COMPLEMENTS ON DECOUPLING INEQUALITIES FOR MULTILINEAR FUNCTIONS IN STABLE RANDOM VECTORS

Balram S. Rajput
Jan Rosinski

Abstract: Let B and V be real separable Banach spaces and d be a positive integer. Let $M : B^d \to V$ be a measurable symmetric multilinear function, and let X be a B-valued symmetric p-stable random vector. It is shown that if $0 < q < p/2$, then the finiteness of $E\|M(X, \ldots, X)\|_V^q$ is not sufficient for the validity of the important part of the decoupling inequalities. A natural condition, in terms of the spectral measure of X and an algebraic equation involving M, is proposed and it is proved that this condition ensures decoupling inequalities for all $q \in (0, p)$. This result complements de Acosta's decoupling inequalities for multilinear functions in B-valued symmetric p-stable random vectors.

2000 AMS Mathematics Subject Classification: Primary: -; Secondary: -;

Key words and phrases: -

THE FULL TEXT IS AVAILABLE HERE