

Zbl 472.28009

Mauldin, R.Daniel; Erdős, Paul

*Rotations of the circle.* (In English)

Measure theory, Proc. Conf., Oberwolfach 1979, Lect. Notes Math. 794, 53- 56 (1980).

[For the entire collection see Zbl 418.00006.]

The paper is addressed to the following questions: Let  $T$  be the unit circle and suppose  $S_1, S_2$  are subsets such that for each  $i = 1, 2$  there is an infinite subset  $R_i$  of  $R$  so that the sets  $rS_i (r \in R_i)$  are pairwise disjoint. Is it true that  $S_1 \cup S_2$  has inner Lebesgue measure 0? The answer is yes, and two proofs are given. The first proof is a simple application of the amenability of  $T$  as discrete group, and extends to arbitrary locally compact groups which are amenable as discrete groups, and to  $k$  sets  $S_1, S_2, \dots, S_k$  instead of two. The second proof is more elementary and based on a counting argument. Several problems are given which arise from consideration of these proofs.

*W.Moran*

Classification:

28C10 Set functions and measures on topological groups

28D05 Measure-preserving transformations

43A05 Measures on groups, etc.

28A99 Classical measure theory

Keywords:

translation; amenable group; unit circle; inner Lebesgue measure 0