects of Communications Systems in a Fading Environment". Supervisor: S. Shamai (Shitz).

Amichai Sanderovitz (M.Sc. – graduated November 2003).
Thesis title: "Iterative Decoding on MIMO Channels".
Supervisor: S. Shamai (Shitz), Consultant: M. Peleg.

Dana Porat (Post Doctorate Research Associate – 2004/5)
Research: Information Theoretic Implications of Wideband Systems.

Dan Goldsmith (M.Sc. – graduated November 2004).
Thesis title: "Fading Channels with Transmitter Side Information".
Supervisors: Y. Steinberg (Primary) and S. Shamai (Shitz).

Ilan Sutskover (Ph.D. – graduated June 2005).
Thesis title: "Universal Decoding of LDPC Codes".
Supervisors: J. Ziv (Primary) and S. Shamai (Shitz).

Daniel Wajcer (Ph.D. – terminated studies, November 2005).
Thesis title: "Fading Broadcast Channel with Partial Side-Information.
Supervisor: S. Shamai (Shitz).

Oren Somekh (Ph.D. – graduated December 2005).
Thesis title: "Information Theoretic Aspects of Mobile Communication".
Supervisor: S. Shamai (Shitz).

Benny Zeidel (Ph.D. – graduated April 2006).
Thesis title: "On Multiple Users Communication with Spreaded Spectrum".
Supervisor: S. Shamai (Shitz).

Michael Katz (Ph.D. – graduated February 2007).
Thesis title: "Cooperative Communication Networks".
Supervisors: S. Shamai (Shitz) (Primary) and Y. Steinberg.

Aminadav Wiesel (Ph.D. – graduated May 2007).
Thesis title: "Covariance Shaping Multiple User Detection".
Supervisors: Y. C. Eldar (Primary) and S. Shamai (Shitz).

Hanan Weingarten (Ph.D. – graduated October 2007).
Thesis title: "MIMO Broadcast Channels".
Supervisors: Y. Steinberg (Primary) and S. Shamai (Shitz).

Avi Steiner (Ph.D. – graduated January 2008).
Thesis title: "The Multi-Layer Broadcast Approach for Fading Channels".
Supervisor: S. Shamai (Shitz).

Amichai Sanderovitz (Ph.D. – graduated June 2008).
Thesis title: "Information Theoretic Aspects of Decentralized Processing".
Supervisors: Y. Steinberg (Primary) and S. Shamai (Shitz).

Nathan Levi (Ph.D. – graduated September 2009).
Thesis title: "Random Matrices and Applications to
Communications and Information Theory".
Supervisors: S. Shamai (Shitz) (Primary) and O. Zeitouni.

Evgeniy Braginskiy (M.Sc. – graduated August 2010).
Thesis title: "Information Theoretical Aspects of Cooperation in Wireless Networks". Supervisor: S. Shamai (Shitz), Consultant: A. Steiner.

Eran Hof (Ph.D. – graduated December 2010).
Thesis title: "Nonbinary Coding, Concepts and Bounds".
Supervisors: I. Sason (Primary) and S. Shamai (Shitz).

Yuval Avner (M.Sc. – graduated January 2011).
Thesis title: "Robust Precoding Techniques for MIMO Systems".
Supervisor: S. Shamai Shitz, Consultant: Dr. Benjamin Zaidel.

Kfir Cohen (M.Sc. – graduated January 2013).
Thesis title: "The Broadcast Approach in Fading Channels with Delay Considerations". Supervisor: S. Shamai (Shitz), Consultant: A. Steiner.

Ronit Bustin (Ph.D – graduated May 2013).
Thesis Title (tentative): "Aspects of Multi-Terminal Information Theory".
Supervisor S. Shamai (Shitz).

Jonathan Shimonovich (M.Sc. – graduated May 2013).
Thesis title: "Information Theoretic Aspects of Cognitive Radio".
Supervisor: S. Shamai (Shitz), Consultant: A. Somekh-Baruch.

Gil Katz (M.Sc. – graduated January 2014).
Thesis title: "Wyner Models: Clustered Cooperation".
Supervisor: S. Shamai Shitz.

Roy Karsik (M.Sc. – graduated January 2014).
Thesis title: "Robust Communictions with Variable Backhaul Connectivity".
Supervisor: S. Shamai Shitz.

Yair Carmon (M.Sc. – graduated October 2015).
Thesis title: "Filtering and Intersymbol Interference Channels".
Supervisor: S. Shamai Shitz (Primary) and T. Weissman (Secondary).

Dr. Ronit Bustin: ERC project: "Cloud Radio Access Networks".
October 2016–October 2017.

Alexander Bunin (M.Sc. - graduated March 2018).
Thesis title: "Wiretap channels, with side information".
Supervisor: S. Shamai Shitz.

Adi Homri (M.Sc. – graduated March 2018).
Thesis title: "Oblivious Backhaul Contraint Channels".
Supervisor: S. Shamai (Shitz), Consultant: Michael Peleg.

Michael Dikshtein (M.Sc. – graduated December 2018):
Research: "Information Theoretic Aspects of Device
to Device Communications".

Michael Zeide (M.Sc. – graduated March 2019):
Research: "Information theoretic aspects of cooperation and
physical layer secrecy".

In Progress

Roy Krasik (Ph.D.):
Research: "Information Theoretic Aspects of Cloud and Fog Radio Access Networks".

Michael Dikshtein (Ph.D.):
Research: "Information Theoretic Aspects of Cloud Based Networks".

Asif Katz (M.Sc.):
Research: "Continuous Time Bottleneck Channels".