

FP6-IST Project MASCOT Publications 2008

Christoph Mecklenbräuer, Co-ordinator
ftw. Forschungszentrum Telekommunikation Wien
Donau-City Str. 1, Vienna, Austria

January 5, 2009

This is the list of MASCOT publications for the 3rd reporting period from January 1, 2008 to December 31, 2008.

References

- [1] G. Alfano, A. Tulino, and M. Guillaud. High and low-SNR regimes for stochastic networks. In *Proc. International Symposium on Information Theory and its Applications (ISITA)*, Auckland, New Zealand, Dec. 2008.
- [2] G. Alfano, M. Guillaud, and A. Tulino. Scaling laws for large ad-hoc wireless networks with wishart-poisson fading. In *Proc. International Symposium on Spread Spectrum Techniques and Applications (ISSSTA)*, Bologna, Italy, Aug. 2008.
- [3] D. Angelosante, E. Biglieri, and M. Lops. Low-complexity receivers for multiuser detection with an unknown number of active users. In *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Las Vegas (NV), USA, March 30–April 4 2008.
- [4] D. Angelosante, E. Biglieri, and M. Lops. Some applications of FISST to wireless communications. In *Proc. 11th International Conference on Information Fusion*, Cologne, Germany, June 30–July 3 2008.
- [5] D. Angelosante, E. Biglieri, and M. Lops. Sequential estimation of time-varying multipath channel for MIMO-OFDM systems. In *Proc. IEEE*

Int. Symp. on Inf. Theory (ISIT), Toronto (ON), Canada, July 6–11 2008.

- [6] D. Angelosante, E. Biglieri, and M. Lops. Multiuser detection with an unknown number of active users: Receiver design. In *EUSIPCO 2008*, Lausanne, Switzerland, August 2008.
- [7] D. Angelosante, E. Biglieri, and M. Lops. Multiple target tracking using random sets. In *EUSIPCO 2008*, Lausanne, Switzerland, August 2008.
- [8] D. Angelosante, E. Biglieri, and M. Lops. Sequential estimation of multipath MIMO-OFDM channels. In *Proc. 2nd OFDM Workshop*, Santa Clara University (CA), USA, Oct. 30-31 2008.
- [9] D. Angelosante, E. Biglieri, and M. Lops. Multiuser detection in a dynamic environment — Part II: Joint user identification and parameter estimation. *IEEE Trans. Inform. Theory*, to be published 2009.
- [10] D. Angelosante, E. Biglieri, and M. Lops. Sequential estimation of multipath MIMO-OFDM channels. *IEEE Trans. Sign. Proc.*, submitted for publication 2008.
- [11] D. Angelosante, E. Biglieri, and M. Lops. Low-complexity receivers for multiuser detection with an unknown number of active users. *IEEE Trans. Sign. Proc.*, submitted for publication, Nov. 2008.
- [12] E. Biglieri. Sphere decoding is coming of age. In *Joint Workshop on Coding and Communications (JWCC 2008)*, St. Helena (CA), USA, October 2008.
- [13] E. Biglieri, E. Grossi, M. Lops, and A. Tauste Campo. Large-system analysis of a CDMA dynamic channel under a Markovian input process. In *Proc. IEEE Int. Symp. on Inf. Theory (ISIT)*, Toronto (ON), Canada, July 6–11 2008.
- [14] E. Biglieri, Y. Hong, and E. Viterbo. On fast-decodable space-time block codes. In *submitted to IZS Workshop*, Zurich, Switzerland, March 2008.
- [15] E. Biglieri, Y. Hong, and E. Viterbo. Silver space-time trellis-coded modulation. In *EUSIPCO 2008*, Lausanne, Switzerland, August 2008.

- [16] E. Biglieri, Y. Hong, and E. Viterbo. On fast-decodable space-time block codes. *IEEE Trans. Inform. Theory*, to be published 2009.
- [17] H. Boche. Stable linear systems and sampling. In *Joint Workshop on Coding and Communications (JWCC 2008)*, St. Helena (CA), USA, October 2008.
- [18] H. Boche and M. Schubert. Concave and convex interference functions – general characterizations and applications. *IEEE Trans. Sign. Proc.*, 56(10, Part I):4951–4965, 2008. Parts of the results were published at ITG/IEEE Workshop on Smart Antennas (WSA) 2007, Vienna, Austria.
- [19] H. Bölcskei. Geometric aspects of the diversity–multiplexing tradeoff in ISI fading MIMO channels. In *Joint Workshop on Coding and Communications (JWCC 2008)*, St. Helena (CA), USA, October 2008.
- [20] J. Boutros, E. Viterbo, and G. Cohen. Convolutional tanner structures for non-ergodic wireless channels. In *Proc. IEEE Int. Symp. on Inf. Theory (ISIT)*, Toronto, Canada, July 2008.
- [21] B. Cerato, G. Masera, and E. Viterbo. Enabling VLSI processing blocks for MIMO-OFDM communications. *VLSI Design*, 2008:1–10, January 2008. Article ID 351962.
- [22] B. Cerato, G. Masera, and E. Viterbo. Decoding the Golden space-time trellis coded modulation. *IEEE Comm. Lett.*, 12(8):569–571, August 2008.
- [23] B. Cerato, G. Masera, and E. Viterbo. Decoding the Golden code: a VLSI design. *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, 17(1):156–160, January 2009.
- [24] G. Coluccia, E. Riegler, C.F. Mecklenbräuker, and G. Taricco. Optimum MIMO-OFDM receivers with imperfect channel state information. In *Proc. IEEE Globecom*, New Orleans (LA), USA, Nov 30 — Dec 4 2008.
- [25] G. Coluccia, E. Riegler, C. Mecklenbrauker, and G. Taricco. Optimum MIMO-OFDM detection with pilot-aided channel state information. *IEEE Journal of Selected Topics in Signal Processing*, submitted 2008.

- [26] Pedro Coronel, Markus Gärtner, and Helmut Bölcskei. Diversity-multiplexing tradeoff in selective-fading multiple-access MIMO channels. In *IEEE Int. Symposium on Information Theory (ISIT)*, July 2008.
- [27] C. Dumard, J. Jaldén, and T. Zemen. Soft sphere decoder for an iterative receiver in time-varying MIMO channels. In *EUSIPCO 2008*, August 2008.
- [28] P. Fertl, J. Jaldén, and G. Matz. Capacity-based performance comparison of MIMO-BICM demodulators. In *Proceedings of the IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC 2008)*, Recife, Brazil, July 2008.
- [29] T. Heikkinen and A. Hottinen. Delay-differentiated scheduling in a fading channel. *IEEE Transactions on Wireless Communications*, 7(3):848–856, March 2008.
- [30] Y. Hong, S. Shamai, and E. Viterbo. Algebraic-phase scrambling sequences for code-spread code-division multiple-access. In *Proc. IEEE Int. Symp. on Inf. Theory (ISIT)*, Toronto, Canada, 2008.
- [31] Y. Hong and E. Viterbo. Algebraic multiuser spacefrequency block codes. In *Proc. IEEE Internat. Symp. on Spread Spectrum Techniques and Applications (ISSSTA)*, Bologna, Italy, August 2008. to be published.
- [32] Y. Hong and E. Viterbo. Algebraic multiuser space-time block codes for 2x2 MIMO. In *PIMRC 2008*, Cannes, France, September 2008. invited.
- [33] H. Huang, A. Hottinen, M. Shafi, P.J. Smith, M. Trivellato, and R. Valenzuela. System aspects and performance of mimo in cellular networks. *IEEE Trans. Wireless Communications*, submitted in 2008.
- [34] J. Jaldén, D. Seethaler, and G. Matz. Worst- and average-case complexity of LLL lattice reduction in MIMO wireless systems. In *IEEE ICASSP 2008*, Las Vegas (NV), USA, to be published in 2008.
- [35] J. Jaldén and G. Matz. MIMO receiver diversity in general fading. In *IEEE ICASSP 2008*, Las Vegas (NV), USA, to be published in 2008.

- [36] S. Kittipiyakul, P. Elia, and T. Javidi. High-SNR analysis of outage-limited communications with bursty and delay-limited information. *IEEE Trans. Inf. Th.*, accepted 2009.
- [37] G. Lechner, I. Land, and L. Rasmussen. Decoding of LDPC codes with binary vector messages and scalable complexity. In *Proc. 5th International Symposium on Turbo Codes and Related Topics, Lausanne, Switzerland*, 2008.
- [38] G. Lechner and C. Weidmann. Optimization of binary LDPC codes for the q-ary symmetric channel with moderate q. In *Proc. 5th International Symposium on Turbo Codes and Related Topics, Lausanne, Switzerland*, 2008.
- [39] P. Luethi, C. Studer, S. Duetsch, E. Zraggen, H. Kaeslin, N. Felber, and W. Fichtner. Gram-schmidt-based QR decomposition for MIMO detection: VLSI implementation and comparison. In *IEEE Asia Pacific Conf. on Circuits and Systems*, pages 830–833, Macao, China, November 2008.
- [40] P. Luethi, M. Wenk, T. Koch, M. Lerjen, N. Felber, and W. Fichtner. Multi-user MIMO testbed. In *ACM MobiCom'08 / WiNTECH'08 Workshop*, pages 109–110, San Francisco, CA, USA, September 2008.
- [41] L. Luzzi, G. Rekaya-Ben Othman, J.-C. Belfiore, and E. Viterbo. Golden code, reed-solomon codes, space-time block codes. In *Proc. Inf. Theory Workshop 2008*, Porto, Portugal, May 2008.
- [42] L. Luzzi, G. Rekaya-Ben Othman, J.-C. Belfiore, and E. Viterbo. Golden code, reed-solomon codes, space-time block codes. *IEEE Trans. Inf. Th.*, submitted 2008.
- [43] G. Matz. Vector perturbation precoding revisited. In *Joint Workshop on Coding and Communications (JWCC 2008)*, St. Helena (CA), USA, October 2008.
- [44] J. Maurer, J. Jaldén, and G. Matz. Transmit outage precoding with imperfect channel state information under an instantaneous power constraint. In *Proceedings of the IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC 2008)*, Recife, Brazil, July 2008.

- [45] C. F. Mecklenbräuker, A. Paier, T. Zemen, G. Matz, and A. F. Molisch. On the temporal evolution of signal subspaces in vehicular MIMO channels in the 5 GHz band. In *Joint Workshop on Coding and Communications (JWCC 2008)*, St. Helena (CA), USA, October 2008.
- [46] C. Novak, F. Hlawatsch, and G. Matz. Low-complexity factor graph receivers for spectrally efficient MIMO-IDMA. In *Proc. IEEE ICC 2008*, Beijing, China, to be published in 2008.
- [47] C. Novak, G. Matz, and F. Hlawatsch. A factor graph approach to joint data detection and channel estimation in pilot-assisted IDMA transmissions. In *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Las Vegas (NV), USA, April to be published in 2008.
- [48] T. J. Oechtering and H. Boche. Optimal time-division for bidirectional relaying using superposition encoding. *IEEE Communications Letters*, 12(4):265–267, April 2008.
- [49] E. Riegler and G. Taricco. Asymptotic ergodic capacity region and rate optimization of a multiple access OFDM-MIMO channel with separately-correlated Rician fading. In *Proc. IEEE Globecom*, New Orleans (LA), USA, Nov. 30–Dec. 4 2008.
- [50] E. Riegler and G. Taricco. Asymptotic statistics of the mutual information for spatially-correlated Rician fading MIMO channels with interference. *IEEE Trans. Inf. Th.*, submitted 2008.
- [51] M. Shafi, H. Huang, A. Hottinen, P.J. Smith, R.A. Valenzuela, and L.J. Cimini. Guest editorial: MIMO systems and applications: Field experience, practical aspects, limitations and challenges. *IEEE J. Sel. Areas Comm.*, 26(6):841–844, August 2008.
- [52] S. Shi, M. Schubert, and H. Boche. Rate optimization for multiuser mimo systems with linear processing. *IEEE Trans. Sign. Proc.*, 56(8):4020–4030, August 2008.
- [53] C. Studer, P. Luethi, and W. Fichtner. VLSI architecture for data-reduced steering matrix feedback in MIMO systems. In *IEEE Int. Symp. on Circuits and Systems*, pages 300–303, Seattle, WA, USA, May 2008.

- [54] C. Studer, D. Seethaler, and H. Bölcskei. Finite lattice-size effects in MIMO decoding. In *Proc. Asilomar Conference on Signals, Systems, and Communications*, Pacific Grove (CA), USA, October 2008.
- [55] H. Boche and M. Schubert. The structure of general interference functions and applications. *IEEE Trans. Inform. Theory*, 54(11):4980–4990, November 2008.
- [56] D. Seethaler and H. Bölcskei. Infinity-norm sphere-decoding. In *IEEE Int. Symposium on Information Theory (ISIT)*, July 2008.
- [57] G. Taricco. Asymptotic error performance of space-time codes over fully correlated Rician fading MIMO channels with imperfect CSI. In *IEEE ICASSP 2008*, Las Vegas (NV), USA, to be published in 2008.
- [58] G. Taricco. Asymptotic mutual information statistics of separately correlated Rician fading MIMO channels. *IEEE Trans. Inform. Theory*, 54(8):3490–3504, August 2008.
- [59] G. Taricco and Erwin Riegler. Ergodic capacity of wideband MIMO channels. In *Joint Workshop on Coding and Communications (JWCC 2008)*, St. Helena (CA), USA, Oct. 26–28 2008. (invited).
- [60] G. Taricco and E. Riegler. Asymptotic ergodic capacity of wideband MIMO channels with separately-correlated Rician fading. In *Proc. IEEE Globecom*, New Orleans (LA), USA, Nov. 30–Dec. 4 2008.
- [61] G. Taricco and E. Riegler. On the ergodic capacity of correlated Rician fading MIMO channels with interference. *IEEE Trans. Inf. Th.*, submitted 2008.
- [62] G. Tauböck and F. Hlawatsch. A compressed sensing technique for OFDM channel estimation in mobile environments: Exploiting channel sparsity for reducing pilots. In *in Proc. IEEE ICASSP-2008*, Las Vegas (NV), USA, March–April 2008.
- [63] A. Tauste Campo and E. Biglieri. Asymptotic capacity of static multiuser channels with an unknown number of users. In *WPMC 2008*, Lapland, Finland, September 2008.

- [64] R. Tresch and M. Guillaud. SINR estimation in random beamforming with noisy MIMO channel measurements. In *IEEE ICC 2008*, Beijing, China, May 19–23 2008.
- [65] Roland Tresch and Maxime Guillaud. Cellular interference alignment with imperfect channel knowledge. In *Proc. IEEE International Conference on Communications (ICC)*, 2009. (submitted).
- [66] E. Viterbo. Irregular sampling and random matrix theory. In *Joint Workshop on Coding and Communications (JWCC 2008)*, St. Helena (CA), USA, October 2008.
- [67] E. Viterbo and A. Hottinen. Optimal user pairing for multiuser mimo. In *Proc. IEEE Internat. Symp. on Spread Spectrum Techniques and Applications (ISSSTA)*, Bologna, Italy, August 2008. to be published.
- [68] N. Vucic and H. Boche. Downlink precoding for multiuser MISO systems with imperfect channel knowledge. In *Proc. IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2008)*, Las Vegas, USA, April 2008.
- [69] N. Vucic and H. Boche. Robust Transceiver Optimization for Frequency Selective MIMO Channels. In *Proc. 9th IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC 2008)*, Recife, Brazil, July 2008.
- [70] N. Vucic, H. Boche, and S. Shi. Robust transceiver optimization in downlink multiuser MIMO systems with channel uncertainty. In *Proc. IEEE International Conference on Communications (ICC 2008)*, Beijing, China, May 2008.
- [71] N. Vucic and H. Boche. Probabilistically constrained robust power allocation in multiuser miso systems. In *Proc. Asilomar Conference on Signals, Systems, and Communications*, Pacific Grove (CA), USA, October 2008.