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COMPARISON OF TAIL PROBABILITIES OF STRICTLY SEMISTABLE/STABLE RANDOM VECTORS AND THEIR SYMMETRIZED COUNTERPARTS WITH APPLICATION

Balram S. Rajput
Kavi Rama-Murthy

Abstract: It is shown that the tail probabilities of a strictly (r, a)-semistable ($0 < r < 1, 0 < \alpha < 2, \alpha \neq 1$) Banach space valued random vector X and its symmetrized counterpart are "uniformly" comparable in the sense that the constants appearing in the inequalities depend only on r and α (and not on X or the Banach space). Using this and some other known facts, several corollaries related to the moment inequalities of the random vector X and its symmetrized counterpart are obtained. The corresponding results for strictly α-stable Banach space valued random vectors, $\alpha \neq 1$, are also derived and discussed.

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