CHANDRA NAIR
(Contributions to Publications)

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Contributions to the various articles

Disclaimer: It is very tricky to pin-point your contributions to papers in a theoretical paper. Every single lemma may be crucial to the main result. More importantly, there may be lots of work which never got into the paper, but which showed that certain approaches were untenable. Since I have been asked to point out my contributions let me classify my contributions into three bins:

- **Dominant (D)**: These are publications where the significant contributions came from (only) me.

- **Significant (S)**: These are publications where I made significant contributions. But these papers also had non-trivial and important contributions from at least one of the other co-authors.

- **Minor (m)**: These are the publications where I had minor contributions, i.e. there were other authors whose contributions were significant or dominant; or there were many authors each of whose contributions were split.

Listing by contributions

D : [1, 6, 7, 8] [10, 11, 12] [17, 18, 19, 25, 26, 28, 29, 30, 32, 33] [36]

S : [2, 3, 4, 5] [9, 13, 14] [15, 16, 20, 27, 31, 34] [35]

m : [21, 22, 23, 24]

The following papers were presented by me at the respective conferences: [10, 11, 12] [16, 17, 18, 19, 20, 23, 25, 26, 28, 29, 30, 13, 31, 32, 33, 34]

Remarks on author order

I have published articles in math journals (RSA), computer science conferences (FOCS, STOC) where the authors are presented alphabetically and in EE conferences where the authors are traditionally presented by contributions. However I have imposed a rule (self-imposed as I believe that theory papers can live and die by any of the lemmas that establish the final result) that when I publish papers with my students the author order shall be *alphabetical*. Note that sometimes when I publish papers with senior EE authors (El Gamal and Anantharam) their system takes precedence.

Publications

Journal

[1] C. Nair, B. Prabhakar, and M. Sharma, "Proofs of the Parisi and Coppersmith-Sorkin random assignment conjectures," *Random Structures and Algorithms*, vol. 27(4), pp. 413–444, 2005.

[2] C. Nair and A. El Gamal, "The capacity of a class of 3-receiver broadcast channels with degraded message sets," *International Symposium on Information Theory*, pp. 1706–1710, 2008.

[3] C. Nair and A. El Gamal, "The capacity region of a class of three-receiver broadcast channels with degraded message sets," *Information Theory, IEEE Transactions on*, vol. 55, pp. 4479–4493, Oct. 2009.

[4] C. Borgs, J. T. Chayes, S. Mertens, and C. Nair, "Proof of the local rem conjecture for number partitioning I: Constant energy scales," *Random Structures and Algorithms*, vol. 34(2), pp. 217–240, 2009.

[5] C. Borgs, J. T. Chayes, S. Mertens, and C. Nair, "Proof of the local rem conjecture for number partitioning II: Growing energy scales," *Random Structures and Algorithms*, vol. 34(2), pp. 241–284, 2009.

[6] C. Nair, "Capacity regions of two new classes of two-receiver broadcast channels," *Information Theory, IEEE Transactions on*, vol. 56, pp. 4207–4214, sep. 2010.

[7] C. Nair and Z. Wang, "The capacity region of the three receiver less noisy broadcast channel," *Information Theory, IEEE Transactions on*, vol. 57, pp. 4058 –4062, july 2011.

[8] Y. Geng, V. Jog, C. Nair, and Z. V. Wang, "An information inequality and evaluation of marton's inner bound for binary input broadcast channel," *IEEE Trans. Info. Theory (accepted)*.

Conference papers (invited and unrefereed)

[9] C. Nair, B. Prabhakar, and D. Shah, "The randomness in randomized load balancing," *Proceedings of the 39th Annual Allerton Conference on Communication, Control and Computing*, pp. 912–921, 2001.

[10] C. Nair and Z. V. Wang, "On the inner and outer bounds for 2-receiver discrete memoryless broadcast channels," *Proceedings of the ITA Workshop*, 2008.

[11] C. Nair, "An achievable rate region for the 2-receiver broadcast channel obtained by viewing it as an interference channel," in *International Conference on Wireless Communications & Signal Processing*, (Nanjing, P.R. China), 2009.

[12] V. Jog and C. Nair, "An information inequality for the bssc channel," *Proceedings of the ITA Workshop*, 2010.

[13] Y. Geng, A. Gohari, C. Nair, and Y. Yu, "On Marton's inner bound for two receiver broadcast channels," *Presented at ITA Workshop*, 2011.

[14] M. H. M. Costa and C. Nair, "On the achievable rate sum for symmetric gaussian interference channels," *ITA Workshop*, 2012.

Conference papers (refereed)

[15] R. Pan, C. Nair, B. Prabhakar, and B. Yang, "Packet dropping schemes: some examples and analysis," *Proceedings of the 39th Annual Allerton Conference on Communication, Control and Computing*, pp. 563–572, 2001.

[16] A. El Gamal, C. Nair, B. Prabhakar, E. Uysal, and S. Zahedi, "Energy-efficient scheduling of packet transmissions over wireless networks," *Proceedings of the IEEE Infocom Conference*, vol. 3, pp. 1773–1782, June, 2002.

[17] C. Nair, "Towards the resolution of Coppersmith-Sorkin conjectures," *Proceedings of the 40th Annual Allerton Conference on Communication, Control and Computing*, pp. 667–673, 2002.

[18] C. Nair, B. Prabhakar, and M. Sharma, "Proofs of the Parisi and Coppersmith-Sorkin conjectures for the finite random assignment problem," *IEEE Foundations of Computer Science (FOCS)*, pp. 168–178, 2003.

[19] C. Nair, E. Ordentlich, and T. Weissman, "Asymptotic filtering and entropy rate of a hidden Markov process in the rare transitions regime," *International Symposium on Information Theory*, pp. 1838–1842, 2005.

[20] C. Nair and A. El Gamal, "An outer bound to the capacity region of the broadcast channel," *International Symposium on Information Theory*, pp. 2205–2209, 2006.

[21] N. J. A. Harvey, K. Jain, L. C. Lau, C. Nair, and Y. Wu, "Conservative network coding," *Proceedings of the 44th Annual Allerton Conference on Communication, Control and Computing*, 2006.

[22] M. Bayati and C. Nair, "A rigorous proof of the cavity method for counting matchings," *Proceedings of the 44th Annual Allerton Conference on Communication, Control and Computing*, 2006.

[23] M. Bayati, D. Gamarnik, D. Katz, C. Nair, and P. Tetali, "Simple deterministic approximation algorithms for counting matchings," *Proceedings of the Symposium on Theory of Computation(STOC)*, pp. 122–127, 2007.

[24] N. J. A. Harvey, R. Klienberg, C. Nair, and Y. Wu, "A 'chicken & egg ' network coding problem," *Proceedings of the International symposium on Information Theory*, 2007.

[25] C. Nair and Z. V. Wang, "On the inner and outer bounds of 3-receiver broadcast channels with 2-degraded message sets," *International Symposium on Information Theory*, pp. 1844–1848, 2009.

[26] C. Nair, "Capacity regions of two new classes of 2-receiver broadcast channels," *International Symposium on Information Theory*, pp. 1839–1843, 2009.

[27] G. Kramer and C. Nair, "Comments on: Broadcast channels with arbitrarily correlated sources," *International Symposium on Information Theory*, pp. 2777–2779, 2009.

[28] Y. Geng, C. Nair, S. Shamai, and Z. V. Wang, "On broadcast channels with binary inputs and symmetric outputs," *International Symposium on Information Theory*, 2010.

[29] C. Nair and Z. V. Wang, "The capacity region of a class of broadcast channels with a sequence of less noisy receivers," *International Symposium on Information Theory*, 2010.

[30] C. Nair, Z. V. Wang, and Y. Geng, "An information inequality and evaluation of Marton's inner bound for binary input broadcast channels," *International Symposium on Information Theory*, 2010.

[31] Y. Geng, A. Gohari, C. Nair, and Y. Yu, "The capacity region of classes of product broadcast channels," *Proceedings of IEEE International Symposium on Information Theory*, pp. 1549–1553, 2011.

[32] Y. Geng and C. Nair, "The capacity region of the two-receiver vector gaussian broadcast channel with private and common messages," in *2012 IEEE International Symposium on Information Theory (ISIT'2012)*, (Cambridge, Massachusetts, USA), pp. 591–595, July 2012.

[33] C. Nair and L. Xia, "On Three-Receiver more capable channels," in *2012 IEEE International Symposium on Information Theory (ISIT'2012)*, (Cambridge, Massachusetts, USA), pp. 383–387, July 2012.

[34] A. A. Gohari, C. Nair, and V. Anantharam, "On marton's inner bound for broadcast channels," in *2012 IEEE International Symposium on Information Theory (ISIT'2012)*, (Cambridge, Massachusetts, USA), pp. 586–590, July 2012.

Uploads to arXiv (unrefereed)

[35] C. Nair, A. El Gamal, and Y.-K. Chia, "An achievability scheme for the compound channel with state noncausally available at the encoder," *CoRR*, vol. abs/1004.3427, 2010.

[36] C. Nair, "A note on outer bounds for broadcast channel," *Presented at International Zurich Seminar*, 2010.