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# ON MARCINKIEWICZ-ZYGMUND LAWS OF LARGE NUMBERS IN BANACH SPACES AND RELATED RATES OF CONVERGENCE

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*Abstract:* The paper studies asymptotic almost sure and tail behavior of sums $(X_1 + ... + X_n)/n^{1/p},\ 1 \leq p < 2,$ for independent, centered random vectors $X_n,\ n = 1, 2, ...,$ taking values in Banach space $E$. The obtained results are in the spirit of Mazurkiewicz-Zygmund, Hsu-Robbins-Erdös-Spitzer, and Brunk theorems for real random variables and show the essential role played by the geometry of $E$ in the infinite-dimensional case.

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