The Khintchine Inequality and Z_2 Sets of Natural Numbers

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I plan to focus on the functions defined on the unit torus whose Fourier transform are supported on a given subset of integers E. The classical Khintchine Inequality says that, for E being the collection of dyadic integers, the L2 norm of those functions are dominated by \sqrt 2 times of their L1 norm. The collection of the dyadic integers E has a key property (the so-called Z-2 property) that, for any integer c, there is at most one pair of numbers a, b\in E such that a+b=c. This version of Khintchine inequality extends to any set E whose Z-2 constant is finite. In this talk, I will recall some known facts on the Khintchine inequality, Z-2 sets and Lust-Piquard/Pisier's generalization for matrix (operator)valued functions, and try to explain a recent work with Chuah and Liu that says, if the ``L2 norm'' of those functions are dominated by \sqrt 2 times of their L1 norm, then the Z-2 constant of the set E is smaller or equal to 6.