MINIMIZING THE NUMBER OF EQUAL SECTOR IN REGULAR COVERING OF THE PLANE[1]

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In regular coverages plane domain is divided into equal regular polygons (tiles), and all the tiles are covered equally with various figures [1-3]. In this paper, as the tiles used an equilateral triangle, and as the figures — identical sectors.

The problem of constructing a regular cover of the plane with the same sectors in which the number of sectors per unit of area coverage is minimal is considered. This problem is close to the problem of constructing the least dense cover (coverage density is the ratio of areas of figures to the area of covered domain) [4-6] but does not coincide with it completely.

Studied various models for optimal coverage of an equilateral triangle with one sector, which depend on the angle of the sector. The results obtained allow to find the optimal number of sectors for the various angular sectors which cover one tile in the case when each sector involved in covering only one tile, and the nodes of sectors covering one tile are at a single point.

Similar results are obtained for coverage using regular tiles in the form of square and a regular hexagon. A comparative analysis of coverage models with different tiles was performed depending on the sector angle. However, recent results are not included in this report.

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