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SUBGAUSSIAN KAHANE–SALEM–ZYGMUND INEQUALITIES IN BANACH SPACES

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Abstract. We will discuss variants of the celebrated Kahane–Salem–Zygmund inequalities. We will present estimates for exponential Orlicz norms of random variables $\sup_{1\leq j\leq N}\left|\sum_{i=1}^{K} a_i(j)\gamma_i\right|$ where $(a_i(j))_{j=1}^{N}\in \ell_\infty^N$, $1\leq i\leq K$ and (γ_i) forms a sequence of real or complex subgaussian random variables. Lifting these inequalities to finite dimensional Banach spaces, we get new Kahane–Salem–Zygmund type inequalities – in particular, for spaces of subgaussian random polynomials on finite dimensional Banach spaces, and also for subgaussian random Dirichlet polynomials. We use interpolation methods to widen our approach considerably. The talk is based on a joint work with Andreas Defant.

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