



Mathematics > Probability

# Chevet type inequality and norms of submatrices

Radosław Adamczak, Rafał Łatała, Alexander E. Litvak, Alain Pajor, Nicole Tomczak-Jaegermann

(Submitted on 20 Jul 2011)

We prove a Chevet type inequality which gives an upper bound for the norm of an isotropic log-concave unconditional random matrix in terms of expectation of the supremum of "symmetric exponential" processes compared to the Gaussian ones in the Chevet inequality. This is used to give sharp upper estimate for a quantity  $\Gamma_{k,m}$  that controls uniformly the Euclidean operator norm of the sub-matrices with  $k$  rows and  $m$  columns of an isotropic log-concave unconditional random matrix. We apply these estimates to give a sharp bound for the Restricted Isometry Constant of a random matrix with independent log-concave unconditional rows. We show also that our Chevet type inequality does not extend to general isotropic log-concave random matrices.

Subjects: **Probability (math.PR)**; Functional Analysis (math.FA); Metric Geometry (math.MG)

MSC classes: Primary 52A23, 46B06, 46B09, 60E15 Secondary 15B52, 94B75

Cite as: **arXiv:1107.4066v1 [math.PR]**

## Submission history

From: Radosław Adamczak [[view email](#)]  
[v1] Wed, 20 Jul 2011 18:52:59 GMT (20kb)

*[Which authors of this paper are endorsers?](#)*

Link back to: [arXiv](#), [form interface](#), [contact](#).

## Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Current browse context:

**math.PR**

[< prev](#) | [next >](#)

[new](#) | [recent](#) | [1107](#)

Change to browse by:

[math](#)

[math.FA](#)

[math.MG](#)

## References & Citations

- [NASA ADS](#)

## Bookmark (what is this?)

