

The median of an abstract cubic tree

In this work, is analyzed the problem of median finding for an abstract cubic tree. Is defined the abstract cubic tree T^3 as a conex cubic complex, non-oriented and acyclic \mathcal{K}^3 , which satisfies the following conditions:

- 1) any k -dimensional cube I^k , $0 \leq k \leq 2$, of the complex \mathcal{K}^3 belongs to at least one 3-dimensional cube from \mathcal{K}^3 ;
- 2) $\forall I^k \in \text{int } \mathcal{K}^3$, $0 \leq k \leq 2$, belongs to at least 2^{3-k} k -dimensional cubes from \mathcal{K}^3 ;
- 3) if 0-dimensional I^0 elements exists in $bd \mathcal{K}^3$ border, such that $st(2)I^0$ contains three 2-dimensional cubes from $bd \mathcal{K}^3$, then $st(2)I^0$ defines 3-dimensional cube from \mathcal{K}^3 .

It is proven that the border of the cubic abstract tree is an abstract sphere \sum_0^2 . The T^3 tree is included in the m -dimensional space cube, where m represents the number of classes of parallel sides of the T^3 . The problem of the median is solved in this m -dimensional space, without using the metrics of the space, and its solution determines the median of the T^3 tree.