

Subject: [ISIT'2012] Your paper #1569564189 ('The capacity region of the two-receiver vector Gaussian broadcast channel with private and common messages') has been accepted

From: "ISIT'2012" <isit2012@ee.ethz.ch>

Date: Monday, April 16, 2012 11:32 AM

To: Yanlin Geng <gengyanlin@gmail.com>

CC: Chandra Nair <chandra.nair@gmail.com>

Dear Yanlin,

We are happy to inform you that your paper #1569564189 titled "The capacity region of the two-receiver vector Gaussian broadcast channel with private and common messages," submitted to the 2012 IEEE International Symposium on Information Theory, has been accepted for presentation at the Symposium and for publication in the Proceedings. The reviews are attached below and can be found at

<http://edas.info/showPaper.php?m=1569564189>

We ask you to incorporate the comments of the reviewers in preparing the final version of your paper. The deadline for the receipt of this final version is May 18, 2012. You are encouraged to use LaTeX to format your manuscript, using the standard IEEE style. Further instructions for preparing and uploading the final manuscripts will be forthcoming shortly. In the meantime, you can refer to the ISIT 2012 website isit12.org for more information.

We look forward to seeing you at MIT in July!

Best regards,

Giuseppe Caire
Michelle Effros
Hans-Andrea Loeliger
Alexander Vardy

===== Review 1 =====

*** Suitability for ISIT: How significant and interesting is this paper for the ISIT audience?

Very significant paper of great interest to the ISIT audience (5)

*** Correctness: Do the results seem correct as far as you can tell?

Definitely correct (5)

*** Novelty: How novel is the paper?

Extremely novel (5)

*** Presentation: How clear is the presentation and writing of the paper?

Good (4)

*** Recommendation: Assuming 60% of papers are accepted, please give your recommendation for including this paper in ISIT'2012.

Accept (5)

*** Confidence: How confident are you in your recommendation?

Highly confident (4)

*** Strengths: What do you like about of this paper?

This paper introduced the idea of concave envelop optimization as a way of proving the optimality of Gaussian signaling to Gaussian network problems. This is a very novel approach which has not been looked at before. The power of the approach is demonstrated through solving the problem of the MIMO Gaussian broadcast channel with common and private messages, which was a well-known open problem in network information theory.

*** Weaknesses: What do you dislike about of this paper?

The presentation appears to be rushed from time to time, perhaps due to the fact that the authors attempted to pack too many technical results into the paper.

*** Comments and Recommendation: Please give the reasoning for your overall recommendation.

This paper represents an extremely high intellectual achievement: the approach proposed in the paper can be potentially used to solve many Gaussian network problems. This paper is definitely deserved to be published at ISIT and should be considered for a best paper award of some sort in my opinion.

===== Review 2 =====

*** Suitability for ISIT: How significant and interesting is this paper for the ISIT audience?

Significant paper of interest in its special field (4)

*** Correctness: Do the results seem correct as far as you can tell?

Definitely correct (5)

*** Novelty: How novel is the paper?

Extremely novel (5)

*** Presentation: How clear is the presentation and writing of the paper?

Good (4)

*** Recommendation: Assuming 60% of papers are accepted, please give your recommendation for including this paper in ISIT'2012.

Accept (5)

*** Confidence: How confident are you in your recommendation?

Rather confident (3)

*** Strengths: What do you like about of this paper?

The paper presents a new technique for showing that Gaussian distribution is optimal for the two-user vector Gaussian broadcast channel with common message. The proof avoids the use of entropy power inequality and uses only simple properties of jointly Gaussian random variables. The technique presented has the potential for showing optimality of Gaussian distribution in other instances. The paper should definitely be accepted.

*** Weaknesses: What do you dislike about of this paper?

Nothing.

*** Comments and Recommendation: Please give the reasoning for your overall recommendation.

See above.

The references are not all used in the text!

===== Summary review by TPC member 3 =====

*** TPC recommendation: Given the reviews, what is your recommendation for this paper. Accept (4)

*** TPC Summary: Please give a justification for your recommendation, especially if the review scores vary widely or if your recommendation differs significantly from those of the reviewers.

This is a very original paper with a strong contribution. The authors derive a new approach to show extremality of Gaussian distributions in many optimization settings, including the canonical one of maximizing differential entropy subject to a variance constraint. This approach is very original and sheds fundamental insight into the extremality of Gaussian distributions (including a central limit theorem interpretation, which originally was only available for the EPI). The authors show the power of their inequalities by deriving the capacity region of the MIMO broadcast channel with a common message (along with the usual private messages).

A definite accept. If appropriate, I recommend this strongly for the student paper award.