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A Note on Covering by Convex Bodies

Dedicated to Ted Bisztriczky, on his sixtieth birthday.

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Abstract. A classical theorem of Rogers states that for any convex body K in n-dimensional Euclidean space there exists a covering of the space by translates of K with density not exceeding $n \log n + n \log \log n + 5n$. Rogers' theorem does not say anything about the structure of such a covering. We show that for sufficiently large values of n the same bound can be attained by a covering which is the union of $O(\log n)$ translates of a lattice arrangement of K.

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