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Title: Combinatorial approach to orthogonal exponentials

Abstract: Abstract: We prove that a convex symmetric body in d dimensions whose boundary has everywhere non-vanishing curvature has only finitely many orthogonal exponentials if d is not congruent to 1 modulo 4. If d is congruent to 1 modulo 4, the number of orthogonal exponentials may be infinite, but they must be contained in a line. The proof is a mixture of Fourier analysis and combinatorial geometry. We also mention some related problems in the theory of orthogonal Fourier bases.