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Title: Noncommutative Khintchine-type inequalities and applications

Abstract: In joint work with Uffe Haagerup, we obtain new proofs with improved constants of the Khintchine-type inequality with matrix coefficients in two cases. The first case is the Pisier and Lust-Piquard noncommutative Khintchine inequality for $p=1$, where we obtain the sharp lower bound of $1/\sqrt{2}$ in the complex Gaussian setting. The second case is Junge's recent Khintchine-type inequality for subspaces of the operator space $R+C$ (row and column Hilbert space), which he used to construct a completely bounded embedding of the operator Hilbert space OH into a noncommutative L_1 space. Also in this case, we obtain a sharp lower bound of $1/\sqrt{2}$. As a consequence, it follows that any sub-quotient of $(R+C)^*$ is completely isomorphic to a subspace of the predual of the hyperfinite factor of type III_1 , with cb-isomorphism constant less than or equal to $\sqrt{2}$. In particular, the operator Hilbert space OH has this property.