

## Werk

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## Summary

### ON CERTAIN DECOMPOSITION SETS OF THE PLANE

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The paper is concerned with the decompositions  $\mathbf{R}$  of the euclidean plane  $E_2$  into the sets congruent with a given subset  $N$  of the straight line  $l$ , when  $m = \text{card}(l - N) < 2^{\aleph_0}$ . When such a decomposition exists, we say that  $N$  is a decomposition set of  $E_2$ .

Let  $\mathfrak{N}$  be the set of the straight lines, in which elements of  $\mathbf{R}$  are contained. It is proved, that  $\mathfrak{N}$  consists of two subsets  $\mathfrak{N}_1, \mathfrak{N}_2$ , one of which consists of all straight lines parallel to a given direction, the other contains exactly  $m$  straight lines parallel to another direction (theorem 1).

In theorem 2 we prove that the following condition is necessary for  $N$  being a decomposition set of  $E_2$ :

If  $\xi$  is a point of  $l - N$ , there exists a translation  $\tau$  of  $l$  such that  $\tau(l - N) \subset l - N$ ,  $\xi \notin \tau(l - N)$ . In the case  $m = \aleph_0$  this condition is sufficient, but this is not the case for  $m > \aleph_0$ .